

Draft Environmental Impact Report/Environmental Assessment

SCH# 2018061031

Appendices: Volume 2

Appendices A through M

**Camino Solar Project
By Aurora Solar, LLC.**

Conditional Use Permit No. 7, Map No. 216



Kern County
Planning and Natural Resources Department
Bakersfield, California
PP 17125

February 2020

Draft Environmental Impact Report/Environmental Assessment

SCH# 2018061031

Appendices: Volume 2

**Camino Solar Project
By Aurora Solar, LLC.**

Conditional Use Permit No. 7, Map No. 216



Kern County Planning and Natural Resources Department

2700 M Street, Suite 100
Bakersfield, CA 93301-2370
(661) 862-8600
PP 17125

Technical Assistance by:

Environmental Science Associates
626 Wilshire Boulevard, Suite 1100
Los Angeles, CA 90017
(213) 599-4300

February 2020

Appendix A

Initial Study/Notice of Preparation



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**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

NOTICE OF PREPARATION

DATE: June 13, 2018

TO: See Attached Mailing List

FROM: Kern County Planning and
Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

**SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL ASSESSMENT**

The Kern County Planning and Natural Resources Department as the CEQA Lead Agency (per CEQA Guidelines Section 15052) and the U.S. Bureau of Land Management (BLM), as the federal Lead Agency, have determined that the preparation of an Environmental Impact Report (EIR) and an Environmental Assessment (EA) are necessary for the proposed project referenced above. Both agencies will direct the preparation of a joint EIR (per CEQA Guidelines Section 15161) EA (EIR/EA) for the Camino Solar Project proposed by Aurora Solar, LLC (Project Proponent). The EIR/EA will be prepared to comply with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Planning and Natural Resource Department solicits the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR/EA prepared by our agencies when considering you permit or other approval of projects.

Due to the limits mandated by State law, your response must be received by **July 12, 2018 at 5pm**. Your comments can also be submitted at a **scoping meeting** that will be held at the Kern County Planning and Natural Resources Department on Wednesday June 27, 2018 at 1:30pm at the address shown above:

PROJECT TITLE: EIR JKM 03-17; Camino Solar Project, by Aurora Solar, LLC (a subsidiary of Avangrid Renewables); CUP 7, Map 216; (PP17125).

PROJECT LOCATION: The proposed project site is located on both private and publicly owned lands north of Rosamond Blvd at 170th Street West in the unincorporated area of Kern County, on a 339 acre portion of 869 acres, on 10 parcels within the Manzana Wind Energy Project Boundary. The proposed project site is located within Sections 23, 26, 27, 34 and 35, T10N/R15W (M.D.B. & M.) County of Kern, State of CA.

PROJECT DESCRIPTION: The project proponent is requesting (a) a Conditional Use Permit to allow for the construction and operation of a 44 megawatt solar photovoltaic electrical generating facility (Section 19.12.030.G) in an A (Exclusive Agricultural) and OS (Open Space) District. Permanent facilities would include: solar panels; service roads; on-site battery storage systems; communication cables; overhead and underground transmission lines; and electrical switchyards; inverters and transformers; on an approximate 339 acre portion of 869 acres of land. Private lands comprise 94 acres and Bureau of Land Management Public Lands comprise 244 acres of the project. Water for the proposed project is proposed to be trucked from an offsite water purveyor.

Document can be viewed online at: <http://kernplanning.com/notices-of-preparation>

Signature: 
Name: Janice Mayes, Planner

Kings County Planning Agency
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Hanford, CA 93230

Los Angeles Co Reg Planning Dept
320 West Temple Street
Los Angeles, CA 90012

San Bernardino Co Planning Dept
385 North Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

San Luis Obispo Co Planning Dept
Planning and Building
976 Osos Street
San Luis Obispo, CA 93408

Santa Barbara Co Resource Mgt Dept
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Santa Barbara, CA 93101

Tulare County Planning & Dev Dept
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Visalia, CA 93291

Ventura County RMA Planning Div
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Ventura, CA 93009-1740

U.S. Bureau of Land Management
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Ridgecrest, CA 93555

China Lake Naval Weapons Center
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Mail Stop 4001
China Lake, CA 93555

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Palm Springs, CA 92262

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Tehachapi, CA 93561

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Public Utilities Comm Energy Div
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California Regional Water Quality
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Victorville, CA 92392

State Lands Commission
100 Howe Avenue, Ste 100-South
Sacramento, CA 95825-8202

Kern County
Agriculture Department

Kern County Administrative Officer

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept
Brian Marshall, Fire Chief

Kern County Fire Dept
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Kern County Library/Beale
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Kern County Library/Beale
Andie Apple

Kern County Library
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16916 1/2 Highway 14, Space D2
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Kern County Museum
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Supervisor Zack Scrivner
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Kern County Sheriff's Dept
Administration

Kern County Public Works Department/
Building &
Development/Development Review

Kern County Public Works
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Maintenance/Regulatory Monitoring &
Reporting

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Department/
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Quartz Hill, CA 93586-0133

Bruce Palmer
Chairperson
Desert Tortoise Council
4654 East Avenue S #257B
Palmdale, CA 93552

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # _____

Project Title: EIR JKM 03-17; Camino Solar Project by Aurora Solar, LLC (Avangrid Renewables, LLC)

Lead Agency: Kern County Planning Department w/federal Bureau of Land Management Contact Person: Janice Mayes

Mailing Address: 2700 "M" Street Suite 100

Phone: (661) 862-8793

City: Bakersfield

Zip: 93301-2323

County: Kern

Project Location: County: Kern City/Nearest Community: Tehachapi, City of Rosamond and Mojave

Cross Streets: Rosamond Blvd and 170th Street West (nearest)

Zip Code: 92537

Lat. / Long.: 34° 55' 49.65233" N / 118° 26' 39.60078" W

Total Acres: Approx. 339 acre portion of 869 acres

Assessor's Parcel No.: Multiple

Section: 23,26,27,34,35 Twp.: 10N Range: 15W Base: MDBM

Within 2 Miles: State Hwy #: N/A

Waterways: N/A

Airports: N/A

Railways: N/A

Schools: N/A

Document Type:

CEQA: ☒ NOP

☐ Draft EIR

NEPA: ☐ NOI

Other: ☐ Joint Document

☐ Early Cons

☐ Supplement/Subsequent EIR

☐ EA

☐ Final Document

Neg Dec (Prior SCH No.)

☐ Draft EIS

☐ Other

☐ Mit Neg Dec

Other _____

☐ FONSI

Local Action Type:

☐ General Plan Update

☐ Specific Plan

☐ Rezone

☐ Annexation

☐ General Plan Amendment

☐ Master Plan

☐ Prezone

☐ Redevelopment

☐ General Plan Element

☐ Planned Unit Development

☒ Use Permit

☐ Coastal Permit

☐ Community Plan

☐ Site Plan

☐ Land Division (Subdivision, etc.)

☐ Other _____

Development Type:

☐ Residential: Units _____ Acres _____

☐ Water Facilities: Type _____ MGD _____

☐ Office: Sq.ft. _____ Acres _____ Employees _____

☐ Transportation: Type _____

☒ Commercial: Sq.ft. 0 Acres 339 of 869 Employees 200 temp

☐ Mining: Mineral _____

☐ Industrial: Sq.ft. _____ Acres _____ Employees _____

☒ Power: Type Solar MW 44

☐ Educational

☐ Waste Treatment: Type _____ MGD _____

☐ Recreational

☐ Hazardous Waste: Type _____

☐ Other: _____

Project Issues Discussed in Document:

☒ Aesthetic/Visual

☐ Fiscal

☒ Recreation/Parks

☒ Vegetation

☒ Agricultural Land

☒ Flood Plain/Flooding

☐ Schools/Universities

☒ Water Quality

☒ Air Quality

☒ Forest Land/Fire Hazard

☐ Septic Systems

☒ Water Supply/Groundwater

☒ Archeological/Historical

☒ Geologic/Seismic

☐ Sewer Capacity

☒ Wetland/Riparian

☒ Biological Resources

☒ Minerals

☒ Soil Erosion/Compaction/Grading

☒ Wildlife

☐ Coastal Zone

☒ Noise

☒ Solid Waste

☐ Growth Inducing

☒ Drainage/Absorption

☒ Population/Housing Balance

☒ Toxic/Hazardous

☒ Land Use

☐ Economic/Jobs

☒ Public Services/Facilities

☒ Traffic/Circulation

☒ Cumulative Effects

☐ Other _____

Present Land Use/Zoning/General Plan Designation:

Undeveloped Land, Wind Energy Turbines, grazing land. Zoning: A (Exclusive Agriculture) and OS (Open Space); Kern County General Plan: 1.1 (State and Federal Lands); 2.1 (Geological Hazard); 8.3 (Exclusive Agriculture); 8.5 (Resource Management)

Project Description: (please use a separate page if necessary) The project proponent is requesting (a) a Conditional Use Permit to allow for the construction and operation of a 44 megawatt solar photovoltaic electrical generating facility (Section 19.12.030.G) in an A (Exclusive Agricultural) and OS (Open Space) District. Permanent facilities would include: solar panels; service roads; on-site battery storage system; communication cables; overhead and underground transmission lines; and electrical switchyards; inverters and transformers; on an approximate 339 acre portion of 869 acres of land. Private lands comprise 94 acres and Bureau of Land Management Public Lands comprise 244 acres of the project. Water for the proposed project is proposed to be trucked from an offsite water purveyor.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".

If you have already sent your document to the agency please denote that with an "S".

<input checked="" type="checkbox"/> S Air Resources Board	<input type="checkbox"/> Office of Emergency Services
<input type="checkbox"/> Boating & Waterways, Department of	<input type="checkbox"/> Office of Historic Preservation
<input checked="" type="checkbox"/> S California Highway Patrol	<input type="checkbox"/> Office of Public School Construction
<input type="checkbox"/> CalFire	<input type="checkbox"/> Parks & Recreation
<input checked="" type="checkbox"/> S Caltrans District # 6 & 9	<input type="checkbox"/> Pesticide Regulation, Department of
<input type="checkbox"/> Caltrans Division of Aeronautics	<input checked="" type="checkbox"/> S Public Utilities Commission
<input type="checkbox"/> Caltrans Planning (Headquarters)	<input checked="" type="checkbox"/> S Regional WQCB # <u>Lahontan</u>
<input type="checkbox"/> Central Valley Flood Protection Board	<input type="checkbox"/> Resources Agency
<input type="checkbox"/> Coachella Valley Mountains Conservancy	<input type="checkbox"/> S.F. Bay Conservation & Development Commission
<input type="checkbox"/> Coastal Commission	<input type="checkbox"/> San Gabriel & Lower L.A. Rivers and Mtns Conservancy
<input type="checkbox"/> Colorado River Board	<input type="checkbox"/> San Joaquin River Conservancy
<input checked="" type="checkbox"/> S Conservation, Department of	<input type="checkbox"/> Santa Monica Mountains Conservancy
<input type="checkbox"/> Corrections, Department of	<input checked="" type="checkbox"/> S State Lands Commission
<input type="checkbox"/> Delta Protection Commission	<input type="checkbox"/> SWRCB: Clean Water Grants
<input type="checkbox"/> Education, Department of	<input type="checkbox"/> SWRCB: Water Quality
<input checked="" type="checkbox"/> S Energy Commission	<input type="checkbox"/> SWRCB: Water Rights
<input checked="" type="checkbox"/> S Fish & Game Region # <u>Fresno</u>	<input type="checkbox"/> Tahoe Regional Planning Agency
<input checked="" type="checkbox"/> S Food & Agriculture, Department of	<input type="checkbox"/> Toxic Substances Control, Department of
<input type="checkbox"/> General Services, Department of	<input type="checkbox"/> Water Resources, Department of
<input type="checkbox"/> Health Services, Department of	<input type="checkbox"/> Other _____
<input type="checkbox"/> Housing & Community Development	<input type="checkbox"/> Other _____
<input checked="" type="checkbox"/> S Integrated Waste Management Board	
<input checked="" type="checkbox"/> S Native American Heritage Commission	

Local Public Review Period (to be filled in by lead agency)

Starting Date June 13, 2018 Ending Date July 12, 2018

Lead Agency (Complete if applicable):

Consulting Firm: Kern County Planning & Natural Resources Dept Applicant: Aurora Solar, LLC Attn: Scott Kringen
Address: 2700 M Street, Suite 100 Address: 1125 NW Couch, Suite 700
City/State/Zip: Bakersfield, CA 93301 City/State/Zip: Portland, OR 97209
Contact: Janice Mayes Phone: 503-478-6317
Phone: 661-862-8793

Signature of Lead Agency Representative:  Date: 6/13/18

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resource Code

INITIAL STUDY/NOTICE OF PREPARATION

Camino Solar Project

By Aurora Solar, LLC. (a subsidiary of Avangrid Renewables)

Conditional Use Permit 7, Map 216

(PP17125)

CEQA LEAD AGENCY:



Kern County Planning and Natural Resources Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370

with federal Bureau of Land Management

Contact: Ms. Janice Mayes
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June 2018



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1. Project Description

1.1 Project Location

The proposed Camino Solar Project (proposed project) would develop a photovoltaic (PV) solar facility and associated infrastructure necessary to generate 44 megawatts (MW) of renewable electrical energy and gen-tie lines on 339 acres. The proposed solar facility is located within the approved 189 MW Manzana Wind Power Project area, operated by Manzana Wind, LLC, which, like Aurora Solar, LLC, is also a subsidiary of Avangrid Renewables, LLC. Interconnection to the grid would be through the use of existing interconnection agreements and facilities from the adjacent Manzana and/or Pacific Wind Project site.

The project site is located within Sections 23, 26, 27, 34 and 35 Township 10 North, Range 15 West. The project site is approximately 15 miles west of California State Highway 14 (Antelope Valley Freeway), 12.5 miles south of California State Highway 58 (Blue State Memorial Highway), and 8 miles north of State Route 138 (West Avenue D). The nearest populated areas are the unincorporated community of Mojave 17 miles to the northeast, the unincorporated community of Rosamond 16 miles southeast, and the City of Tehachapi 12 miles to the north. The Rosamond Airport and Airpark are located approximately 13 miles southeast of the project site. The entire site consists of 10 parcels; the Assessor Parcel Numbers (APNs) are summarized in **Table 1, Project Assessor Parcel Numbers (APNs)**. **Figure 1, Project Location Map** shows the regional location of the proposed project.

Table 1. Project Assessor Parcel Numbers (APNs)						
Assessor Parcel No.	Public/Private Ownership	Zoning	Designation	Zone Map	Parcel Size (Approx. Acres)	Project Site Acres
476-061-09	Public (BLM)	OS	1.1 State or Federal Land	216	359.3	244.4/0
476-052-09	Private	A WE	8.3 Extensive Agriculture	216	324.9	51.8/0
476-110-03	Private	A WE	8.5 Resource Management	216	45.9	16.3/8.2
476-110-04	Private	A WE	8.5 Resource Management	216	45.3	4.9/2.2
476-062-04	Private	A	8.3 Extensive Agriculture	216	22.4	0/0.5
476-110-14	Private	A and A GH WE	8.3 Extensive Agriculture/2.1 (Seismic Hazard)	216	23.6	0/4.7
476-110-16	Private	A GH WE	8.3 Extensive Agriculture/2.1 (Seismic Hazard)	216	20.5	0/1.6
476-110-19	Private	A GH WE	8.3 Extensive Agriculture/2.1 (Seismic Hazard)	216	20.6	0/2.0
476-130-11	Private	A WE	8.3 Extensive Agriculture	216	4.1	0/2.0
476-130-02	Private	A	8.3 Extensive Agriculture	216	2.5	0/0.4
Totals					869.1	339



KERN COUNTY PLANNING AND NATURAL RESOURCES DEPARTMENT
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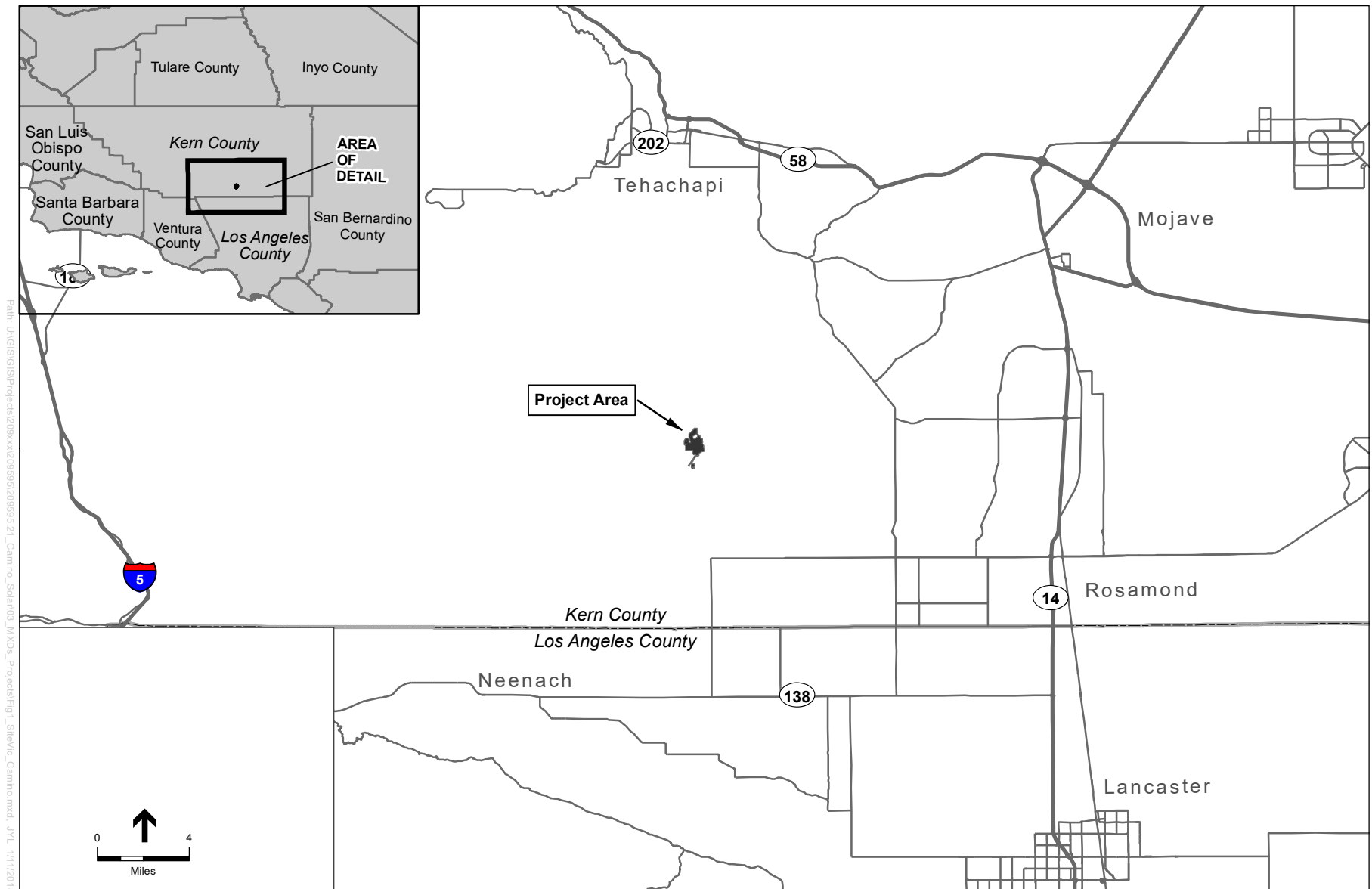


Figure 1: SITE VICINITY

1.2 Environmental Setting

The proposed project site is located on a 339 acres portion of approximately 869 acres of undeveloped privately-owned and public lands, including 317 acres for the main project area, and 22 acres for the underground collector line. The proposed project is located within the central-eastern portion of the 189 MW Manzana Wind power Project, which began operations in 2012, which, like Aurora Solar, LLC is a wholly-owned subsidiary of Avangrid Renewables, LLC (formerly known as Iberdrola Renewables, LLC). There are clusters of residences in the vicinity of the southwest portions of the proposed project site. The proposed project would be visible from these residences located outside of the proposed project site.

The proposed project is located in a sparsely populated area of the western Mojave Desert with a relatively low density of sensitive plant and animal species. The primary land use of the surrounding area is for renewable wind energy production, recreational off-road vehicle use, hiking and dry land grazing. There is limited grazing of sheep and cattle near the project but actively cultivated crops are not part of the site. There are not any existing structures on the project site. Soil survey maps, compiled by the Natural Resources Conservation Service of the U.S. Department of Agriculture, cite that soils are mapped as Hanford sandy gravelly loam. These soils are generally described as coarse grained soils that are well drained and the fines are typically non-plastic. These types of soils do not exhibit shrink-swell patterns and are not considered expansive soils.

The proposed project site is located within the boundaries of the BLM's adopted California Desert Conservation Area Plan (CDCA) and the California Desert Renewable Energy Conservation Plan (DRECP). The vegetation communities at the project site are largely dominated by non-native species, limiting the potential habitat quality for native plants and wildlife. Portions of the proposed project site are dominated by native plants that include Joshua Tree Woodlands, Mojave Desert Wash Scrub, Mojavean Juniper Woodland and Scrub, and Non-native Grassland, as classified according to the *Manual of California Vegetation*, online edition.

The nearest officially designated State scenic highway is the Angeles Crest Highway (SR 2), located approximately 46 miles south of the proposed project site. The proposed project site is not visible from SR 2, and due to its lack of visibility from the nearest state scenic highway, construction of the proposed project and its implementation is not expected to have an impact on scenic resources within a state scenic highway. The Pacific Crest Trail, which is designated as a National Scenic Trail, is located one mile west of the western border of the proposed project site and northwest and north of the northern border of the proposed project site. Visitors to this trail may be negatively affected by the visibility of the solar panels and other infrastructure present on the proposed project site.

The proposed project site is located within Flood Zone X as designated by the Flood Insurance Rate Map (FIRM) (06029C3625E) as issued by the Federal Emergency Management Agency (FEMA). Flood Zone X is an identified area determined to be outside the 500-year floodplain and classified as being within the 1% and 0.2% annual chance of flooding. State-designated Alquist-Priolo Earthquake Fault Zones have not been identified on the proposed project site; however, the area is considered to be seismically active with the nearest active fault being Cottonwood Fault, which runs northwest to southeast near the southern edge of the site. The project area historically receives an annual precipitation (rainfall) average of 6.7 inches per year. **Table 2, Average High and Low Temperature by Month-Mojave**, below, shows the average high and low temperatures in Mojave by month.

Table 2: Average High and Low Temperature by Month – Mojave												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Avg. High	57	60	66	71	80	89	96	96	88	78	65	56
Avg. Low	33	37	41	46	56	64	70	67	61	50	40	33
U.S. Climate Data 2017												

Potentially jurisdictional waters have been delineated at the site for mapped linear drainage features. All drainage features were assumed to be the jurisdiction waters of both the California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board. However, all four drainage features found at the site are ephemeral streams that convey water only intermittently. Wetlands or riparian areas were not observed that would extend CDFW’s jurisdiction beyond the limits of the streambeds and banks. The U.S. Army Corps of Engineers has previously determined that the entire Antelope Valley watershed, excluding Lake Palmdale and its tributaries are not subject to its jurisdiction. The proposed project has been designed to avoid all of the potentially jurisdictional waters present.

The proposed project site is not located within an area that is designated by the California Department of Conservation (CDC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Lands within the proposed project boundary or in the vicinity are not subject to a Williamson Act Land Use contract.

The proposed project would be served by the Kern County Sheriff’s Office for law enforcement and public safety. The closest Sheriff station is the Rosamond Substation, located approximately 17 miles southeast from the proposed project site, at 1379 Sierra Hwy in the City of Rosamond. The Kern County Fire Department (KCFD) provides fire protection and emergency medical and rescue services for the proposed project area. The closest KCFD fire station is Station #15, located approximately 14 miles southeast of the proposed project site at 2980 Desert Street in the community of Rosamond. The closest school to the proposed project site is Tropico Middle School, located approximately 13 miles southeast of the proposed project site in the community of Rosamond.

The proposed project site is not located within the boundaries of an Airport Influence Area as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP).

The proposed project site is located within the boundaries of the Kern County Specific Plan, and parcels are designated 1.1 (State or Federal Land); 8.3 (Extensive Agriculture); 8.5 (Resource Management); and 2.1 (Seismic Hazard) and are located within the OS (Open Space); A WE (Exclusive Agriculture, Wind Energy); A GH WE (Exclusive Agriculture, Geological Hazard, Wind Energy); and A (Exclusive Agriculture) Zone Districts. The existing land use designations are listed in **Table 3, Proposed Project Site and Surrounding Land Uses**, below and depicted in **Figure 2, Existing Kern County General Plan Designations**. The entire proposed project site is also subject to the provisions of the Kern County Zoning Ordinance and is zoned as specified in **Table 1, Project Assessor Parcel Numbers (APNs)**, above and depicted in **Figure 3, Existing Kern County Zoning Classifications**, below.



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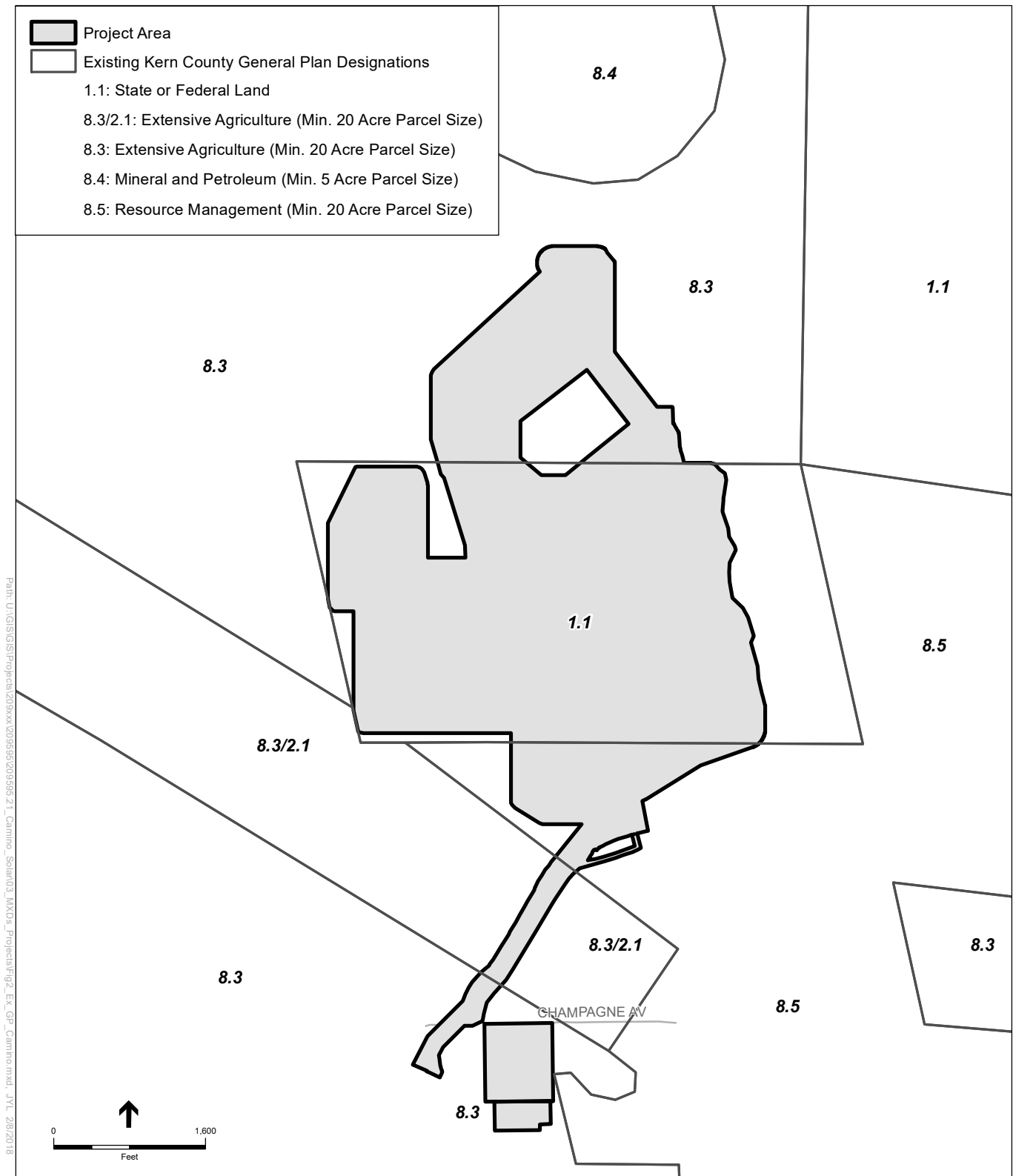


Figure 2: EXISTING KERN COUNTY
GENERAL PLAN DESIGNATIONS



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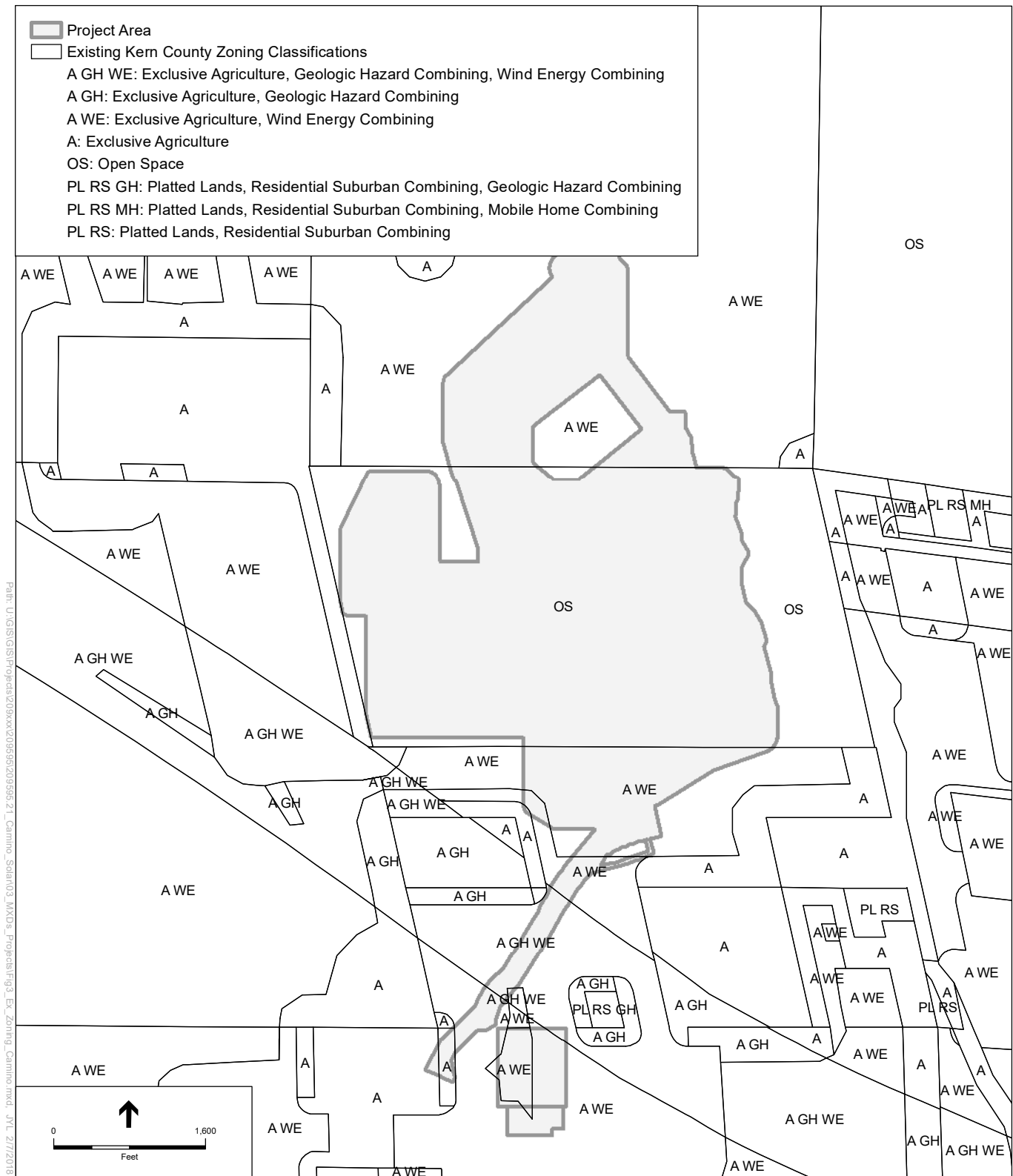


Figure 3: EXISTING KERN COUNTY
ZONING CLASSIFICATIONS

Table 3. Proposed Project Site and Surrounding Land Uses			
	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
Project Site	Undeveloped and Manzana Wind Energy Windmills	1.1 (State or Federal Land); 8.3 (Extensive Agriculture); 8.5 (Resource Management); and 2.1 (Seismic Hazard)	A WE (Exclusive Agriculture, Wind Energy); A GH WE (Exclusive Agriculture, Geological Hazard, Wind Energy); and A (Exclusive Agriculture)
North	Undeveloped and Manzana Wind Energy Windmills	1.1 (State or Federal Land); 8.3 (Extensive Agriculture)	A (Exclusive Agriculture); A WE (Exclusive Agriculture, Wind Energy); and OS (Open Space)
South	Undeveloped and Manzana Wind Energy Windmills	8.3 (Extensive Agriculture); 8.5 (Resource Management); and 2.1 (Seismic Hazard)	A GH (Geological Hazard); A GH WE (Exclusive Agriculture, Geological Hazard, Wind Energy); PL RS (Platted Lands, Residential Suburban Combining); and A (Exclusive Agriculture)
East	Undeveloped and Manzana Wind Energy Windmills	8.3 (Extensive Agriculture); 8.5 (Resource Management);	A WE (Exclusive Agriculture, Wind Energy); and PL RS MH (Platted Lands, Residential Suburban, Mobilehome Combining)
West	Undeveloped and Manzana Wind Energy Windmills	8.3 (Extensive Agriculture); and 2.1 (Seismic Hazard)	A GH WE (Exclusive Agriculture, Geological Hazard, Wind Energy); and A WE (Exclusive Agriculture, Wind Energy);

1.3 Project Description

The proposed project would develop a PV solar facility and associated infrastructure necessary to generate a 44 MW of renewable electrical energy and/or energy storage capacity on approximately 339 acres of privately and publicly owned land in southeastern Kern County. As shown in **Table 2** (above), the proposed project site consists of 10 parcels. The proposed project would interconnect to an existing electrical distribution line that connects to the existing Manzana substation, located approximately 0.75 mile south of the site. System upgrades are not proposed to the Manzana substation, Manzana gen-tie transmission line, or the Whirlwind substation would be required for the proposed project.

The proposed project would consist of approximately 180,000 solar panels arranged in a grid-pattern over the proposed project site. Power generated by the proposed project would be transferred to the Manzana substation through a new underground 34.5 kV collector line and then transferred to the Whirlwind substation using the existing Manzana Wind 230 kV Gen-tie line. The proposed solar facilities are intended to operate year-round, and would generate electricity during daylight hours when electricity demand is at its peak.

The combined proposed project facilities would cover approximately 339 acres and would include the following components:

- Installation of up to a combined 44 MW of solar high-efficiency PV modules, covered by glass, and mounted on galvanized metal poles embedded into the ground and connected to single axis tracking systems;
- Single axis tracking system consisting of drive motors, drive arms, and hydraulic systems that allow for rotation of solar panels from east to west, tracking the sun's position over the course of the day;
- Underground voltage collection systems throughout the proposed project; including an underground 34.5 kV Gen-tie line south to the Manzanita Wind Substation;
- Medium voltage inverters and step-up transformers;
- Onsite access roads
- Site security would consist of 6-foot high chain link fence, with 1 foot of three-strand smooth wire at the top, installed around the perimeter of the facility. Security cameras may also be installed at the site and monitored at an off-site location.
- Concrete pads sized and installed to accommodate the associated equipment (inverters, transformers, etc.)
- Battery Energy Storage
- One onsite underground electrical generation tie line (34.5 kV) from the proposed project transformer(s) to the existing Manzanita Wind Substation.

THE EIR/EA PROCESS

The proposed project is located on land administered by Kern County and the federal Bureau of Land Management (BLM). The project proponent requires various authorizations and permits from Kern County and the BLM to construct and operate the proposed project. In order to consider issuance of these authorizations and permits, and based on the proposed project's potential environmental impacts, Kern County and BLM will prepare a joint Environmental Information Report/Environmental Assessment (EIR/EA). The County will prepare the EIR pursuant to CEQA requirements and the BLM will prepare an EA pursuant to the requirements of the federal land policy and management act (FLPMA) and NEPA. Based on these requirements, the joint EIR/EA will be prepared under the direction of both agencies to satisfy the permitting and decision-making requirements of each agency prior to project approval. CEQA and NEPA also require that the EIR/EA development process include public notice of the proposed project to address concerns that the public has identified regarding the proposed project during a process referred to as public scoping. The issuance of this NOP/Initial Study (IS) commences the EIR scoping process pursuant to CEQA requirements.

The analysis of the proposed project will result in the publication of a draft EIR/EA and a final EIR/EA. A comment period of a minimum of 45 days will be allocated for the review of the draft EIR/EA. A notice of availability of the draft EIR/EA will be sent to the State Clearinghouse by Kern County and BLM will publish a separate notice for the EA pursuant to NEPA requirements. Kern County and the BLM will consider all comments on the draft EIR/EA and the document will be revised to address comments, with the assistance of a County Consultant, before a final EIR/EA is issued. The final EIR/EA will include responses to the comments received on the draft EIR/EA.



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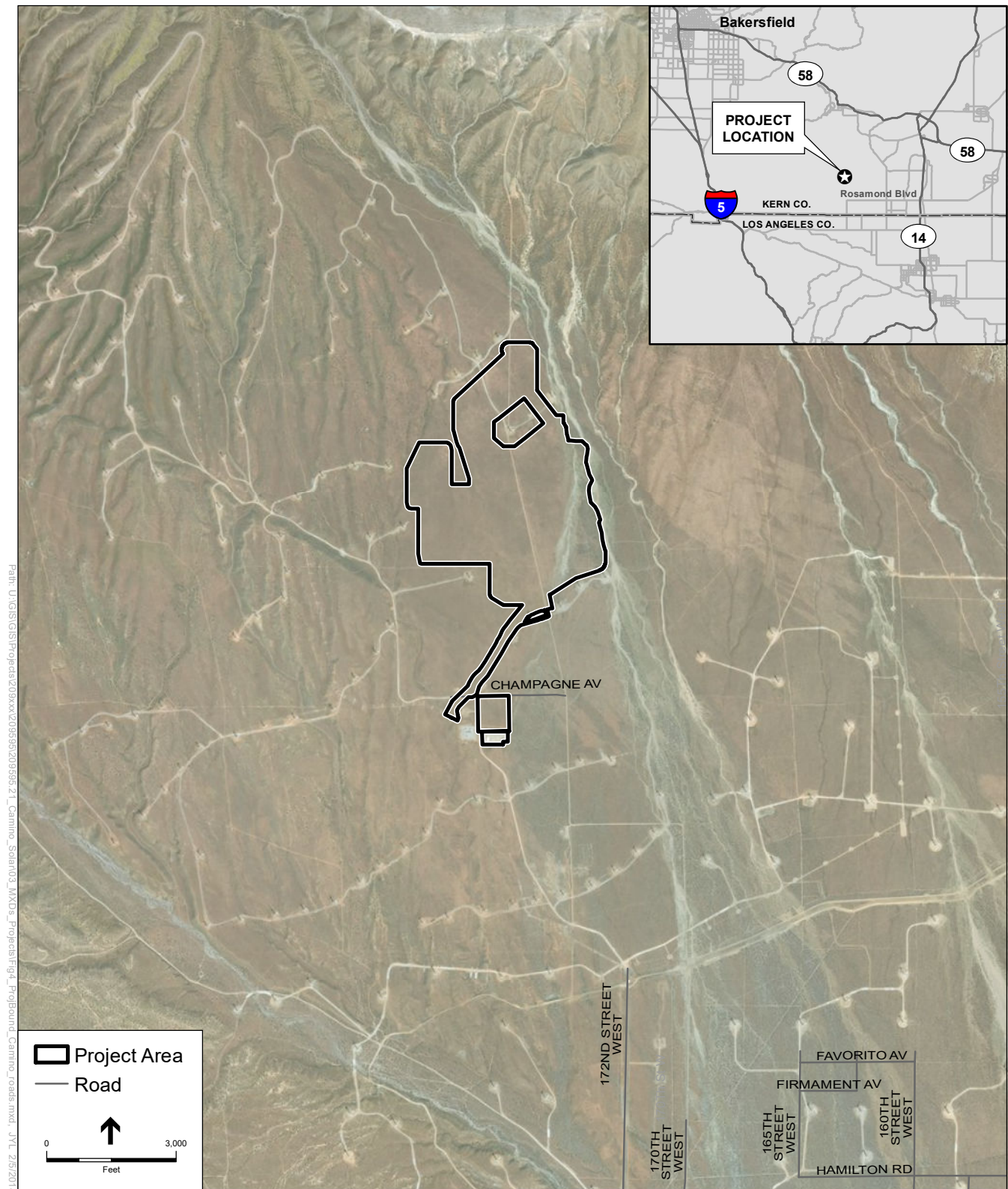


Figure 4: PROJECT BOUNDARY

Project Facilities

Solar PV Panels

Solar energy would be captured by PV panels, of which an estimated 180,000 individual panels would be installed onsite. The layout of the solar panels would be arranged in rows on a central single-axis tracking system that adjusts tilt and solar collection. As the solar modules tilt throughout the day, the height of their top edges would shift accordingly between 4 and 7 feet in height.

Solar Trackers

A solar tracking mechanism is used to maximize the solar energy conversion efficiency by keeping the modules perpendicular to the sun's energy rays throughout the day. This completed assembly of PV modules mounted on a framework structure is called a "tracker" as it tracks the sun from east to west.

The central axis of the tracking structure would be oriented north to south and would rotate the PV modules east to west to limit self-shading between rows. Module layout and spacing is optimized to balance energy production versus peak capacity and would depend on the sun angles and shading caused by the horizon surrounding the proposed project site. The rows of PV modules would be arranged in arrays depending on site conditions but would typically be made up of 30 rows with 88 PV modules in each row. The spacing between the rows of trackers is dependent on site-specific features and would be identified in the final design. The final configuration would allow for sufficient clearance for maintenance vehicles and panel access.

Electrical Collector System and Inverters

The AC-DC electrical collection system includes all cables and combiners that collect electricity from the panels, delivers it to the inverters, collects it from the inverters, and ultimately delivers it to the project switching station(s) via a step-up transformer that would increase the output voltage from the inverter 315 Volts to the desired substation feed voltage 34.5 kV. Inner DC cables would be buried in trenches about 36 inches deep and medium voltage cables would be buried in trenches about 48 inches deep. A buried 34.5 kV collector line would run between transformers associated with each array. The inverter and transformer for each array would be installed on a shared concrete pad. All transformers would use only non-polychlorinated biphenyl (non-PCB) oils.

Energy Storage System

The proposed project includes the use of on-site battery storage located on a 13 acres portion of the 94 acres of private land parcels.

Generation-Tie Line and Interconnection to the Statewide Grid

The proposed project would use the existing transmission lines, substation, and site access roads on private land associated with the Manzana Wind Power Project. A new underground 34.5 kV collector line would be constructed on private land between the Camino Solar site and the Manzana substation. From the Manzana substation, energy would be transferred to the Whirlwind Substation using the existing Manzana Wind 230 kV generation tie line.

System upgrades are not proposed or required to the Manzana substation, Manzana gen-tie transmission line, or the Whirlwind substation as part of this project.

Operation and Maintenance Facilities

The proposed project would not include O&M buildings. The proposed project would share the existing facilities that support the operations of the existing Manzana and/or Pacific Wind Projects.

Onsite Meteorological Station

The proposed project would not include an onsite solar meteorological station.

Onsite Telecommunications Towers

The project would not include any onsite telecommunication or microwave towers.

Site Access and Security

During operation, the proposed project would use the existing access roads on private land associated with the adjacent wind projects to access the site. The primary access route to the proposed project would be from State Route 14 by way of Rosamond Boulevard from the east and then following 170th Street West, northward from the intersection with Rosamond Boulevard to reach access roads previously entitled for the Manzana, Pacific Wind, and Catalina projects. Within the proposed project area, perimeter access roads would be constructed around each solar field. These permanent access roads would be about 20 feet wide and provide access to each inverter in a north-south direction. All road improvements would be completed per Caltrans and/or County code and regulations. All new roads within the site would avoid streambed crossings. Final access road alignments would depend upon the final placement of the solar arrays and site conditions. The proposed project area is crossed by an existing unimproved road that provides north-south access to a residence and a calcite mine located on private land north of the project. The project proponent would maintain this access by constructing a new road around the eastern edge of the proposed project boundary. The rerouted road would be constructed to match the width and surface type of the existing road.

Chain-link security fencing would be installed around the site perimeter and other areas requiring controlled access, in order to restrict public access during construction and operations. The security fence would be approximately 6 feet high, topped with approximately 1 foot of three-strand smooth wire mounted on 45 degree extension arms. The fence posts would be set in concrete. Additional security may be provided through the use security cameras installed at the site and monitored at an off-site location. Controlled access gates would be located at the entrances to the facility. Site access gates would be a wing or rolling type. Access through the main gate would be controlled to prevent unaccompanied visitors from accessing the facility. All facility personnel, contractors, agency personnel, and visitors would be logged in and out of the facility at the main office during normal business hours.

Construction Activities

The construction activities for the proposed project are not proposed to be phased and fall into three main categories: (1) site preparation, including surveying staking and installation of erosion control measures, road construction, geotechnical studies, and site grading; (2) system installation, including trenching and installation of underground electrical system in solar field assembling array foundations and installing solar array fields and constructing the collector line between the solar field and the Manzana substation; and (3) testing commissioning and cleanup, including restoring temporarily disturbed areas in accordance with the approved revegetation plan. The entire process is estimated to take up to approximately 6 months. Site grading and earthwork is anticipated to begin during the second quarter of 2019, with operations beginning in the first quarter of 2020.

Construction Workers, Hours

Construction would primarily occur during daylight hours, Monday through Friday or Saturday, between 7:00 a.m. and 10:00 p.m., for the duration of construction. Additional hours may be necessary to facilitate any deficiencies in the schedule or to complete critical construction activities. Any construction work performed outside of the normal work schedule would be coordinated with the appropriate agencies and would conform to the Kern County Noise Ordinance (Chapter 8.36).

The onsite construction workforce for the proposed project is expected reach a peak of up to 200 individuals, consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel, with a daily average of 100 workers. It is anticipated that the construction workforce would commute to the site each day from local communities. Construction staff not drawn from the local labor pool would stay in local hotels in Inyokern, Ridgecrest, or other local communities. During construction, workers would park in the staging area at the existing Manzana operations and maintenance yard.

Site Grading and Earthwork

Beginning work on the proposed project would involve preparing the land for installation of arrays, energy storage facility, related infrastructure, access roads. Prior to initial construction mobilization, preconstruction surveys would be performed and sediment and erosion controls would be installed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). Stabilized construction entrances and exits would be installed at driveways to mitigate tracking of sediment onto adjacent public roadways.

Site preparation would involve the removal and proper disposal or possible relocation of existing vegetation and debris that would unduly interfere with project construction or the health and safety of onsite personnel. Dust minimizing techniques would be employed, such as maintaining natural vegetation where possible, application of water, and application of dust suppressants. Conventional grading would be minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Soil movement from grading would be balanced on the site, and it is anticipated that no import or export of soils would occur.

Trenching would be required for placement of underground electrical lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment and water trucks. After preparation of the site, the pads for structures, equipment enclosures and equipment vaults would be prepared per geotechnical engineer recommendations.

Solar Array Assembly

Erection of the solar arrays would include support structures and associated electrical equipment. First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles are typically spaced approximately 10-20 feet apart. Once the piles have been installed, the horizontal array support structures would be installed. The final design of the horizontal array support structures may vary, depending on the final selection of the PV technology. Once the support structures are installed, workers would begin to install the solar PV modules. Solar array assembly and installation would require trenching machines and excavators, compactors, concrete trucks and pumpers, vibrators, forklifts, boom trucks, graders, pile drivers, drilling machines, and cranes.

Concrete may be required for portions of the footings, and pads for the medium voltage transformers, inverters. Concrete may also be required for pile foundation support depending on the proposed mounting system chosen for installation and whether or not obstructions are encountered when trying to drive piles. Final concrete specifications would be determined during detailed design engineering. Concrete would be purchased from an offsite supplier and trucked to the project site.

During this work, there would be multiple crews working on the site with vehicles, including special vehicles for transporting the modules and other equipment. As the solar arrays are installed, the solar switchyard would be constructed and the electrical collection systems would be installed. Within the solar fields, the electrical wiring would be installed in underground trenches. Collection trenches would likely be mechanically excavated.

The electrical wiring would connect to the appropriate electrical terminations and the circuits would be checked and electrical service would be verified. Additionally, if a tracker system is utilized, the motors would be checked and control logic verified. Once all of the individual systems have been tested, the overall proposed project would be ready for testing under fully integrated conditions.

Electrical Interconnection to Transmission Owner Infrastructure

The proposed project would connect to the adjacent Manzana and/or Pacific Wind Projects, as there is sufficient capacity within both interconnection agreements to accommodate the proposed project.

Construction Water Use

Initial construction water usage would be in support of site preparation and grading activities. During earthwork for grading of access road foundations, equipment pads and project components, the main use of water would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for foundations and other minor uses. Subsequent to the earthwork activities, water usage would be used for dust suppression and normal construction water requirements that are associated with construction of the building, internal access roads, and solar arrays. Approximate water use during the 6-month construction period is estimated at 200 acre-feet. Water will be provided from wells on lands within the Manzana Wind Power Project site or delivery by tanker truck. During construction potable water would be supplied to workers from the existing Manzana O&M building.

Operations Water Use

Aurora Solar, LLC is currently negotiating to obtain water for operations from property about 1.7 miles south of the proposed project site. It is estimated that operational water use would be 0.27 acre feet of water annually. Other water sources would be from wells on lands within the Manzana Wind Power Project site or delivery by tanker truck.

Project Operation and Maintenance

The proposed project would include maintenance personnel that are expected to visit the proposed project site several times per year for routine maintenance; the PV modules may be cleaned up to nine times per year, but will be cleaned only on an as-needed basis, depending on site events and soiling rates. Proposed project traffic volumes are expected to be minimal during facility operations.

The PV panel surfaces may be washed seasonally to increase the average optical transmittance of the flat panel surface. Panel washing is expected to be completed up to nine times per year for a total of .27 acre-foot of water per year. Water used for panel cleaning is not anticipated to require disposal due to the extremely high evaporation rate at the site.

Long-term operational water demand is proposed to be supplied from an existing well on the California Portland Cement Company property about 1.7 miles south from the proposed project. Other water sources may also be used including water delivery by tanker truck, or development of wells on nearby private lands within the Manzana Wind Power Project.

The facility's regular maintenance program would be largely conducted onsite during daytime hours as a safety precaution. Equipment repairs would typically take place in the early morning or evening when the plant is producing the least amount of energy. Key program elements include:

- Responding to plant failures and emergencies in a timely manner;
- Creating an optimized cleaning schedule to be more responsive to location and type of installation;
- Maintaining an inventory of spare parts to facilitate timely repairs to maintain plant output; and
- Maintenance of ground cover under solar panels to a maximum height of 6 inches.

Prudent security measures would be taken to ensure the safety of the public and facility. The proposed project would be fenced along all borders with locking gates at the specified points of ingress and egress. As proposed, the fence is anticipated to be 7 feet high, including 6 feet of fencing and 1 foot of three-strand smooth wire at the top.

The project site would produce a small amount of waste associated with maintenance activities. PV solar system wastes typically include broken and rusted metal, defective or malfunctioning modules, electrical materials, and empty containers and other miscellaneous solid materials, including typical household refuse generated by workers. These materials would be collected and delivered back to the manufacturer for recycling. Trash would be disposed of by a local waste hauler service.

Project Decommissioning

The project proponent expects to sell the renewable energy produced by the project under the terms of a long-term Power Purchase Agreement (PPA) or directly into the wholesale market. The life of the solar facility is anticipated to be up to 30 years; however, the project proponent may, at its discretion, choose to extend the life of the facility, update technology and re-commission, or decommission and remove the system and its components. If and when a decommissioning event occurs, the solar site could then be converted to other uses in accordance with applicable land use regulations in effect at that time.

It is anticipated that during decommissioning, project structures would be removed from the site. Above-ground equipment that would be removed would include module posts and support structures, onsite transmission poles that are not shared with third parties and the overhead collection system within the proposed project site, inverters, transformers, electrical wiring, equipment on the inverter pads, and related equipment and concrete pads. Underground equipment will also be removed upon decommissioning and lands will be restored to their approximated contour prior to project construction. Proposed project roads would be restored to their pre-construction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The area would be thoroughly cleaned and all debris removed. As discussed above, most materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws.

A collection and recycling program would be executed to promote recycling of project components and minimize disposal of project components in landfills. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, State, and County regulations.

Relationship of the Proposed Project to Other Solar Projects

The proposed project is being developed independently of other approved or proposed solar projects in the County. If approved, the Camino Solar Project facilities, would be subject to their own use permits, conditions of approval, interconnection agreements, and power purchase agreements. The County understands that the Camino Solar Project facilities would be built and operated independently of any other solar project, and, if approved, would not depend on any other solar project for economic viability. The proposed project will involve constructing a new gen-tie line to deliver energy to the Whirlwind Substation. Aurora solar, through its affiliation with Avangrid Renewables, maintains an existing interconnection agreement for the Whirlwind Substation, which would be used for the proposed project.

1.4 Project Objectives

The project proponent has defined the following objectives for the proposed project:

- Provide a new source of renewable energy to assist the State of California in Achieving the RPS for 2020;
- Generate approximately 44 MW of electricity at a cost that is competitive on the renewal market;

- Locate the proposed project in Kern County on private and federal BLM Lands near an existing electric distribution system;
- Minimize the potential impact on the environment by:
 - Maximize the use of existing infrastructure (transmission lines and roads);
 - Minimize the potential impacts on threatened and endangered species; and
 - Reduce the emission of greenhouse gases from the generation of electricity.

1.5 Proposed Discretionary Actions/Required Approvals

The Kern County Planning and Natural Resources Department as the Lead Agency (per CEQA Guidelines Section 15052) and the U.S. Bureau of Land Management (BLM), as the federal Lead Agency (NEPA) for the proposed project, has discretionary responsibility for the Camino Solar Project. The proposed project is owned by Aurora Solar, LLC (Avangrid Renewables). To implement this project, the project proponent may need to obtain the following discretionary and ministerial permits/approvals:

Federal

- Bureau of Land Management (BLM)
 - Approval of all Conditions and Mitigation Measures applied to the project.
- U.S. Fish and Wildlife Service (USFWS)

State

- California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board – Lahontan (RWQCB)
- State Water Resources Control Board (SWRCB)
- California Public Utilities Commission (CPUC)
- California Department of Transportation (Caltrans)

Local

Kern County Board of Supervisors/Kern County Planning Commission

- Certification of Final Environmental Impact Report (EIR)
- Adoption of Mitigation Monitoring Program
- Adoption of 15091 and 15093 Findings and Statement of Overriding Considerations
- Approval of Kern County Conditional Use Permit 7, Map 216

Kern County Planning and Natural Resources Department

- Approval of all Conditions and Mitigation Measures applied to the proposed project.

Kern County Public Works – Building and Development – Roads, Flood Plain & Survey

- Approval of Kern County Grading Permits
- Approval of Kern County Building Permits

- Approval of Kern County Access Road Design and Encroachment Permits

Kern County Fire Department

- Fire Safety Plan

Eastern Kern Air Pollution Control District (EKAPCD)

- Fugitive Dust Control Plan
- Any other permits as required

The preceding are potentially required and do not necessarily represent a comprehensive list of all possible discretionary permits/approval required. Other additional permits or approvals from responsible agencies may be required for the proposed project.

2. Kern County Environmental Checklist Form

2.1 Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the Kern County Environmental Checklist on the following pages.

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

2.2 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 (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT 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.

Signature Janice Mayes
Janice Mayes
Printed Name

Date 6/13/18

For: Camino Solar Project

3. Evaluation of Environmental Impacts

- (1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- (2) All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- (3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- (4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measure and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
- (5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - (a) Earlier Analysis Used. Identify and state where they are available for review.
 - (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - (c) Mitigation Measures. For effects that are “Less Than Significant With Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- (6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- (7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- (8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- (9) The explanation of each issue should identify:
 - (a) The significance criteria or threshold, if any, used to evaluate each question; and
 - (b) The mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.1 Aesthetics

Would the project:

- | | | | | |
|--|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Have a substantial adverse effect on a scenic vista? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Substantially degrade the existing visual character or quality of the site and its surroundings? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a) **Potentially Significant Impact.** The proposed project site is located in a largely uninhabited, rural area of Kern County. The aesthetic features of the existing visual environment in the proposed project boundaries include the southeastern base of the Tehachapi Mountains, characterized by terrain that gradually slopes from northwest to southeast. There are clusters of residences in the vicinity of the southwest portions of the proposed project site. The proposed project would be visible from these residences located outside of the proposed project site. It is expected that implementation of the proposed project would alter the scenic view in the proposed project area, therefore, project impacts to scenic vista or scenic view would be potentially significant, and will be further evaluated in the EIR.
- (b) **No Impact.** According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible scenic highway is Angeles Crest Highway (SR 2), which is approximately 46 miles south of the project site. Because of this distance, the PV solar facilities would not be visible from SR 2. Therefore, project impacts to scenic resources within a State scenic highway would not occur, and will not be evaluated in the EIR.
- (c) **Potentially Significant Impact.** The project site is in a rural area. There are clusters of residences in the vicinity of the southwest portions of the proposed project site. The proposed project would be visible from these residences located outside of the proposed project site. Surrounding land uses include undeveloped properties, residences, grazing, and wind energy farms. The Rosamond Airport is located approximately 13 miles southeast of the proposed project site and the Mojave Airport is located approximately 14 miles east of the proposed project site. Placement of PV solar panels and associated structures on the proposed project site would alter the character of the area. Changes to the

visual quality and character of the proposed project site would be potentially significant, and impacts will be further evaluated in the EIR.

- (d) **No Impact.** There are clusters of residences in the vicinity of the southwest portions of the proposed project site. The proposed project would be visible from these residences located outside of the proposed project site. The Rosamond Airport is located approximately 13 miles southeast of the proposed project site and the Mojave Airport is located approximately 14 miles east of the proposed project site. The PV modules are designed to absorb sunlight to maximize electrical output; therefore, they would not create significant reflective surfaces or the potential for glint/glare during the day. No permanent lighting is proposed at the solar facilities. Temporary lighting may be used during construction but would be designed to provide the minimum illumination needed to achieve work objectives, and would be directed downward and shielded to focus illumination on the desired areas only and minimize light trespass. Therefore, no further analysis of the specific lighting and effects of nighttime light and glare from the proposed project will be provided in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.2 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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

- | | | | | |
|---|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| 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 nonagricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Conflict with existing zoning for agricultural use, or Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Productions (as defined in Government Code section 51104(g))? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Result in the loss of forest land or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15206(b)(3) Public Resources Code)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a) **No Impact.** There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the proposed project area. The California Department of Conservation's (CDC) Farmland Mapping and Monitoring Program designates the private portion of the proposed project site as G, grazing land, and the Federal (BLM) portion of the proposed project site as NV natural vegetation. As such, the proposed project site is not considered to be prime, unique, or important farmland. Therefore, construction and/or operation of the proposed project would not result in the conversion of designated Farmland to a nonagricultural use; therefore, this issue will not be further evaluated in the EIR.
- (b) **No Impact.** None of the parcels included as part of the proposed project or property in the vicinity of the project are subject to a Williamson Act Land Use contract. The Kern County zone classifications for the proposed project sites are A (Exclusive Agriculture); A WE (Exclusive Agriculture, Wind Energy) A WE GH (Exclusive Agriculture, Wind Energy, Geological Hazard) and OP (Open Space). The existing zoning is consistent with the Kern County General Plan land use designations of 8.3 (Extensive Agriculture); 8.5 (Resource Management); 2.1 (Geological Hazard); and 1.1 (State or Federal Land). According to the Kern County Zoning Ordinance, a commercial solar facility is a compatible use in the A district. The construction and operation of a solar energy generating facility on the site would require the approval of a CUP (Kern County Ordinance 19.12.030.G). The proposed discretionary actions are consistent with the Kern County Zoning Ordinance regulations for agricultural and resource management uses. Therefore, the potential for conflicts with Williamson Act Land Use contract are not anticipated and are considered to have no impact, therefore no further analysis is warranted in the EIR.
- (c)-(d) **No Impact.** There is no land in the vicinity of the proposed project site that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there would be no impacts related to loss of forest land or timberland, or the conversion of forest land to non-forest use and further analysis is not warranted in the EIR.
- (e) **Potentially Significant Impact.** The proposed project site is comprised of undeveloped land, wind energy production, and grazing land uses. The loss of grazing land would create a loss of farmland, therefore, would be potentially significant impacts related to farmland, and further analysis is warranted in the EIR.
- (f) **No Impact.** As noted in response (b), above, the proposed project site is not under a Williamson Act Contract and implementation of the project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Public Resources Code Section 15206(b)(3)). Therefore, no impacts are anticipated, and no further discussion is warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.3 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:

- | | | | | |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. Conflict with or obstruct implementation of the applicable air quality plan? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Violate any air quality standard as adopted in (c)i or (c)ii, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? Specifically, would implementation of the project exceed any of the following adopted thresholds: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i. San Joaquin Valley Unified Air Pollution Control District: | | | | |

Operational and Area Sources:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| Reactive Organic Gases (ROG)
10 tons per year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Oxides of Nitrogen (NO _x)
10 tons per year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Particulate Matter (PM ₁₀)
15 tons per year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Stationary Sources as Determined
by District Rules:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| Severe Nonattainment
25 tons per year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Extreme Nonattainment
10 tons per year. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
ii. Eastern Kern Air Pollution Control District:				
<u>Operational and Area Sources:</u>				
Reactive Organic Gases (ROG) 25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oxides of nitrogen (NO _x) 25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Particulate Matter (PM ₁₀) 15 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Stationary Sources as Determined by District Rules:</u>				
25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion:

- (a) **Potentially Significant Impact.** The proposed project site is located entirely within the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD), in the Mojave Desert Air Basin (MDAB). EKAPCD is designated as a nonattainment area for both the State and federal ozone standards and the state particulate matter (PM₁₀) standard. Project construction would generate emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_x), both of which are known as ozone precursors, and PM₁₀ that could result in significant impacts to air quality in the area. EKAPCD's most recently adopted air quality management plan as its Ozone Air Quality Attainment Plan (AQAP). As the project would generate emissions of ozone precursors (along with PM₁₀) during construction, the project could potentially conflict with EKAPCD's Ozone AQAP. Thus, further analysis of the project's air quality impacts is warranted to determine whether the project would conflict with or obstruct implementation of EKAPCD's applicable air quality plan for attainment and, if so, to determine the reasonable and feasible mitigation measures that could be imposed. These issues will be evaluated in the EIR.
- (b) **Potentially Significant Impact.** The proposed project encompasses a 44 MW solar facility on 339 acres of ten parcels which total 869 acres. The proposed project would interconnect to an existing electrical distribution line through the Manzanita Substation approximately 0.75 miles south of the site. Project operational emissions are anticipated to be minimal. However, the short-term construction emissions generated at the proposed project site could significantly contribute to an existing or projected air quality violation of criteria pollutant (ROG, NO_x, PM₁₀, and PM_{2.5}) standards established by EKAPCD, requiring the consideration of mitigation measures. The sources of construction emissions at the proposed project site would include off-road heavy equipment (e.g., graders, loaders, backhoes, dozers, etc.) used during the various construction phases for the proposed project and on-

road motor vehicles for equipment and material deliveries and workers commuting to and from the proposed project site. This impact is potentially significant and will be evaluated further in the EIR.

- (c)i **No Impact.** The proposed project is not located within the San Joaquin Valley Air Pollution Control District (SJVAPCD). Therefore, impacts are not anticipated, and further discussion is not warranted in the EIR.
- (c)ii **Potentially Significant Impact.** EKAPCD is designated as a nonattainment area for the State and federal ozone standards and the State PM₁₀ standard. As such, the emissions of ozone precursors (ROG and NO_x) and PM₁₀ during construction and operation of the proposed project could result in a cumulatively considerable net increase of these criteria pollutants in the EKAPCD and MDAB. Thus, the proposed project's contribution to cumulative air quality impacts in the EKAPCD and MDAB could be potentially significant. The proposed project's contribution of construction and operational emissions to the EKAPCD and MDAB will be analyzed in the EIR.
- (d) **Potentially Significant Impact.** The uses surrounding the proposed project site consists primarily of agricultural and undeveloped land with residences in the vicinity of the southwestern portion of the site. The nearest sensitive receptors to the proposed project site include residential structures within the vicinity of the southwestern portion of the site. These nearby offsite sensitive receptors could be exposed to pollutant emissions during construction of the proposed project. The proposed project's construction-related activities would result in dust that could adversely affect air quality for the nearest sensitive receptors.

Exposure to Valley Fever from fugitive dust generated during construction is a potentially significant impact. There is the potential that cocci spores could be stirred up during excavation, grading, and earth-moving activities, exposing construction workers and nearby sensitive receptors to these spores and thereby to the possibility of contracting Valley Fever. Thus impacts to sensitive receptors via pollutant concentrations is potentially significant and will be evaluated further in the EIR.

- (e) **No Impact.** The proposed project would not have any stationary sources or equipment located onsite that would generate objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. However, these odors would be temporary and would be dispersed rapidly. Therefore, it is anticipated that there would be no impact and further analysis is not warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.4 Biological Resources.

Would the project:

- | | | | | |
|---|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Discussion:

- (a) **Potentially Significant Impact.** The project is located at the extreme western edge of species listed as threatened or endangered under the federal Endangered Species Act (ESA) and/or the California ESA, including the desert tortoise (*Gopherus agassizii*) and Swainson's hawk (*Buteo swainsoni*). It is

outside the generally accepted range of the Mojave Ground squirrel (*Xerospermophilus mohavensis*), although within the CDFW mapped range for this species. None of these species have been observed at the project site to date, or are expected to occur. The project site is comprised of non-native grasslands, scrub and Joshua Tree Woodlands with a minimal level of human disturbance. The proposed project site may contain sensitive or special-status species plants at the site and a survey for rare plants is being completed to provide updated information. The proposed project's potential to have a substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special-status species in local or regional plans or regulations by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS) will be evaluated in the EIR.

- (b) **Potentially Significant Impact.** The proposed project site is undeveloped and three-quarters of the site is comprised of Non-native Grasslands. Although portions of the proposed project site are also dominated by native plants including Joshua Tree Woodlands, Mojave Desert Wash Scrub, Mojavean Juniper Woodland and Scrub, it is anticipated that avoidance or mitigation of important plant species will be implemented. The site does not appear to support any riparian habitat or other sensitive natural communities as may be defined by local or regional plans, policies, or regulations. Field surveys to evaluate potential project-related impacts to sensitive natural communities will be completed for the proposed project, and the results, as well as possible mitigation measures, included in the EIR.
- (c) **No Impact.** The proposed project site is in the Mojave Desert region of Kern County. It contains potentially jurisdictional waters at the site and four linear drainage features have previously been mapped in December 2015. All drainage features are assumed to be the jurisdiction waters of both CDFW and the Regional Water Quality Control Board. All four drainage features are ephemeral streams that convey water only intermittently. No wetlands were identified, nor were any riparian habitats observed that would extend CDFW's jurisdiction beyond the limits of the streambeds and banks. The U.S. Army Corps of Engineers has previously determined that the entire Antelope valley watershed, excluding Lake Palmdale and its tributaries, are not subject to its jurisdiction. Drainages at the proposed project therefore would not be subject to federal jurisdiction. As noted above, the proposed project site may contain potentially jurisdictional waters of the State; however, no federally protected waters would be affected by the project. Further analysis of this issue is not warranted in the EIR.
- (d) **Potentially Significant Impact.** The proposed project site and surrounding areas may be used for migration or dispersal by some avian species, however, the site does not provide nesting habitat for any listed birds. Project construction and operation could remove foraging habitat. This impact may be potentially significant and will be evaluated in the EIR.
- (e) **Potentially Significant Impact.** There is local policy/ordinance protecting biological resources. The site has Joshua Tree Woodlands, which will need to be avoided in citing the proposed project. While there would not be potentially significant impacts, further analysis is warranted in the EIR.
- (f) **Potentially Significant Impact.** The proposed project site is not located within a local or regional habitat conservation plan boundary; however, the site is located within the State habitat conservation plan boundary of the State of California Desert Conservation Area Plan (CDCA). Therefore, there would be potentially significant impacts and further analysis is warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.5 Cultural Resources.

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e. Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion:

- (a) - (c) **Less Than Significant Impact.** The proposed project site consists of undeveloped grazing land and wind energy production. Development of the project would require some ground disturbance for grading, installation of the solar arrays, gen-tie line, and placement of underground electrical, which could impact archaeological resources. A cultural resources survey will be conducted for the project. While impacts are determined to be less than significant at this time, further evaluation in the EIR is warranted to identify potential impacts to historical, archaeological resources and tribal cultural resources and to formulate avoidance or mitigation measures, if applicable.
- (d) **Less Than Significant Impact.** Kern County is rich in paleontological resources. If paleontologically sensitive formations are located under the project, ground disturbance could result in potentially significant impacts to paleontological resources. Thus, a paleontological study for the project will be performed. While impacts are determined to be less than significant at this time, further evaluation in the EIR is warranted to identify potential impacts and to formulate avoidance or mitigation measures, if applicable.
- (e) **Less Than Significant Impact.** There is no evidence that the project site is located within an area likely to contain human remains and discovery of human remains during earthmoving activities is not anticipated. Therefore, impacts would be less than significant. However, the potential for human remains to be encountered will be further analyzed in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.6 Tribal Cultural Resources.

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: | | | | |
| i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ii. A resource determined by the lead agency in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 52024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 52024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion:

(a)(i–ii) **Less Than Significant.** Cultural resources studies of the proposed project site have been conducted on most parcels. The BLM parcel had a full Class III survey conducted to allow project elements and the surveys documented prehistoric sites, historic sites, and rock features of indeterminable age within one mile of the site. No cultural resources were identified within the site. The privately-held lands received pedestrian field surveys and there are no cultural resources known to occur on these proposed project sites. The potential for impacts on tribal cultural resources is considered less than significant.

Tribal outreach has been undertaken by County of Kern via the AB 52 notifications and by the BLM for the proposed project. Sacred resources have not been identified and tribal concerns at the site have not been raised to date. However, the potential for locating tribal cultural resources will be evaluated further in EIR/EA.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.7 Geology and Soils.

Would the project:

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|--|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 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. | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Result in substantial soil erosion or the loss of topsoil? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a) (i) **Less Than Significant Impact.** The Antelope Valley region is considered to be seismically active due to its proximity to the San Andreas and Garlock faults. The nearest fault to the proposed project is the Cottonwood fault, which runs northwest to southeast near the southern

edge of the site. Due to the distance from the nearest active fault to the proposed project site, the potential for surface fault rupture at the project site is considered negligible.

In addition, construction of the proposed project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the California Building Code (CBC), 2016 Edition (CCR Title 24) effective January 1, 2017, which imposes substantially the same requirements as the International Building Code (IBC), 2015 Edition, with some modifications and amendments. Adherence to all applicable regulations would mitigate any potential impacts associated with the proposed project. As a result, project related impacts from surface rupture of a known earthquake fault would be less than significant; however, further analysis in the EIR is warranted.

- (ii) **Less Than Significant Impact.** Due to the location of active faults in the region, strong seismic ground shaking could occur at the proposed project site, resulting in damage to structures that are not properly designed to withstand strong ground shaking. The proposed project would include the construction of a field of solar PV panels, transmission lines, and other associated infrastructure. Should strong seismic ground shaking occur at the project site, damage to the PV modules and other associated infrastructure could result. However, construction of the proposed project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08), and IBC and CBC earthquake construction standards, including those relating to soil characteristics. Adherence to all applicable regulations would mitigate any potential impacts associated with seismic ground shaking at the project site. Although, the proposed project site would potentially be subject to moderate to strong ground shaking from regional earthquakes, the project would not expose substantial numbers of people to adverse impacts as a result. Potential impacts for this issue area are anticipated to be less than significant; nevertheless, further analysis in the EIR is warranted.
- (iii) **No Impact.** Seismically induced liquefaction occurs when loose, water-saturated sediments of relatively low density are subjected to cyclic shaking that causes soils to lose strength or stiffness, because of increased pore water pressure. Liquefaction generally occurs when the depth to groundwater is less than 50 feet. Based on review of available groundwater data in the site vicinity, groundwater in the area is more than 50 feet below ground surface. Thus, the potential for liquefaction at the surface is low. Furthermore, the proposed project site is not located within a current, mapped California Liquefaction Hazard Zone. Structures constructed as part of the proposed project would be required by State law to be constructed in accordance with all applicable International Building Code (IBC) and California Building Code (CBC) earthquake construction standards, including those relating to soil characteristics. Adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the proposed project site. Potential impacts for this issue area would not be anticipated, and no further analysis is warranted in the EIR.
- (iv) **No Impact.** The proposed project site is located at the base of the Tehachapi Mountains and is characterized by terrain that gradually slopes from northwest to southeast, but does not contain any steep slopes, and the likelihood of landslides is very low. Therefore, impacts related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area and further analysis of this issue is not warranted in the EIR.

- (b) **Potentially Significant Impact.** Removal of vegetation and would be required for installation of solar arrays at the project site, and trenching would be required for the installation of underground cables and circuits. As a result, project construction would have the potential to result in erosion, sedimentation, and discharge of construction debris from the site. Vegetation clearing and grading activities, for example, could lead to exposed or stockpiled soils susceptible to peak stormwater runoff flows and wind forces. The compaction of soils by heavy equipment may reduce the infiltration capacity of soils (exposed during construction) and increase runoff or erosion potential. The presence of large amounts of raw materials for construction, including aggregate base course material, may lead to stormwater runoff contamination. However, the project proponent would be required to obtain a Kern County NPDES permit because the proposed project would disturb more than 1 acre of soil. As required, a SWPPP would be developed to specify best management practices (BMPs) to prevent construction pollutants, including erosion of soils (such as topsoil), from moving offsite. Impacts are anticipated to be potentially significant even with implementation of the required permits and best management practices, impacts related to soil erosion or the loss of topsoil will be evaluated in the EIR.
- (c) **No Impact.** The proposed project is not expected to result in substantial adverse effects due to landslide, lateral spreading, subsidence, liquefaction, and/or collapse, therefore the impacts will not be further evaluated in the EIR.
- (d) **Less Than Significant Impact.** Expansive soils are fine-grained soils (generally high plasticity clays) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Soils at the site are mapped as Hanford sandy gravelly loam. These soils are generally described as coarse grained soils that are well drained and the fines are typically non-plastic. These types of soils do not exhibit shrink-swell patterns and are not considered expansive soils. Nevertheless, the proposed project would be designed to comply with applicable building codes and structural improvement requirements to withstand the effects of expansive soils. The implementation of Kern County Building Code requirements, as applicable, would minimize the potential impact of expansive soils. Impacts related to expansive soils would be less than significant and no further analysis is warranted in the EIR.
- (e) **No Impact.** The proposed project includes construction of solar facilities that will not require any permanent employees onsite. Although maintenance workers would visit the project site sporadically throughout the year for routine maintenance of the facility, the project site will not include septic systems or wastewater disposal facilities for these employees. The proposed project would share the existing facilities that support the operations of the Manzana and/or Pacific Wind projects. Therefore, there would be no impact and no further evaluation in the EIR is warranted.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.8 Greenhouse Gas Emissions.

Would the project:

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| a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion:

- (a) **Less Than Significant Impact.** Greenhouse gas (GHG) emissions emitted by human activity are implicated in global climate change or global warming. The principal GHGs are CO₂, methane (CH₄), NOX, ozone, water vapor, and fluorinated gases. The temporary construction activities associated with the proposed project, which would involve operation of heavy off-road equipment, on-road trucks (for deliveries and hauling), and construction worker commute trips, would generate GHGs. However, as a solar facility, the proposed project is expected to displace traditional sources of electricity production that involves combustion energy sources (e.g., burning coal, fuel oil, or natural gas). As such, the provision of solar energy by the proposed project would produce GHG-free electricity that is anticipated to offset GHGs that would otherwise be generated by traditional sources of electricity. Overall, given the long-term GHG offsets provided by operation of the proposed project, impacts associated with GHGs from implementation of the project is anticipated to be less than significant. Nonetheless, the potential impacts associated with GHG emissions generated during construction of the proposed project and the potential GHG offsets resulting from operation of the proposed project will be further evaluated in the EIR.
- (b) **Less Than Significant Impact.** California has passed several bills and the governor has signed at least three executive orders regarding GHGs. Assembly Bill (AB) 32 (the Global Warming Solutions Act) was passed by the California legislature on August 31, 2006 that require the State's global warming emissions to be reduced to 1990 levels by 2020. The reduction will be accomplished through an enforceable statewide cap on GHG emissions that was phased in starting in 2012.

In 2002, California established its Renewable Portfolio Standards (RPS) Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent renewable energy by 2017. In 2006, under SB 107, the RPS Program codified the 20 percent goal. The RPS Program requires electric utilities and providers to increase procurement from eligible renewable energy resources by at least one percent of their retail sales annually until they reach 20 percent by 2017. On November 17, 2008, the governor signed Executive Order S-14-08, requiring California utilities to reach the 33 percent renewable goal by 2020. On October 7, 2015, the governor signed SB 350 that establishes goals requiring California utilities to reach 50 percent renewable energy by 2030. The proposed project is intended to: (1) reduce importation of power from fossil fuel power plants; and (2) contribute to a reduction in GHGs. The proposed project would not conflict with an applicable

plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases and would therefore have less than significant impacts. Nevertheless, the proposed project's consistency with the California Air Resources Board's (CARB) Climate Change Scoping Plan will be assessed in the EIR to determine whether the project is consistent with the goals of AB 32.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.9 Hazards and Hazardous Materials.

Would the project:

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|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Be located on a site 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
i. Would implementation of the project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste? Specifically, would the project exceed the following qualitative threshold:				
The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:				
i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Are associated with design, layout, and management of project operations; and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Disseminate widely from the property; and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Cause detrimental effects on the public health or wellbeing of the majority of the surrounding population.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion:

- (a) **Less Than Significant Impact.** The proposed project would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act and is not expected to create a significant hazard to the public or the environment. During construction, the proposed project would include the transport of general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as materials necessary to construct the proposed PV arrays. Project-related infrastructure would not emit hazardous materials, or be constructed of acutely hazardous materials or substances that could adversely impact the public or onsite workers. The majority of wastes to be generated during construction of the proposed project would also be non-hazardous, and would consist of cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools. However, the proposed project could generate small quantities of hazardous waste during project construction, including waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous and would be used in accordance with the manufacturer's specifications and all applicable regulations. In addition, although it is unlikely that large quantities will be stored on site, hazardous fuels and lubricants used on field equipment would be subject to a Material Disposal and Solid Waste

Management Plan, and a Spill Prevention Containment and Countermeasure (SPCC) Plan, as required. Impacts resulting from the transport, use or disposal of hazardous materials during construction of the proposed project would be less than significant; however, the EIR will include an evaluation of potential hazardous materials impacts.

The proposed project would be subject to all local, State, and federal laws pertaining to the use of hazardous materials onsite and would be subject to review by the Kern County Environmental Health Services Division/Hazardous Materials Section. Through the review process, the proposed project would be required to submit hazardous materials business plan, which would include a complete list of all materials used onsite, an explanation of how the materials would be transported, and a discussion on the chemical forms in which the materials would be used in order to maintain safety and prevent possible environmental contamination or worker exposure. During construction of the proposed project, Material Safety Data Sheets (MSDS) for all applicable materials present at the site would be made readily available to onsite personnel. During construction of the facilities, non-hazardous construction debris would be generated and disposed of in approved facilities. Therefore, construction of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

The PV panels may include solid materials that are considered hazardous, such as cadmium telluride. While in operation, the solar panels are solid and non-leachable; however, broken panels could result in a slight hazard. To dispose of properly, the proposed project would use the manufacturer's collection and recycling program to ensure the proper collection and recycling of PV panels, as needed. While it is anticipated that transport and disposal of such panels would result in a less than significant hazard, this issue will be considered in the EIR.

Concern over electromagnetic field (EMF) exposure generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems. Commonly known human-made sources of EMF are electrical systems, such as electronics and telecommunications, as well as electric motors and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most environments, the levels of such radiation when added to natural background sources are low. Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs, dangers associated with high-voltage electrical transmission lines (including EMF hazards), though anticipated to be less than significant, will be discussed in the EIR as well.

Dust palliatives and herbicides, if used, may be transported to and stored at the proposed project site. These materials would be stored in appropriate containers that would prevent their accidental release at the site. There are no designated routes for the transport of hazardous materials located within or adjacent to the proposed project site; however, SR 14 is a designated route for the transport of hazardous materials. SR 14 is located approximately 15 miles east of the proposed project site. This roadway is equipped to handle the transport of hazardous materials and SR 14 would provide regional access to the site. Because operation of the proposed project would not involve the routine use of materials defined as hazardous, operation of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during either construction or operation. Nevertheless, this impact will be analyzed further in the EIR.

- (b) **Less Than Significant Impact.** The proposed project site is not located within or near a Department of Oil, Gas and Geothermal Resources (DOGGR) identified oil field. Additionally, the site contains no known active or abandoned oil wells and there are no known active or abandoned oil wells in the site's immediate vicinity.

Construction and operation of the proposed project may include the accidental release of hazardous materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Electrical transformer equipment that would be installed as part of the proposed project would utilize FR3 coolants, derived from mineral oils, which rapidly biodegrade and are non-toxic. The proposed project would be subject to all local, State, and federal laws pertaining to the use of hazardous materials onsite and would be subject to review by the Kern County Environmental Health Services Division/Hazardous Materials Section. Through the review process, the project proponent would be required to submit a hazardous materials business plan, which would include a complete list of all materials used onsite, how the materials would be transported, and in what form they would be used. This would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. This would also include submission of Materials Safety Data Sheets (MSDS) for all applicable materials present at the site. The MSDS would be made readily available to onsite personnel. It is anticipated that adherence to regulations and standard protocols during foreseeable upset and accident conditions involving the release of hazardous materials into the environment would avoid significant impacts. However, potential impacts will be evaluated further in the EIR.

- (c) **No Impact.** The proposed project site is located within the unincorporated area of Kern County and the closest school to the proposed project site is Tropico Middle School, located approximately 13 miles southeast of the proposed project site in the community of Rosamond. No new schools are proposed in the vicinity of the proposed project site. The proposed project consists of solar energy generation facilities that involve using PV panels to generate electricity. Project-related infrastructure would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school, and no further analysis is warranted in the EIR.
- (d) **No Impact.** A search was completed for the subject parcels in the Environmental Protection Agency's (CalEPA) Cortese List and the proposed project site is not identified in their hazardous materials database. No impacts are anticipated, and further analysis is not warranted in the EIR.
- (e) **No Impact.** The proposed project is not located within a Kern County Airport Land Use Compatibility Plan (ALUCP). The proposed project area is located within 13 miles of the Rosamond Airport and Skypark, within 14 miles of the Mojave Airport, and within 10 miles of the Mountain Valley Airport. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area and this impact will not be evaluated in the EIR.
- (f) **No Impact.** The proposed project site is not located within 2 miles of a private airstrip or heliport. The closest private airstrip is the Mountain Valley Airport located approximately 10 miles north of the proposed project site. Therefore, there are no anticipated safety hazards related to proximity to a private airstrip or heliport. No significant impacts are anticipated and no further analysis of this issue is warranted in the EIR.
- (g) **No Impact.** The proposed project would not physically impede the existing emergency response plan, emergency vehicle access, or personnel access to the proposed project site. The proposed project site is located in an area with several alternative access roads allowing access in the event of an emergency. Primary access to the proposed project site is from State Route 14, by way of Rosamond Boulevard

from the east, and then along 170th Street and access roads previously entitled for the Manzana, Pacific Wind, and Catalina projects. Alternatively State Route 138 (Avenue D) could be used to avoid congested traffic conditions in Rosamond. State Route 138 can be accessed from either Interstate 5 from the west or State Route 14 from the east, to 170th Street West. Access would be maintained throughout construction, and appropriate detours would be provided in the event of potential road closures. Therefore, no significant impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan would occur. Further analysis of this issue is not warranted in the EIR.

- (h) **Less Than Significant Impact.** The proposed project would not increase the potential for wildland fires or expose people or structures to a significant risk of loss, injury, or death involving wildland fires. According to the California Department of Forestry and Fire Protection (CalFire), Kern County Fire Hazards Severity Zone Maps for the Local Responsible Areas, the proposed project site is classified as Local Responsibility Area (LRA) and Federal Responsibility Area (FRA) Moderate. The proposed project site is outside of areas identified by the California Department of Forestry and Fire Protection as having substantial or very high risk. Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The proposed project site consists of undeveloped desert lands and wind energy turbines. The surrounding land is primarily undeveloped land with some wind energy turbines and rural residential development outside of the southwestern portion of the site. Construction and operation of the proposed project would not result in increased risk of wildfires in the area. The proposed project would comply with all applicable wildland fire management plans and policies established by CalFire and the KCFD. Accordingly, the proposed project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts are expected to be less than significant; however, further analysis of this issue will be discussed in the EIR.
- (i) **No Impact.**
 - (i-iv) Project-related infrastructure is not expected to result in features or conditions (such as standing water, agricultural products, agricultural waste, or human waste) that would provide habitat for vectors such as mosquitoes, flies, cockroaches, or rodents. During construction and operation, workers would generate small quantities of solid waste (i.e., trash) that would be appropriately stored for permanent disposal. Construction and operation of the proposed solar arrays and associated facilities would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. Therefore, no impacts would occur, and no further analysis is warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.10 Hydrology and Water Quality.

Would the project:

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|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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 onsite or offsite? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f. Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion:

- (a) **Less Than Significant Impact.** The proposed project site is within the Lahontan Regional Water Quality Control Board (RWQCB) jurisdiction. Proposed project construction activities have the potential to result in erosion, sedimentation, and discharge of construction debris, and could result in the discharge of wastewater and runoff at the proposed project site. If not properly managed, this wastewater could violate the water quality standards or waste discharge requirements of the RWQCB. However, the proposed project would be required to provide stormwater detention basins so that wastewater would not runoff at the site. The design of the proposed project is such that stormwater would remain on the proposed project site and infiltration would occur similar to existing conditions. No component of the proposed project would concentrate runoff and exceed the capacity of existing onsite drainage and percolation. In addition, as noted in Geology (b), above, in compliance with the Kern County NPDES permit requirements, appropriate BMPs would be implemented to reduce potential water quality impacts. Because the proposed project would disturb more than 1 acre and at least two mapped drainages cross the proposed project area, the project proponent would be required to prepare a Storm Water Pollution Prevention Program (SWPPP) that would include implementation of (Best Management Practices) BMP erosion-control measures to control stormwater runoff, including eroded soils, from causing a violation of any water quality standards. Therefore, impacts related to water quality during construction would be considered less than significant. Although no significant impacts related to water quality are anticipated during construction, a comprehensive hydrology and water quality impact analysis will be included in the EIR.

The proposed project would develop impervious areas on the currently undeveloped project site, including foundation pads for inverters, switchgear, transformers, and an unpaved parking area. Implementation of proposed project specific BMPs in the required Water Quality Management Plan (WQMP) would ensure that surface water quality would meet applicable standards. Compliance with applicable regulations and the implementation of a WQMP are expected to reduce potential water quality impacts to a less than significant level; nevertheless, these impacts will be addressed further in the EIR.

- (b) **Potentially Significant Impact.** Water use for the proposed project would be needed primarily during construction activities, and non-potable water would be brought to the site for soil conditioning and dust suppression. It is anticipated that approximately 200 acre-feet of water would be required for the proposed project during the construction phase, which would be trucked to the site from an offsite groundwater well located approximately 1.7 miles south of the proposed project. Water use during operation of the proposed project would be limited to use for panel washing. It is expected that operation of the project would require approximately .27 acre-foot of water per year. During construction, potable water would be brought to the site for drinking and domestic needs for

construction workers. Impacts related to local groundwater supplies may occur and will be further analyzed in the EIR.

- (c) **Potentially Significant Impact.** Construction of the concrete pads for the switchyard, inverters, and transformers, etc., as well as foundational supports for panel installation, soil compaction, and any grading may alter the existing drainage pattern of the site. As noted in item (a), above, a SWPPP and WQMP would be prepared for the proposed project and the appropriate permits would be obtained from the Lahontan RWQCB. A hydrology study will be prepared for the proposed project in accordance with Kern County requirements, and potential impacts to existing drainage patterns and flooding conditions, as well as the potential for increased erosion or siltation, will be analyzed in the EIR.
- (d) **Less Than Significant Impact.** There are no streams or rivers that traverse the proposed project site, and therefore, the proposed project would not result in an increase in the rate or amount of surface runoff that would cause the course alteration of a stream or river.

Construction and operational activities associated with the proposed project could result in an increase in the rate or amount of surface runoff, however, it is anticipated that most of the stormwater would infiltrate into the onsite soils similar to existing conditions. Although the proposed project site is located within a Flood Zone X (outside the 500 year flood zone) with minimal flood hazard, it is in a predominantly rural area and the proposed project is anticipated to result in less than significant impact in regards to flooding onsite or offsite. However, alterations of drainage patterns will be further evaluated in the EIR.

- (e) **Less Than Significant Impact.** During construction and following installation of the solar arrays and other associated proposed project infrastructure, the majority of the site would remain as pervious surface. The design of the proposed project is such that stormwater would remain on the proposed project site and infiltration would occur similar to existing conditions. No component of the proposed project would concentrate runoff and exceed the capacity of existing onsite drainage and percolation. Similarly, no component of the proposed project is anticipated to generate a substantial source of polluted runoff. The construction period SWPPP and the operational period WQMP would provide proper control and treatment, if necessary, of any stormwater prior to discharge. With adherence to site-specific BMPs, potential pollutants would be minimized to the extent practicable and should not exceed numeric thresholds for water quality protection. Impacts would be less than significant. Nevertheless, this impact will be discussed further in the EIR.
- (f) **Less Than Significant Impact.** Project construction activities (such as grading) could potentially degrade water quality through erosion and subsequent sedimentation of drainage pathways. Additionally, accidental release of potentially harmful materials, such as engine oil, diesel fuel, and cement slurry could degrade the water quality of any possible nearby ephemeral streams or drainage features. As mentioned above, implementation of a SWPPP would include BMPs during construction and a WQMP would provide BMPs for operation, which would reduce the impact of project activities on surrounding water quality. Therefore, construction and operation of the proposed project would not substantially degrade water quality and impacts would be less than significant. Nevertheless, potential impacts to water quality will be evaluated further in the EIR.

- (g) **No Impact.** The site is located within the Flood Hazard Zone X as identified by FEMA, which is defined as areas outside the 500 year flood zone with minimal flood chances. As detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. The proposed project does not include construction of housing. As a result, no impacts would occur and no further analysis is warranted in the EIR.
- (h) **No Impact.** The proposed project is located within Flood Zone X as designated by FEMA. Flood Zone X indicates areas outside of the 500 year flood zone with minimal flood chances. As noted above in item (g) detailed hydraulic analyses have not been performed and no Base Flood Elevations (BFEs) or flood depths are shown. The proposed project would be reviewed by the Kern County Public Works Department for adherence to all floodplain management standards if deemed necessary. Because the proposed project and its structures will not be built within a 100 year flood hazard area, impacts are not anticipated and further analysis is not required in the EIR.
- (i) **No Impact.** As noted above in item (h), the proposed project is located within Flood Zone X as designated by FEMA. Flood Zone X indicates areas outside of the 500 year flood zone with minimal flood chances. The proposed project is located within a minimal flood hazard area and would not 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. Isabella Lake Dam is located more than 35 miles west, and the proposed project site is located outside of the Isabella flood inundation zone. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death due to flooding from failure of a levee or dam and no impact is anticipated. Further analysis related to failure of a levee or dam is not warranted in the EIR.
- (j) **Less Than significant.** The proposed project site is not located near an ocean or enclosed body of water, and therefore would not be subject to inundation by seiche or tsunami. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity, and are often triggered by heavy rainfall and soil that is not able to sufficiently drain or absorb water and the super-saturation results in soil and rock materials to become unstable and slide away. Due to the topography of the proposed project site and surrounding area, located at the southeastern base of the Tehachapi Mountains with terrain that gradually slopes from northwest to southeast, the potential to be inundated by mudflow is considered remote but possible. Therefore, there would be no impacts for seiche or tsunami, however, impacts for mudflow are considered to be less than significant and further analysis is warranted in the EIR for possible impacts of mudflow.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.11 Land Use and Planning.

Would the project:

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|---|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Discussion:

- (a) **No Impact.** The proposed project would be constructed on undeveloped desert lands used primarily for wind energy generation and as grazing land. There are no residences or other structures on the proposed project site. The proposed project site is located within the unincorporated area of Kern County. The nearest populated areas are the community of Mojave 17 miles to the northeast; the unincorporated community of Rosamond 16 miles southeast; and the City of Tehachapi, 12 miles to the north. There is a small cluster of residential development to the southwest of the proposed project site, however, the proposed project would not physically divide or restrict access to any community, as the proposed project site is located in a generally undeveloped and unincorporated area of Kern County, with little residential development in the vicinity of the area. Therefore, impacts related to the physical division of an established community would not occur, and this issue will not be discussed further in the EIR.
- (b) **Potentially Significant Impact.** The proposed project is located within the Kern County General Plan area shown in Figure 3. The proposed project sites have a land use designation of 1.1 (State or Federal Land); 8.3 (Extensive Agriculture); 8.5 (Resource Management) and 2.1 (Geological Hazard). According to the Kern County Zoning Ordinance Section 19.12.030 G, solar energy electrical generators are permitted within the A (Exclusive Agriculture) Zone District with approval of a CUP. The project proponent is requesting a CUP to allow for the construction and operation of a 44 MW solar facility within the A (Exclusive Agriculture) and OS (Open Space) Zoning Districts.

The property's zoning classifications are consistent with its Specific Plan designations. The proposed project is consistent with current Kern County General Plan, and Kern County Zoning Ordinance land use designations applicable to the proposed project site, which allow solar development by conditional use permit on the portions of the project site proposed for development. Although it is anticipated that the impacts would be less than significant, this will be analyzed further in the EIR. Therefore, with approval of the requested CUP, the proposed project would not have the potential to conflict with any

applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project adopted for the purpose of avoiding or mitigating an environmental effect.

The CEQA Lead Agency notes that with the implementation of numerous renewable energy projects, cumulative effects of utility-sized solar power generation facilities, there is the potential for outside factors – such as the development of newer technology, changes in state or national policy that encourages the construction of such facilities, or other economic factors – to result in the abandonment of such facilities by the project proponent. Discussion of potential impacts associated with the abandonment of solar facilities will be discussed in the EIR. Additionally, the military has identified potential conflicts of users of the radio frequency spectrum located both on and off military installations as an area to be reviewed for compatibility issues. Operations of unmanned radio-controlled aircraft flights can have electronic interference from other sources of radio signals from telemetry equipment associated with the solar facility. Although the proposed project would be consistent with the Kern County General Plan and Kern County Zoning Ordinance, the OS (Open Space) portion of the proposed project site; is under the jurisdiction of the BLM (Federal Bureau of Land Management); is identified as a Development Focus Area; and parcels are set aside for streamlining Renewable Energy Projects; therefore, the BLM portion of the site will be further discussed in the EIR.

- (c) **Potentially Significant Impact.** The proposed project site is located within the boundaries of the adopted California Desert Conservation Area Plan (CDCA), therefore, impacts from the project as proposed could potentially be significant to the adopted CDCA and further analysis of this issue is warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.12 Mineral Resources.

Would the project:

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|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion:

- (a) **No Impact.** The proposed project is not located within any designated mineral resources area or DOGGR identified oil field. Since construction and operation of the proposed project is not anticipated to result in the loss of availability of a known mineral resource that would be of value to the region and residents of the State, the proposed project would have no impact. Therefore, this issue will not be further analyzed in the EIR.
- (b) **Less Than Significant Impact.** The proposed project site does not contain locally important mineral resources recovery sites delineated in the Kern County General Plan. According to the Kern County General Plan, the area is undeveloped and used for wind energy production and grazing land. Land within the plan boundaries has value as agricultural land, wind energy land, and grazing/rangeland. Should mineral resources be discovered in the proposed project area, mitigation will be proposed in the EIR, to provide goals, policies and standards of development that will address the possible loss of mineral resources and/or their recovery. Less than significant impacts are anticipated, however, this issue will be addressed further in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.13 Noise.

Would the project result in:

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|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Exposure of persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Exposure of persons to, or generate, excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a) **Less than Significant Impact.** Land uses determined to be “sensitive” to noise as defined by the Kern County General Plan include residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches. The Kern County General Plan Noise Element sets a 65 dBA (A-weighted decibels) Ldn limit on exterior noise levels for stationary sources (i.e., non-transportation) at sensitive receptors. The closest offsite noise sensitive receptors to the proposed project site are residences located in the vicinity of the southwestern portion of the proposed project site. Noise generated by the proposed project would occur primarily during the construction phase, as the long-term operation of the solar facility would be relatively quiet. There would not be any substantial noise-generating equipment located at the proposed project site. The project proponent would be required to adhere to the provisions outlined in the Noise Control Ordinance in the Kern County Ordinance Code Section 8.36.020 and the Kern County General Plan Noise Element. Although noise levels generated during project construction are anticipated to be temporary in nature and less than significant, this impact will be analyzed in the EIR.

- (b) **Less Than Significant Impact.** Ground borne vibration and ground borne noise could originate from the operation of heavy off-road equipment during the construction phase of the proposed project. Erection of the solar arrays would include support structures that may potentially need to be driven into the soil using pneumatic techniques. As such, the installation of these support structures may cause localized vibration. However, significant vibration typically associated with activities such as blasting, would not be an activity associated with the proposed project. Given the localized nature of vibration impacts and the rapid attenuation of vibration levels over short distances, the vibration impacts associated with the proposed project during construction are anticipated to be less than significant. Nevertheless, this impact will be further analyzed in the EIR.
- (c) **Less Than Significant Impact.** Due to the quiet nature of solar facilities, it is unlikely that long-term noise generated by the proposed project will exceed existing ambient noise levels. Traffic on the proposed project access roads would be for routine maintenance activities and would primarily consist of personal vehicles, and would only occur several times per year. Therefore, the majority of operations would not produce noise discernible above ambient conditions. Although general maintenance activities would be conducted, they would be subject to applicable Kern County Noise Control Ordinance requirements and comply with the Kern County General Plan Noise Element, which would minimize impacts to receptors. Although impacts are anticipated to be less than significant, this issue will be evaluated further in the EIR.
- (d) **Potentially Significant Impact.** Heavy equipment used during construction would cause a temporary or periodic increase in ambient noise levels and be considered a potentially significant impact. Therefore, the potential for the proposed project's construction activities to result in a substantial temporary or periodic increase in ambient noise levels at the nearest offsite sensitive receptors will be further evaluated in the EIR. Project-related construction noise levels will be quantified and evaluated in the EIR.
- (e) **No Impact.** The proposed project is not located within a Kern County Airport Land Use Compatibility Plan (ALUCP). The proposed project area is located within 13 miles of the Rosamond Airport and Skypark, within 14 miles of the Mojave Airport, and within 10 miles of the Mountain Valley Airport. The proposed project would temporarily expose the construction workers for the proposed project to excessive noise levels but not workers in local airports. The proposed project would not include the development of new residences and would not expose new residents or airport workers to excessive noise and would therefore have no impacts. Therefore, impacts will not be evaluated further in the EIR.
- (f) **No Impact.** As noted above, the nearest private airstrip is the Mountain Valley Airport, which is 10 miles north of the proposed project site. Due to its distance from the proposed project site, there would be no significant impact resulting from people residing or working in the vicinity of the private airstrip being exposed to excessive noise levels from the proposed project. Impacts are not expected and further analysis is not warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.14 Population and Housing.

Would the proposed project:

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 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)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a) **No Impact.** Although the proposed project would provide new employment, long-term employment opportunities would be minimal. The proposed project would not include the construction of O&M buildings, so regular permanent employees would not be required. Maintenance personnel are expected to visit the proposed project site several times per year for routine maintenance and PV modules may be cleaned up to nine times a year. Temporary employment is expected to last up to 6 months during construction of the proposed project. The average daily workforce is expected to consist of 100 construction, supervisory, support, and construction management personnel, with a peak workforce of 200 individuals for short periods of time. Construction workers are expected to travel to the site from various local communities, and the majority would likely come from the existing labor pool as construction workers travel from site to site as needed. The number of workers anticipated to relocate to the area is not expected to be substantial. If temporary housing should be necessary, it is expected that accommodations would be available in the nearby hotels in the community of Mojave, Ridgecrest and City of Tehachapi or other local communities and cities. Therefore, the proposed project would not directly or indirectly induce the development of any new housing or businesses. This issue will not be discussed further in the EIR.

Typically, established local thresholds of significance for housing and population growth pursuant to the State *CEQA Guidelines*, Section 15064.7, include effects that would induce substantial growth or concentration of a population beyond County projections, alter the location, distribution, density, or growth rate of the population beyond that projected in the General Plan Housing Element, result in a substantial increase in demand for additional housing, or create a development that significantly reduces the ability of the County to meet housing objectives set forth in the General Plan Housing Element. The effects of the proposed project in relation to these local thresholds are minimal. No impacts would occur, and further analysis of this is not warranted in the EIR.

Although the proposed project would produce additional electricity, it is intended to meet the demand for energy that is already projected based on growth in communities around California. As such, the generation of electricity by the proposed project would be considered growth-accommodating, rather than growth-inducing. In addition, State law requires utility companies to produce a certain percentage of electricity from green or renewable sources. Solar electricity is considered a renewable product and would help the utility companies meet this new State law. The proposed project's electricity would replace electricity generated by fossil fuel-burning facilities, thereby contributing to California's renewable energy goals, and would not contribute to induced growth. Significant impacts related to population growth are not expected from the proposed project, and further analysis of this issue is not warranted in the EIR.

- (b-c) **No Impact.** The proposed project site is mostly undeveloped with some wind energy production and grazing land use. There are no existing houses located within the proposed project site, and no households would be required to be relocated as a result of the proposed project. Further, there are currently no persons residing on the proposed project site. Therefore, impact to displacement of existing housing would not occur and this issue will not be discussed further in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.15 Public Services.

Would the project:

- a. 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 to other performance objectives for any of the public services:

i) Fire protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion:

- (a) (i) **Potentially Significant. Fire Protection.** Fire suppression and emergency medical services are provided by the Kern County Fire Department (KCFD). The proposed project site is served by Fire Station #15, located approximately 14 miles southeast of the project site at 2980 Desert Street in the community of Rosamond. Adherence to all applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. However, proposed project construction and operation activities may result in increased need for fire-fighting personnel and facilities. Given the location of the proposed project site in the rural environment and KCFD's obligation to respond to all structure fires in their jurisdiction, fire-fighting capacity in the proposed project area could result in potential impacts on fire services from construction and operation of the solar facilities. This will be evaluated in the EIR.
- (ii) **Potentially Significant. Police Protection.** Police protection services are provided by the Kern County Sheriff's Office. The primary Sheriff Substation that would serve the proposed project area is the Rosamond Substation, located approximately 17 miles southeast from the proposed project site, at 1379 Sierra Hwy in the City of Rosamond. Although the potential is low, the proposed project may attract vandals or other security risks, and construction activities would result in increases in traffic volumes along surrounding roads, which could increase demand on law enforcement services. Access would be limited to the proposed project site during construction and operation, thereby minimizing the need for police services;

nonetheless, the proposed project's impacts on sheriff services are potentially significant and will be evaluated in the EIR.

- (iii) **No Impact. Schools:** During the approximate 6-month construction period of the proposed project, an average of 100 daily construction workers and a peak workforce of 200 workers could be required. It is expected that most of these workers would live in the region and would commute to the proposed project site from where their children are already enrolled in school. Even if these workers came from out of the area, they would likely return to their out-of-town residences once the facilities were built and would not take their children out of their current schooling situation. Therefore, substantial temporary increases in population that would adversely affect local school populations are not expected. Additionally, operation of the proposed project would not require any permanent employees. Maintenance personnel would be expected to visit the proposed project site several times per year for routine maintenance. However, these employees would likely commute to the proposed project site from their permanent residences, and would not take their children out of their schooling situation. However, even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the addition of these families to this area would not result in a substantial increase in the number users of local schools. Significant impacts would not occur and further analysis of this issue is not warranted in the EIR.
- (iv) **No Impact. Parks and Other Public Facilities:** The proposed project would require an average of 100 daily workers and a peak workforce of 200 workers during the up to 6-month construction period. It is expected that most of these workers would live in the region and would commute to the proposed project site. The temporary workers during construction would not result in a substantial additional demand for park facilities, nor would they adversely affect local public facilities, such as post office, courthouse, and library services. Operation of the proposed project would not require any permanent onsite employees for maintenance and monitoring activities. Maintenance personnel would be expected to visit the proposed project site several times per year for routine maintenance, but they would likely be drawn from the local labor force and would commute from their permanent residences to the proposed project site during those times. However, even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the addition of these families to this area would not result in a substantial increase in the number users of local parks. As a result, significant impacts to parks or other public services are not anticipated to occur, and further analysis of this issue is not warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.16 Recreation.

Would the project:

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a)-(b) **No Impact.** The proposed project does not include new recreational facilities. The temporary increase in use of recreation facilities during construction that might be caused by an influx of workers would be minimal. Operation of the proposed project would not require any permanent onsite employees for maintenance and monitoring activities. Maintenance personnel would be expected to visit the proposed project site several times per year for routine maintenance, but they would likely be drawn from the local labor force and would commute from their permanent residences to the proposed project site during those times. However, even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the addition of these families to this area would not result in a substantial increase in the number of users at local parks. As a result, there would not be a detectable increase in the use of parks or other recreational facilities. Impacts would not occur, and further analysis is not warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.17 Transportation/Traffic.

Would the project:

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|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Conflict with an applicable congestion management program, including, but not limited to, level of service (LOS) standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | | | | |
| i. Metropolitan Bakersfield General Plan LOS "C" | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| ii. Kern County General Plan LOS "D" | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

- (a) **Potentially Significant Impact.** Construction activities associated with the proposed project could potentially affect traffic volumes on nearby roadways. During construction of the proposed project, there would be an average daily construction workforce of 100 employees, with a peak construction

workforce of 200 employees during the approximate 6-month construction period. Project operations would not require any permanent full-time staff onsite. Maintenance personnel would be expected to visit the proposed project site several times per year for routine maintenance and PV modules may be cleaned up to nine times a year. This trip generation would not result in a substantial increase in traffic along existing roadways or congestion at intersections. Nonetheless, this impact will be analyzed further in the EIR.

- (b)
 - (i) **No Impact.** The proposed project site is not located in or near the metropolitan Bakersfield area. Therefore, no further analysis of this topic will be included in the EIR.
 - (ii) **Less Than Significant Impact.** Construction of the proposed project would generate construction trips and may require roadway lane closures, which could temporarily increase the daily traffic volumes on local roadways and intersections. Operation of the proposed project would also generate trips on local roadways. The potential impacts of these conditions on LOS of area roadways will be evaluated in the EIR.
- (c) **No Impact.** The nearest airport to the proposed project site is the Mountain Valley Airport, a private use airport, located 10 miles north of the proposed project site. It is not anticipated that the proposed project will interfere with airspace, as the site is not listed in an Airport Land Use Compatibility Map Zone. The proposed project is outside the NAWS China Lake North Range sphere of influence. The proposed project would not interfere with airspace at the Mountain Valley Airport, as the non-reflective surfaces used for the solar arrays would have about half the reflectance of standard residential and commercial glass. The proposed project would not result in an increase in air traffic levels or a change in location of air traffic patterns that would result in substantial safety risks, because air traffic patterns would not be affected (i.e., the only mode of transport affected by the proposed project is automobile/truck operations). Therefore, there would be no impacts related to a change in air traffic patterns and further analysis of this issue is not warranted in the EIR.
- (d) **No Impact.** Roadway modifications are not needed or proposed as part of the proposed project. The project proposes access from State Route 14 by way of Rosamond Boulevard from the east, and then along 170th Street West and access roads previously entitled for the Manzanita, Pacific Wind, and Catalina projects, however, trucks transporting solar panel components and other construction materials could use State Route 138 (Avenue D) as an alternative route to avoid congested traffic conditions in Rosamond. The facilities would be surrounded by boundary fences and would require little maintenance upon full build-out.

Additionally, the proposed project would not include the development of sharp curves, dangerous intersections or other hazardous design features. Therefore, the proposed project would not substantially increase hazards due to a design feature or incompatible uses. Impacts would not be noted and further analysis is not warranted in the EIR.

- (e) **Less Than Significant Impact.** As described in item (a) above, construction of the proposed project would generate traffic trips, which could temporarily increase the daily traffic volumes on local roadways and intersections. However, the proposed project would not physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The proposed project site and vicinity are accessible via existing roads, with an alternative access road allowing easy access in the event of an emergency. Therefore, adverse impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan are not anticipated. Impacts would be less than significant and further analysis is not warranted in the EIR.

- (f) **No Impact.** Operation of the proposed project would not require any permanent onsite employees for maintenance and monitoring activities. Maintenance personnel would be expected to visit the proposed project site several times per year for routine maintenance, but they would likely be drawn from the local labor force and would commute from their permanent residences to the proposed project site during those times. Due to the rural nature of the proposed project area, bicycle traffic is limited and few bus stops exist on the roadways likely to be used during construction and operation. The proposed project would not house residents or employees and therefore would not have characteristics that could influence alternative means of transportation. The proposed project would not conflict with adopted policies, plans, or programs supporting alternative transportation. Impacts would not be noted and additional analysis is not warranted in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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3.18 Utilities and Service Systems.

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| g. Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion:

- (a) **No Impact.** The proposed project would generate a minimal volume of wastewater. The average construction workforce for the proposed project site is 100 workers (expected to peak at 200 individuals). Wastewater generated during construction would be contained within portable toilet facilities. The Kern County Environmental Health Services Division is responsible for monitoring the use of portable toilet facilities, and a condition of approval would require the project proponent to provide documentation of a portable toilet pumping contract.

As proposed, the project would not include O&M buildings, and no permanent onsite staff would be required. Maintenance personnel would be expected to visit the proposed project site several times a year for routine maintenance. Therefore, the proposed project would not exceed wastewater treatment requirements of the Lahontan RWQCB. There would not be expected impacts that would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board and no further analysis is warranted in the EIR.

- (b) **No Impact.** The proposed project would not require new water or wastewater disposal systems to be constructed, as no permanent operation or maintenance staff would be required onsite. Potable water would be brought to the site for drinking and other domestic needs during construction. Water for panel washing would be brought in by trucks. The proposed project is not proposing construction of any new or expanded water or wastewater treatment facilities, therefore no further analysis is warranted in the EIR.
- (c) **Less Than Significant Impact.** The proposed project would create additional impervious surfaces on the proposed project site and may require imported water for dust suppression during construction and panel washing. These changes would not substantially increase the amount of stormwater runoff. The proposed project site does not rely on constructed stormwater drainage systems. The pattern and concentration of runoff could be altered by proposed project activities, such as grading of the site and roads. However, the proposed project must comply with the Lahontan RWQCB and NPDES requirements with approval of a SWPPP and a WQMP that include BMPs for runoff control. Additionally, a drainage plan would be required to be approved by the Kern County Public Works Department-Building & Development-Floodplain Division prior to issuance of building permits. With adherence to all applicable regulations, the proposed project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Although impacts would be less than significant, this issue will be further considered in the EIR.
- (d) **Less Than Significant Impact.** Water for construction and panel washing would be trucked in and potable water would be brought to the site for drinking and domestic needs during construction. Construction of the proposed project would require approximately 200 acre-feet of water. It is expected that operation of the proposed project would require approximately .27 acre-foot of water per year. The proposed project is not anticipated to impact water supplies and no new or expanded entitlements would be required. Although impacts are expected to be less than significant, further analysis is warranted in the EIR.
- (e) **No Impact.** Wastewater services for the proposed project area are not provided by a Community Service District (CSD). As noted in (a) and (b) above, the proposed project is not expected to generate a significant amount of wastewater. Wastewater produced during construction would be collected in portable toilet facilities and disposed of at an approved facility. No toilet facilities will be available for routine maintenance personnel on-site. The O&M Building facilities for the Manzanita Wind Project would be available for the personnel that would provide routine maintenance and PV module cleaning several times a year. Therefore, wastewater would not be generated from the proposed project, impact would not be noted and further analysis is not warranted in the EIR.
- (f) **Less Than Significant Impact.** Solid waste generated within the proposed project area would be transported to the Kern County operated Mojave-Rosamond Sanitary Landfill located at 400 Silver Queen Road near the community of Mojave. The proposed project is not expected to generate a substantial amount of waste that would exceed the capacity of local landfills. Materials brought to the

proposed project site would be used to construct facilities, and few residual materials are expected. Non-hazardous construction refuse and solid waste would be either collected and recycled or disposed of at a local Class III landfill, while any hazardous waste generated during construction would be disposed of at an approved location. The closest Class III municipal landfill owned by the County of Kern and operated by the Kern County Waste Management Department is located at the Mojave-Rosamond Sanitary Landfill. It is not anticipated that the amount of solid waste generated by the proposed project would exceed the capacity of local landfills. Impacts are anticipated to be less than significant; however, further analysis of this issue will be included in the EIR.

- (g) **Less Than Significant Impact.** The proposed project would generate solid waste during construction and operation, thus requiring the consideration of waste reduction and recycling measures. The 1989 California Integrated Waste Management Act (AB 939) requires Kern County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. The proposed project would comply with the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991, as amended. Therefore, impacts are anticipated to be less than significant but will be further analyzed in the EIR.

Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
--------------------------------------	---	------------------------------------	--------------

3.19 Mandatory Findings of Significance

- | | | | | |
|---|-------------------------------------|--------------------------|--------------------------|--------------------------|
| 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

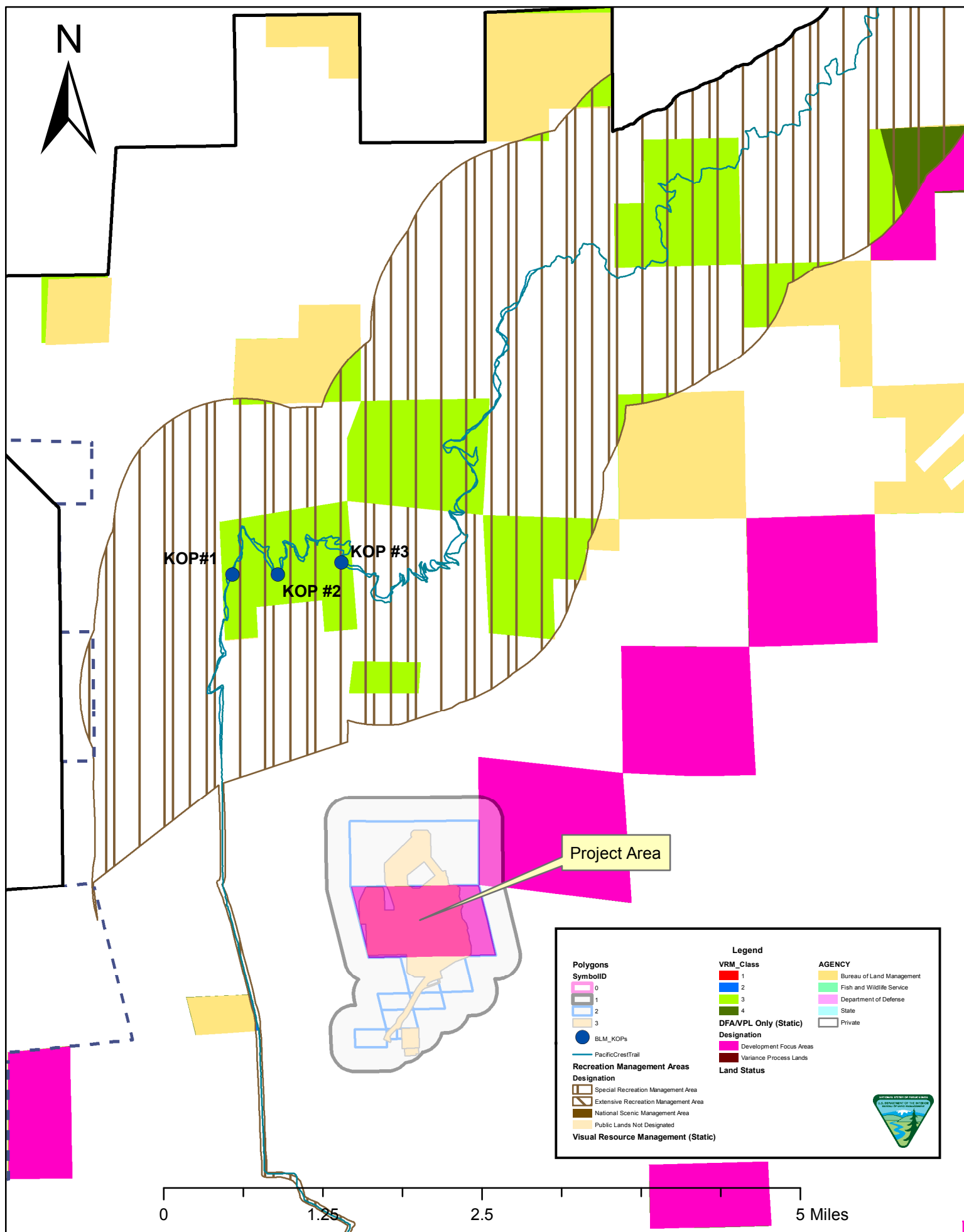
Discussion:

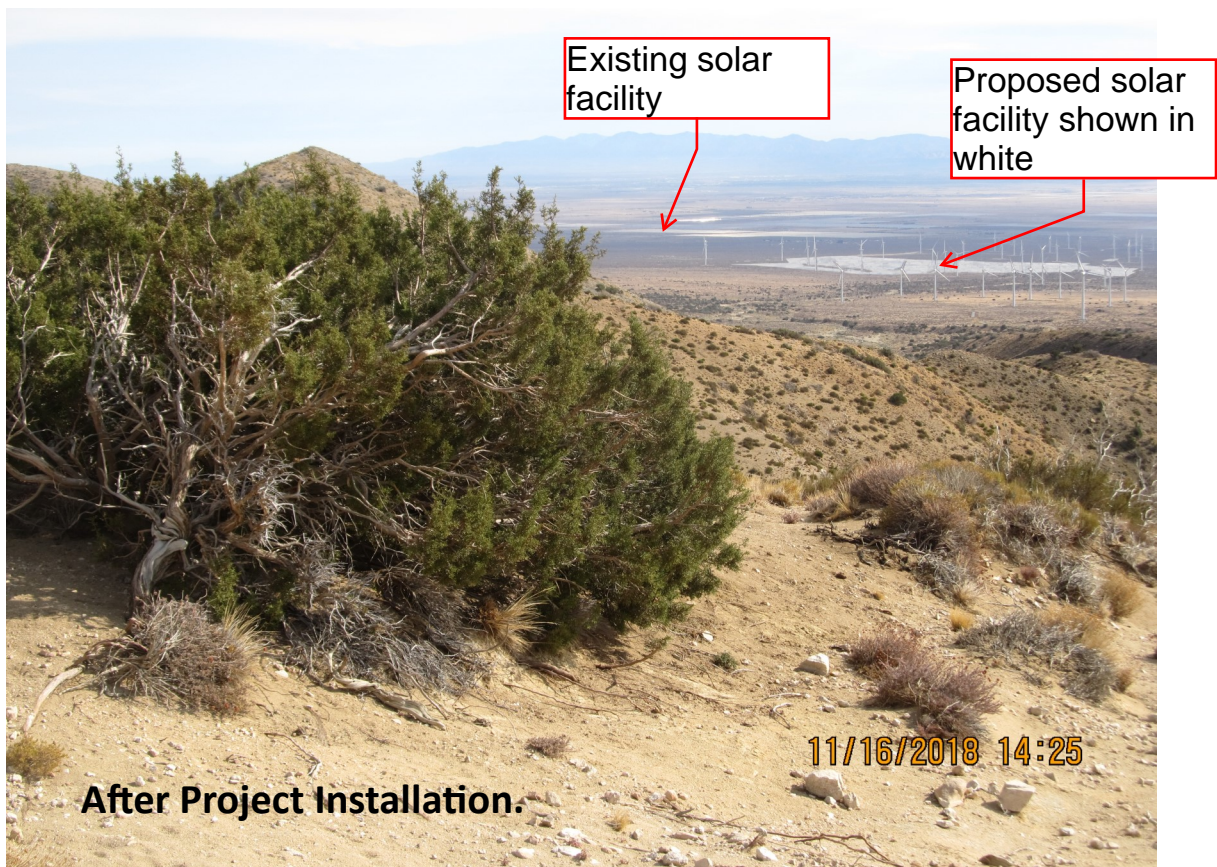
- (a) **Potentially Significant Impact.** The EIR’s biological and cultural resources sections will discuss specific impacts from the proposed project on plants and wildlife, and historical resources. The document will also evaluate the proposed project’s contribution to cumulative resource impacts and propose mitigation that is designed to reduce the impacts to less-than-significant levels, where feasible.
- (b) **Potentially Significant Impact.** The proposed project has the potential to cumulatively contribute to aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, and traffic impacts. The EIR will evaluate the proposed project’s contribution to cumulative impacts in these and other resource areas.
- (c) **Potentially Significant Impact.** Although there may be significant air quality impacts during construction, the long-term air quality impacts could be beneficial if fossil fuel use is reduced. The short-term cumulative contribution to air quality impacts from the proposed project will be evaluated in the EIR.

Appendix B

Visual Simulations

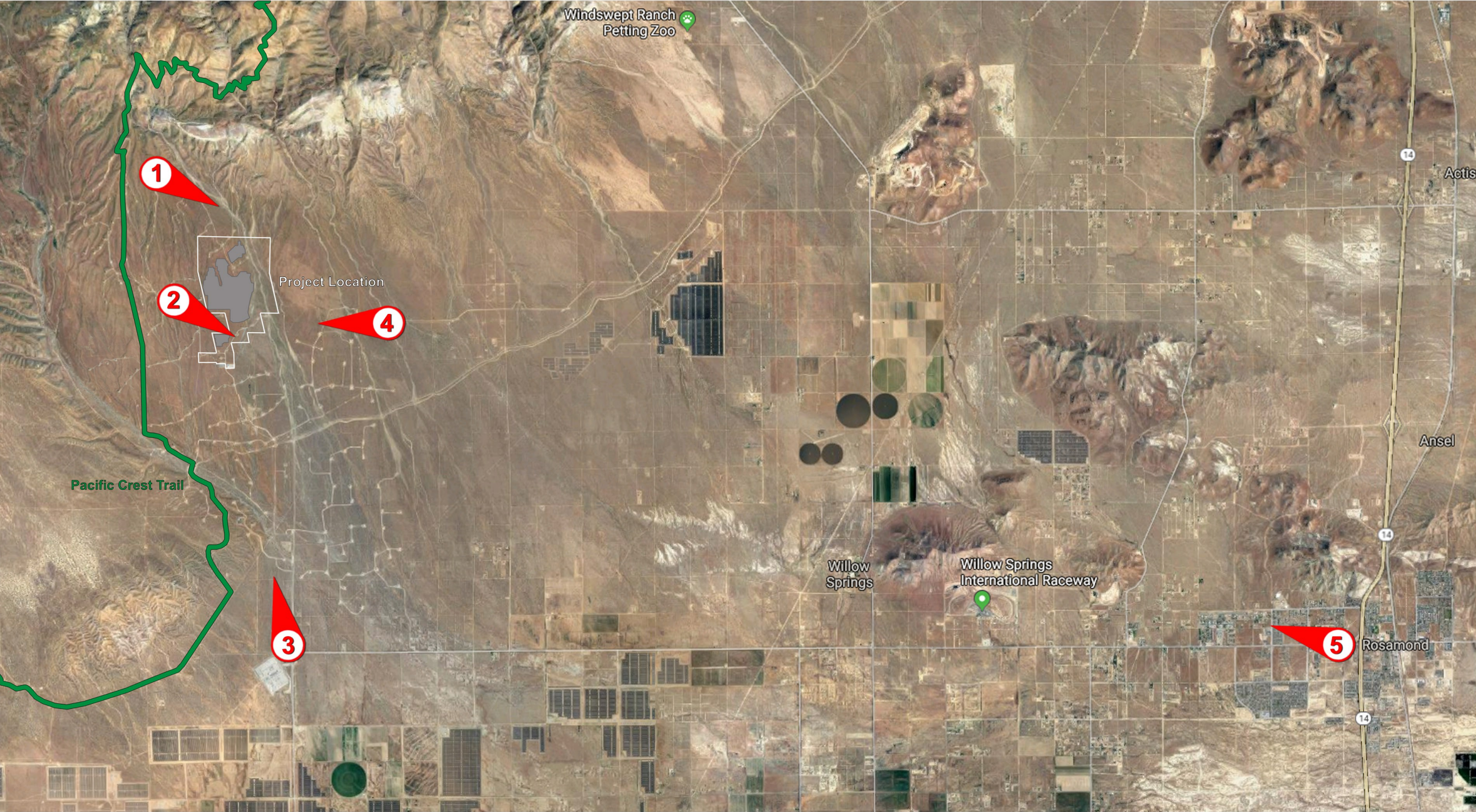






BLM KOP #1. Looking Southeast from the Pacific Crest Trail.





Camino Solar

Key Map



Existing View



Proposed View



Existing View



Proposed View



Existing View



Proposed View



Existing View



Proposed View



Existing View



Proposed View

Appendix C

Air Quality and Greenhouse Gas Impact Analysis for the Proposed Camino Solar Project



AIR QUALITY & GREENHOUSE GAS IMPACT ANALYSIS

FOR THE PROPOSED

CAMINO SOLAR PROJECT

KERN COUNTY, CA

**OCTOBER 2017
(UPDATED JANUARY 2019)**

PREPARED FOR:

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- B General Conformity Applicability Determination
- C Emissions Modeling

LIST OF COMMON TERMS & ACRONYMS

AAM	Annual Arithmetic Mean
ACM or ACBM	Asbestos-Containing Building Materials
ARB	California Air Resources Board
AQAP	Air Quality Attainment Plan
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
EKAPCD	East Kern Air Pollution Control District
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
IPCC	Intergovernmental Panel on Climate Change
MDAB	Mojave Desert Air Basin
MW	Megawatts
MWh	Megawatt Hours
N ₂ O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards or National AAQS
NESHAPs	National Emission Standards for HAPs
NOA	Naturally-Occurring Asbestos
NO _x	Oxides of Nitrogen
OAP	Ozone Attainment Plan
O&M	Operations & Maintenance
O ₃	Ozone
Pb	Lead
PM	Particulate Matter
PM ₁₀	Particulate Matter (less than 10 µm)
PM _{2.5}	Particulate Matter (less than 2.5 µm)
ppb	Parts per Billion
ppm	Parts per Million
PV	Photovoltaic
ROG	Reactive Organic Gases
SCE	Southern California Edison
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminant
TSCA	Toxic Substances Control Act
UFP	Ultra-Fine Particles
µg/m ³	Micrograms per cubic meter
U.S. EPA	United State Environmental Protection Agency

INTRODUCTION

This report provides a description of the existing environment in the project area and identifies potential impacts associated with the proposed project in relation to regional and local air quality, as well as increased emissions of greenhouse gases (GHGs). This report was prepared in accordance with the Eastern Kern Air Pollution Control District's (EKAPCD) *Guidelines for Implementation of the California Environmental Quality Act* (1996, amended 1999) and Kern County Planning and Community Development Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006).

PROJECT DESCRIPTION SUMMARY

Aurora Solar, LLC proposes to construct and operate a solar energy generation facility with a generation output of up to 44 MW of renewable energy using thin film photovoltaic (PV) technology. Supporting components will include a 34.5-kilovolt (kV) electrical collection system that will be located entirely on private land, and an inner-facility road network on both private and Bureau of Land Management (BLM) lands. The collection line will connect with the existing Manzana Project substation transmission line. The project will interconnect with the Whirlwind substation using existing transmissions lines associated with the Manzana project. No new above ground electrical lines are proposed, except for riser poles at the transition from underground collector line to the substation. An energy storage component will be incorporated next to the existing Manzana substation on private lands. The energy storage unit will be composed of a series of batteries to store power generated at the facility, allowing transfer of power to the electrical grid when needed. The energy storage infrastructure will be approximately 2 acres in size, entirely on private land. It will be sited within a 13-acre area north of the existing Manzana operations and maintenance (O&M) facility, allowing for the micro-siting to avoid sensitive resources. The project location is depicted in Figure 1.

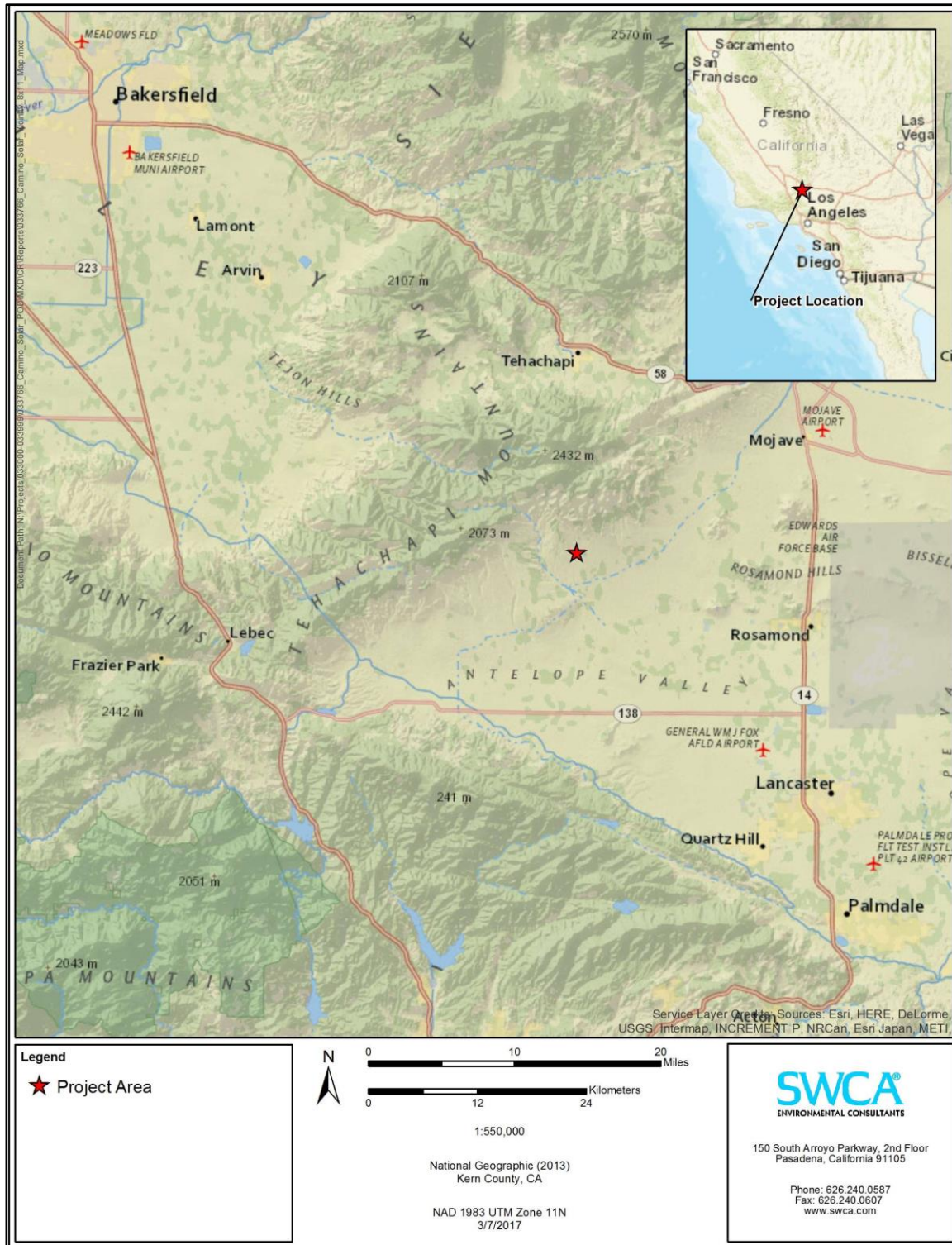
Aurora Solar, LLC anticipates beginning commercial operation in January 2019 and expects that construction of the facility will take at least 6 months to complete. No construction phasing is proposed.

NEARBY LAND USES & SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Land uses in the project area are largely undeveloped and zoned for agricultural use. No sensitive land uses are located within three miles of the project site. The nearest populated areas are the unincorporated community of Mojave, which is located 17 miles to the northeast, the unincorporated community of Rosamond, located 16 miles to the southeast, and the City of Tehachapi, located approximately 12 miles to the north. The nearest rural residential dwelling is located three miles east of the project site.

Figure 1
Project Location Map



Source: SWCA 2017

AIR QUALITY

EXISTING SETTING

The project is located within Eastern Kern County within the Mojave Desert Air Basin (MDAB). The location of the MDAB is depicted in Figure 2. The MDAB consists of the eastern half of Kern County, the northern desert portion of Los Angeles County, eastern Riverside County, and a majority of San Bernardino County. Eastern Kern County is within the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD).

The MDAB covers a large part of the California's high desert. The MDAB includes the eastern half of Kern County, the northern part of Los Angeles County, most of San Bernardino County except for the southwest corner, and the eastern edge of Riverside County. It is separated from the South Coast Air Basin, to its south, by the San Gabriel and San Bernardino Mountains. It is separated from the San Joaquin Valley, to the northwest, by the Tehachapi Mountains and the south end of the Sierra Nevada (ARB 2001).

Although the eastern part of the MDAB is sparsely populated, the area just north of the San Gabriel and San Bernardino Mountains supports a large population, including the communities of Lancaster, Palmdale, Victorville, Hesperia, Apple Valley, and Barstow. Emissions from these areas, as well as military bases, highways, railroad facilities, cement manufacturing, and mineral processing activities within the MDAB contribute to the region's ozone precursor emissions (ARB 2001).

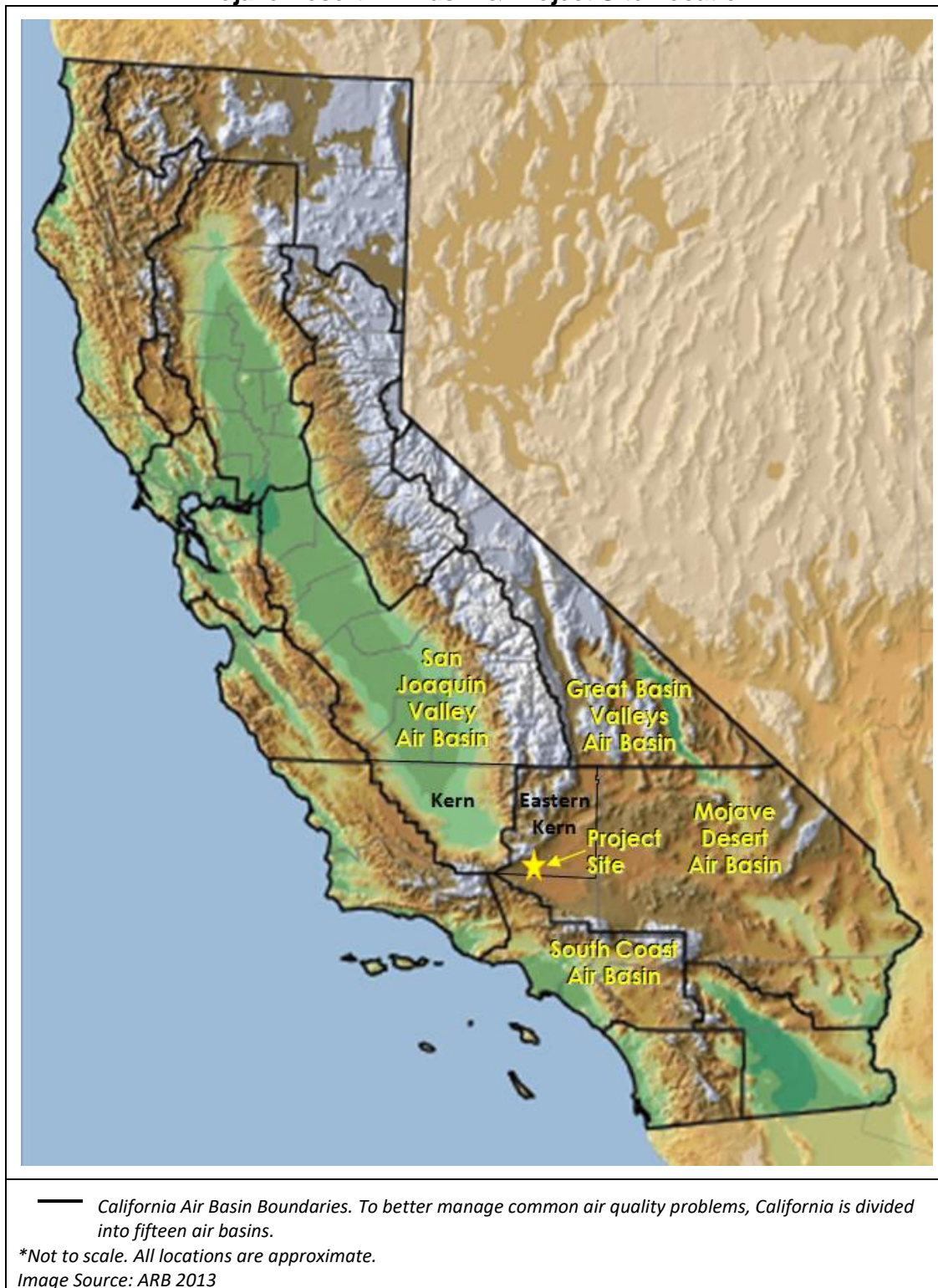
The MDAB is also impacted by emissions from the San Joaquin Valley and the South Coast, although local emissions also contribute to poor air quality. The portion of the Mojave Desert immediately to the north of the San Gabriel and San Bernardino Mountains is heavily impacted by transport from the South Coast. Air monitoring stations at Hesperia and Phelan show the impact of surface transport through the Cajon Pass. In addition, transport aloft carries pollutants over the mountains to impact a broad area including Twentynine Palms and Lancaster-Palmdale areas. The air basin receives pollutants from the San Joaquin Valley as well. The area immediately downwind of Tehachapi Pass receives pollutants from the southern San Joaquin Valley. Violations in the town of Mojave in the eastern portion of Kern County are attributed entirely to this transport. The influence of pollutants from the San Joaquin Valley extends as far as Lancaster (ARB 2001).

CRITERIA AIR POLLUTANTS

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas, standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere.

Figure 2
Mojave Desert Air Basin & Project Site Location



Ozone (O₃) is a reactive gas consisting of three atoms of oxygen. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends to a level about 10 miles up where it meets the second layer, the stratosphere. While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system.

Ozone, a colorless gas which is odorless at ambient levels, is the chief component of urban smog. Ozone is not directly emitted as a pollutant, but is formed in the atmosphere when hydrocarbon and NO_x precursor emissions react in the presence of sunlight. Meteorology and terrain play major roles in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and cloudless skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often impacts a large area (ARB 2013).

Sources of precursor gases number in the thousands and include common sources such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of various fuels. Emissions of the ozone precursors ROG and NO_x most commonly originate from motor vehicles, as well as, commercial, and industrial uses.

Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development. Long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children. People most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. In addition, people with certain genetic characteristics, and people with reduced intake of certain nutrients, such as vitamins C and E, are at greater risk from ozone exposure (U.S. EPA 2016a).

Reactive Organic Gases and Volatile Organic Compounds. Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including VOCs and ROG, which include all hydrocarbons except those exempted by ARB. Therefore, ROG are a set of organic gases based on state rules and regulations. VOCs are similar to ROG in that they include all organic gases except those exempted by Federal law.

Both VOCs and ROG are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects related to hydrocarbons stem from ozone (see discussion above). High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate national or California ambient air quality standards for ROG. Carcinogenic forms of ROG are considered TACs. An example is benzene, which is a carcinogen. The health effects of individual ROG are described under the "Toxic Air Contaminants" heading below.

Nitrogen Dioxide (NO₂) and Nitrogen Oxides

NO₂ is one of a group of highly reactive gases known as "oxides of nitrogen (NO_x)."¹ NO₂ is the component of greatest interest and the indicator for the larger group of nitrogen oxides. It forms quickly from emissions from cars, trucks and buses, powerplants, and off-road equipment. NO_x is a strong oxidizing agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates.

NO_x is emitted from solvents and combustion processes in which fuel is burned at high temperatures. Mobile sources (including on-road and off-road vehicles) and stationary sources such as electric utilities and industrial boilers, constitute a majority of the statewide NO_x emissions. To a lesser extent, area-wide sources, such as residential heaters, gas stoves, and managed burning and disposal, also contribute to total state-

wide NO_x emissions (ARB 2013). NO_x is also linked to the formation of ground-level ozone and fine particle pollution (refer to discussions of ozone and particulate pollution for additional discussion of health-related impacts).

Direct inhalation of NO_x can cause a wide range of health effects. NO_x can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than three hours) to low levels of nitrogen dioxide (NO₂) may lead to changes in airway responsiveness and lung function in individuals with pre-existing respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO₂ may lead to increased susceptibility to respiratory infection and may cause irreversible lung damage. Other health effects are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NO_x can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_x can also impair visibility.

NO_x also contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins that are harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates low pH conditions and levels of aluminum that are toxic to fish and other aquatic organisms. NO_x also contributes to haze and visibility impairment (U.S. EPA, 2016b, 2016c).

Particulate Matter (PM) is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, sulfates, and organic compounds; and complex mixtures such as diesel exhaust and soil. PM_{2.5} includes fine particles with a diameter of 2.5 microns or smaller and is a subset of PM₁₀. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires. Others form in complicated reactions in the atmosphere of chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industries and automobiles. These particles, known as secondary particles, make up most of the fine particle pollution in the country (ARB 2013).

Area-wide sources account for about 65 and 83 percent of the statewide emissions of directly emitted PM_{2.5} and PM₁₀, respectively. The major area-wide sources of PM_{2.5} and PM₁₀ are fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Sources of PM₁₀ include crushing or grinding operations, and dust stirred up by vehicles traveling on roads. Sources of PM_{2.5} include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted PM_{2.5} and PM₁₀ emissions, but are a major source of the VOC and NO_x that form secondary particles (ARB 2013).

PM₁₀ and PM_{2.5} particles are small enough to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases; heart and lung disease; and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. PM₁₀ and PM_{2.5} can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Sensitive populations, including children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis are especially vulnerable to the effect of PM₁₀. Non-health-related effects include reduced visibility and soiling of buildings.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive.

CO enters the bloodstream and binds more readily to hemoglobin, the oxygen-carrying protein in blood, than oxygen, thereby reducing the oxygen-carrying capacity of blood and reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. Exposure to CO can cause chest pain in heart patients, headaches, and reduced mental alertness. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and, with prolonged enclosed exposure, death.

Very high levels of CO are not likely to occur outdoors. However, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability for getting oxygenated blood to their hearts in situations where the heart needs more oxygen than usual. They are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina (EPA 2016e).

Sulfur Dioxide (SO₂) is one of a group of highly reactive gases known as "oxides of sulfur (SO_x). It is a colorless, irritating gas with a "rotten egg" smell that is formed primarily by the combustion of sulfur-containing fossil fuels. The largest source of SO₂ in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities. Smaller sources of SO₂ emissions include: industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content. State and national ambient air quality standards for SO₂ are designed to protect against exposure to the entire group of sulfur oxides (SO_x). SO₂ is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides.

High concentrations of SO₂ can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO₂ levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer term exposures to high concentrations of SO₂ in conjunction with high levels of particulate matter include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. The subgroups of the population that may be affected under these conditions include individuals with heart or lung disease, as well as the elderly and children.

Together, SO₂ and NO_x are the major precursors to acidic deposition (acid rain), which is associated with the acidification of soils, lakes, and streams and accelerated corrosion of buildings and monuments. SO₂ also is a major precursor to PM_{2.5}, which is a significant health concern, and a main contributor to poor visibility. (See also the discussion of the health effects of particulate matter below.) (U.S. EPA 2016d, 2016f).

Lead (Pb) is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing. Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years. The use of lead as an additive to gasoline was banned in 1996 in the United States.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. The effects of lead are the same regardless of the path of exposure. Lead can affect almost every organ and system in your body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause

death. In pregnant women, high levels of exposure to lead may cause miscarriage. High level exposure in men can damage the organs responsible for sperm production.

Exposure to lead is more dangerous for young and unborn children. Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common if the mother or baby was exposed to high levels of lead. Some of these effects may persist beyond childhood (ATSDR 2016a).

Hydrogen Sulfide (H₂S) is a colorless gas with the odor of rotten eggs. Hydrogen sulfide occurs naturally and is also produced by human activities. Hydrogen sulfide (H₂S) occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. It can also result during bacterial decomposition of sulfur-containing organic substances. Emissions of H₂S associated with human activities including various industrial activities, such as oil and gas production, refining, sewage treatment plants, food processing, and confined animal feeding operations.

Studies in humans suggest that the respiratory tract and nervous system are the most sensitive targets of hydrogen sulfide toxicity. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Respiratory distress or arrest has been observed in people exposed to very high concentrations of hydrogen sulfide. Exposure to low concentrations of hydrogen sulfide may cause headaches, poor memory, tiredness, and balance problems. Brief exposures to high concentrations of hydrogen sulfide can cause loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in some individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces. In some instances, exposure to high concentrations can cause death (ATSDR 2016b)

Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The California Air Resources Board (ARB) has established state standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Sulfates (SO₄₋₂) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO₂) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO₂ to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems and damage materials and property (ARB, 2016c).

Visibility Reducing Particles: Are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Vinyl Chloride (C₂H₃Cl or VCM) is a colorless gas that does not occur naturally. It is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials (U.S. EPA 2016g).

ODORS

Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The EKAPCD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to EKAPCD's *Rule 419, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the EKAPCD.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA), and are thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with District rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources,

contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB 2013).

In October 2000, the ARB issued a report entitled: *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRRP will significantly reduce emissions from both old and new diesel fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2013). In comparison to year 2010 inventory of statewide DPM emissions, ARB estimates that emissions of DPM in 2035 will be reduced by more than 50 percent.

DPM is typically composed of carbon particles ("soot", also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x). NO_x emissions from diesel engines are important because they can undergo chemical reactions in the atmosphere leading to formation of PM_{2.5} and ozone (ARB, 2016d).

In California, diesel exhaust particles have been identified as a carcinogen accounting for an estimated 70% of the total known cancer risks in California. DPM is estimated to increase statewide cancer risk by 520 cancers per million residents exposed over an estimated 70-year lifetime. Non-cancer health effects associated with exposure to DPM include premature death, exacerbated chronic heart and lung disease, including asthma, and decreased lung function in children. Short-term exposure to diesel exhaust can also have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks (ARB, 2016d).

Individuals most vulnerable to non-cancer health effects of DPM are children whose lungs are still developing and the elderly who often have chronic health problems. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to DPM (ARB, 2016d). In addition to its health effects, DPM significantly contributes to haze and reduced visibility. DPM also plays an important role in climate change. As noted above, a large proportion of DPM is composed of BC. Recent studies cited in the Intergovernmental Panel on Climate Change report estimate that emissions of BC are the second largest contributor to global warming, second only to emissions of carbon dioxide (ARB, 2016d). (Refer to the Greenhouse Gas section of this report for additional discussion of BC and climate change.)

Acetaldehyde is a federal HAP and the ARB identified acetaldehyde as a TAC in April 1993 under AB 2728. This bill required the ARB to identify all federal HAPs as TACs. In California, acetaldehyde is identified as a carcinogen. This compound also causes chronic non-cancer toxicity in the respiratory system.

Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. In California, photochemical oxidation is the largest source of acetaldehyde concentrations in the ambient air. Approximately 30 percent of the statewide acetaldehyde emissions can be attributed to on-road motor vehicles, with an additional 50 percent attributed to other mobile sources such as construction

and mining equipment, aircraft, recreational boats, and agricultural equipment. Area-wide sources of emissions, which contribute 18 percent of the statewide acetaldehyde emissions, include the burning of wood in residential fireplaces and wood stoves. Stationary sources contribute two percent of the statewide acetaldehyde emissions. The primary stationary sources are from fuel combustion from the petroleum industry (ARB 2009).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 87 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products.

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as known human carcinogen for all routes of exposure (U.S. EPA 2014). In California, Benzene has been identified as a human carcinogen (ARB 2009).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for a majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2013).

Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a carcinogen.

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program (ARB 2013). The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risk (ARB 2013).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride are limited. Studies in animals have shown that ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a carcinogen.

Hexavalent chromium was identified as a TAC in 1986. Hexavalent chromium is produced by heating trivalent chromium (Cr+3) in the presence of mineral bases and oxygen, and is used in the manufacturing of paint,

dyes and pigments. Hexavalent chromium can also be a by-product of an industrial process, (i.e., thermal spraying, hard chromium electroplating, stainless steel welding, power plant combustion, refining, and leather tanning). Hexavalent chromium is found primarily in industrial settings. Three industries that are major sources of hexavalent chromium are: metallurgical, refractory and chemical. Occupational exposure can be from thermal spraying, welding of alloys or steel, leather tanning, chromate production, textiles and wood preservatives. Exposure to hexavalent chromium can also occur from airborne emissions from chemical plants, incineration facilities, cement plants and tobacco smoke (ARB 2009).

Exposure to hexavalent chromium can be through inhalation, ingestion and dermal (skin) contact. Inhalation exposure to hexavalent chromium has been known to cause lung and nasal cancers, respiratory irritation, severe nasal and skin ulcerations and lesions, perforation in the nasal septum, liver and kidney failure and birth defects. In California, hexavalent chromium has been identified as a human carcinogen (ARB 2004a, 2009)

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions.

Acute exposure to paradichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. California has identified para-dichlorobenzene as a human carcinogen (ARB 2009, 2016e).

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2009).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. In California, formaldehyde has been identified as a human carcinogen (ARB 2004b, 2009).

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2009).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data are inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a human carcinogen (ARB 2009).

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry

cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners and tire sealants and inflators (ARB 2009).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a human carcinogen (ARB 2009).

ASBESTOS

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The project site, however, is not located in an area of known ultramafic rock.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900's; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos containing products.

Naturally-occurring asbestos was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure.

VALLEY FEVER

Valley fever is an infection caused by the fungus *Coccidioides*. The scientific name for valley fever is "coccidioidomycosis," and it's also sometimes called "desert rheumatism." The term "valley fever" usually refers to *Coccidioides* infection in the lungs, but the infection can spread to other parts of the body in severe cases.

Coccidioides spores circulate in the air after contaminated soil and dust are disturbed by humans, animals, or the weather. The spores are too small to see without a microscope. When people breathe in the spores, they are at risk for developing valley fever. After the spores enter the lungs, the person's body temperature

allows the spores to change shape and grow into spherules. When the spherules get large enough, they break open and release smaller pieces (called endospores) which can then potentially spread within the lungs or to other organs and grow into new spherules. In extremely rare cases, the fungal spores can enter the skin through a cut, wound, or splinter and cause a skin infection.

Symptoms of valley fever may appear between 1 and 3 weeks after exposure. Symptoms commonly include: fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches and joint pain, and rashes on the upper body or legs.

Approximately 5 to 10 percent of people who get valley fever will develop serious or long-term problems in their lungs. In an even smaller percent of people (about 1 percent), the infection spreads from the lungs to other parts of the body, such as the central nervous system (brain and spinal cord), skin, or bones and joints. Certain groups of people may be at higher risk for developing the severe forms of valley fever, such as people who have weakened immune systems. The fungus that causes valley fever, *Coccidioides*, can't spread from the lungs between people or between people and animals. However, in extremely rare instances, a wound infection with *Coccidioides* can spread valley fever to someone else, or the infection can be spread through an organ transplant with an infected organ.

For many people, the symptoms of valley fever will go away within a few months without any treatment. Healthcare providers choose to prescribe antifungal medication for some people to try to reduce the severity of symptoms or prevent the infection from getting worse. Antifungal medication is typically given to people who are at higher risk for developing severe valley fever. The treatment typically occurs over a period of roughly 3 to 6 months. In some instances, longer treatment may be required. If valley fever develops into meningitis life-long antifungal treatment is typically necessary.

Scientists continue to study how weather and climate patterns affect the habitat of the fungus that causes valley fever. *Coccidioides* is thought to grow best in soil after heavy rainfall and then disperse into the air most effectively during hot, dry conditions. For example, hot and dry weather conditions have been shown to correlate with an increase in the number of valley fever cases in Arizona and in California. The ways in which climate change may be affecting the number of valley fever infections, as well as the geographic range of *Coccidioides*, isn't known yet, but is a subject for further research (CDC 2014). Refer to Appendix A for additional information on valley fever.

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in the MDAB. The Mohave-923 Poole Street and the Lancaster-43301 Division Street monitoring stations are the closest representative monitoring stations to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. The Mohave-923 Poole Street monitoring station monitors ambient concentrations of ozone, PM₁₀, and PM_{2.5}. Measured concentrations of NO₂ were obtained from the Lancaster-43301 Division Street monitoring station. Ambient monitoring data were obtained for the last three years of available measurement data (i.e., 2014 through 2016) and are summarized in Table 1. As depicted, the state and federal ozone, PM_{2.5}, and state PM₁₀ standards were exceeded on numerous occasions during the past three years.

REGULATORY FRAMEWORK

Air quality within the project area is regulated by several jurisdictions including the U.S. EPA, ARB, and the EKAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

Table 1
Summary of Ambient Air Quality Monitoring Data

Pollutant	Monitoring Year		
	2014	2015	2016
Ozone⁽¹⁾			
Maximum concentration (1-hour/8-hour average)	0.104/0.095	0.104/0.084	0.104/0.093
Number of days state/national 1-hour standard exceeded	9/0	1/0	2/0
Number of days state/national 8-hour standard exceeded	88/57	31/15	52/29
Nitrogen Dioxide (NO₂)⁽²⁾			
Maximum concentration (1-hour average)	51.9	41.8	48.8
Annual average	8	NA	8
Number of days state/national standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter (PM_{2.5})⁽¹⁾			
Maximum concentration	36.5	42.2	25.7
Annual Average (national/state)	5.9	5.1	7.5
Number of days national standard exceeded (measured/calculated) ⁽³⁾	1/1.0	2/2.0	0/0.0
Suspended Particulate Matter (PM₁₀)⁽¹⁾			
Maximum concentration (national/state)	184.2/171.0	80.4/74.9	139.2/130.3
Number of days state standard exceeded (measured/calculated) ⁽³⁾	12/12.5	5/5.1	18/18.9
Number of days national standard exceeded (measured/calculated) ⁽³⁾	1/1.1	0/0	0/0
<p><i>ppm = parts per million by volume, $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter, NA=Not Available</i></p> <p><i>1. Based on ambient concentrations obtained from the Mohave-923 Poole Street Monitoring Station.</i></p> <p><i>2. Based on ambient concentrations obtained from the Lancaster-43301 Division Street Monitoring Station.</i></p> <p><i>3. Measured days are those days that an actual measurement was greater than the standard. Calculated days are estimated days that a measurement would have exceeded the standard had measurements been collected every day.</i></p> <p><i>Source: ARB 2017</i></p>			

FEDERAL

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish NAAQS, and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the National Emission Standards for Hazardous Air Pollutants (NESHAPs). These are technology-based source-specific regulations that limit allowable emissions of HAPs. Among these sources include ACBM. NESHAPs include requirements pertaining to the inspection, notification, handling, and disposal of ACBM associated with the demolition and renovation of structures.

Table 2
Summary of Ambient Air Quality Standards & Attainment Designations

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Primary	Attainment Status
Ozone (O ₃)	1-hour	0.09 ppm	Non-Attainment / Moderate	–	Non-Attainment / Serious
	8-hour	0.070 ppm		0.070 ppm	
Particulate Matter (PM ₁₀)	AAM	20 µg/m3	Non-Attainment	–	Unclassified/Attainment
	24-hour	50 µg/m3		150 µg/m3	
Fine Particulate Matter (PM _{2.5})	AAM	12 µg/m3	Unclassified	12 µg/m3	Unclassified/Attainment
	24-hour	No Standard		35 µg/m3	
Carbon Monoxide (CO)	1-hour	20 ppm	Unclassified	35 ppm	Attainment/Maintenance
	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		–	
Nitrogen Dioxide (NO ₂)	AAM	0.030 ppm	Attainment	0.053 ppm	Unclassified
	1-hour	0.18 ppm		0.100 ppm	
Sulfur Dioxide (SO ₂)	AAM	–	Attainment	0.03 ppm	Unclassified
	24-hour	0.04 ppm		0.14 ppm	
	3-hour	–		--	
	1-hour	0.25 ppm		75 ppb	
Lead	30-day Average	1.5 µg/m3	Attainment	–	Unclassified/Attainment
	Calendar Quarter	–		1.5 µg/m3	
	Rolling 3-Month Average	–		0.15 µg/m3	
Sulfates	24-hour	25 µg/m3	Attainment	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		
a. No federal 1-hour standard. Source: ARB 2017; EKAPCD 2017					

General Conformity Rule

The program by which a federal agency determines that a non-transportation action would not obstruct or conflict with air quality attainment plans is called "general conformity." The implementing regulations for general conformity are found in Code of Federal Regulations, title 40, part 51, subpart W and part 93, subpart B. General conformity requirements apply to Federal actions that do not include Federal highway and transit projects as defined in 40 CFR 93.101 and that take place in nonattainment or maintenance areas for all criteria pollutants. General conformity also applies to Federal highway and transit projects that do not involve either Title 23 or 49 funding or federal transportation agency approval. A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a federal nonattainment or maintenance area would equal or exceed specified annual emission rates, referred to as *de minimis* levels. These emission levels are expressed in units of tons per year and are compared to the total of direct and indirect annual emissions attributable to the proposed project, or the portion of the project that requires federal approval. The applicable *de minimis* emission levels for the pollutants for which federal general conformity is required within the project area are summarized in Table 3.

Table 3
Federal General Conformity De Minimis Levels

Pollutant	De Minimis Level (tons/year)
VOC	50
NO _x	50

As noted in Table 2, the proposed project is located in an area designated as serious non-attainment for the federal ozone standard. As noted in Table 3, the applicable *de minimis* levels for areas designated serious nonattainment for ozone is 50 tons per year for each of the ozone-precursor pollutants (i.e., VOC and NO_x).

STATE

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts), establishing CAAQS, which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO₂, and NO₂ by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics

Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

REGULATORY ATTAINMENT DESIGNATIONS

Under the CCAA, the ARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone, CO, and NO₂ as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO₂, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, the ARB terminology of attainment, nonattainment, and unclassified is more frequently used. The U.S. EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, U.S. EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM₁₀ based on the likelihood that they would violate national PM₁₀ standards. All other areas are designated "unclassified."

The state and national attainment status designations for the EKAPCD are summarized in Table 2. The EKAPCD is currently designated as a nonattainment area with respect to the state ozone and PM₁₀ standards, as well as, the national 8-hour ozone standard (EKAPCD 2017).

The FCAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The FCAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures.

EAST KERN AIR POLLUTION CONTROL DISTRICT

The EKAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained. Responsibilities of the EKAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. The EKAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following:

Rule 210.5, Visibility Protection. Rule 210.5 applies to new major stationary sources or major modifications which would have the potential to emit NO_x, SO₂, or PM in significant amounts that could adversely impact visibility in Class I areas.

Rule 402, Fugitive Dust. Rule 402 of the EKAPCD's rules and regulations addresses significant man-made dust sources from large operations. A large operation is defined as "any active operation, including vehicle movement on unpaved roadways, on property involving in excess of 100 contiguous acres of disturbed surface area, or any earth-moving activity exceeding a daily volume of 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period." Rule 402 applies to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion, and includes the following requirements:

- A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source, excluding unpaved roadways.
- A person shall utilize one or more Reasonably Available Control Measures (RACM) to minimize fugitive dust emissions from each source type that is part of any active operation, including unpaved roadways.
- A person shall not cause or allow downwind PM₁₀ ambient concentrations to increase more than 50 micrograms per cubic meter above downwind concentrations as determined by simultaneous upwind and downwind sampling utilizing high-volume particulate matter samplers, or other U.S. EPA-approved equivalent method(s).
- No person shall conduct a large operation without either: (1) conducting on-site PM₁₀ air quality monitoring and associated recordkeeping; or (2) filing for and obtaining an approved fugitive dust emission control plan.

It is also important to note that the EKAPCD recently proposed revisions to EKAPCD Rule 402, which were adopted on March 12, 2015. In accordance with these recently adopted amendments to Rule 402, solar projects would be required to obtain an Authority to Construct Permit and would be required to prepare a Fugitive Dust Air Monitoring Plan, as well as a Fugitive Dust Control Plan.

Rule 419, Nuisance. Rule 419 states that a person shall not discharge, from any source, quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.

Rule 423, National Emission Standards for Hazardous Air Pollutants and Source (NESHAPS). Rule 423 establishes standards, criteria and requirements that are applicable to emissions of hazardous air pollutants. Rule 423 incorporates the provisions of CFR Title 40, Chapter I, Parts 61 and 63. This regulation includes various requirements, including inspection, notification, handling, and disposal requirements that are specific to ACBMs encountered during demolition and renovation activities.

Kern County APCD California Clean Air Act Ozone Air Quality Attainment Plan

Kern County APCD's California Clean Air Act Ozone Air Quality Attainment Plan was approved by the California Air Resources Board (CARB) on February 18, 1993. The Air Quality Attainment Plan (AQAP) identifies measures to reduce emissions from stationary sources located within the EKAPCD. As a moderate ozone nonattainment area, EKAPCD is required to adopt retrofit Reasonably Available Control Technology rules and regulations for all sources of ozone precursor emissions. Transportation control measures are no longer included in the AQAP. The latest ozone attainment report, released in 2005, identified significant reductions in ozone emissions due, in part, to implementation of stationary source rules and regulations, as well as, reduction in pollutant transport from upwind locations (EKAPCD 2005).

KERN COUNTY

Kern County General Plan

The goal of the Kern County General Plan is to ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services. Applicable policies and implementation measures are summarized in Table 4.

Table 4
Kern County General Plan
Summary of Applicable Policies and Implementation Measures

Land Use, Conservation, and Open Space Element - Air Quality	
Policies	
(18)	The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.
(19)	In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision-making body, as part of its deliberations, will ensure that: <ul style="list-style-type: none"> (a) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and (b) The benefits of the project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.
(20)	The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.
Implementation Measure	
(F)	All discretionary permits shall be referred to the appropriate air district for review and comment.
Energy Element - Solar Energy Development	
Goal: Encourage safe and orderly commercial solar development.	
Policies	
(1)	The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.
(3)	The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.
<i>Source: County of Kern 2004</i>	

IMPACTS & MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The EKAPCD's *Guidelines for Implementation of the California Environmental Quality Act (CEQA) of 1970 (as amended 1999)* and Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006), identify the criteria to be used for the evaluation of air quality impacts. These documents include recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Projects that exceed these recommended thresholds would be considered to have a potentially significant impact to human health and welfare. The thresholds of significance are summarized, as follows:

- Conflicts with or obstructs implementation of the applicable air quality plan;
- Violates any air quality standard or contributes substantially to an existing or projected air quality violation;
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Specifically, if implementation of the project would exceed any of the following EKAPCD-recommended thresholds:

Operational and Construction Emission Sources:

- 25 tons per year for ROG
- 25 tons per year for NO_x
- 27 tons per year for SO_x (as SO₂)
- 15 tons per year for PM₁₀

Operational – Indirect Sources (motor vehicles):

- 137 lbs per day of ROG
- 137 lbs per day of NO_x
- Exposes sensitive receptors to substantial pollutant concentrations.
- Creates objectionable odors affecting a substantial number of people.

METHODOLOGY

Short-term Construction-Generated Emissions

Short-term construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, and vehicle travel on paved and unpaved surfaces and fugitive dust from material handling activities were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. Emissions modeling included emissions generated during initial move on, site preparation, on-site road construction, the installation of electrical infrastructure and solar arrays, and construction of the battery storage facility.

Emissions modeling was based on anticipated construction schedules and construction equipment requirements provided by the project applicant, information derived from similar projects, and default parameters contained in the model for the portion of Kern County located within the MDAB. The project construction activity durations used for emissions modeling purposes are summarized in Table 5. Off-road equipment anticipated to be required during project construction is summarized in Table 6. Construction activities are anticipated to occur over an approximate 6-month period. Although the overall construction period may vary, the duration of individual construction activities is not expected to change significantly. As a result, the combined total construction-generated emissions from these activities are, likewise, not expected to vary significantly, regardless of the overall period during which these activities would occur.

Table 5
Summary of Construction Activity Durations

Activity	Duration (Days)
Move On	5
Site Preparation & Grading	50
Internal Roads Construction	50
Solar Array, Collector Lines & Battery Storage Construction	150
Battery Storage Construction	20
<i>Reflects estimated duration of major construction activities based on information provided by the project applicant and information derived from similar projects. Some activities may overlap.</i>	

On-road vehicle use assumed a one-way trip distance of 51 miles for workers and delivery trips. The trip distance was quantified based on the average distances to nearby communities assuming that 40 percent of the worker trips would come from the Palmdale/Lancaster area, 20 percent from the Santa Clarita/northern LA area, 20 percent from the Bakersfield metropolitan area, and 20 percent from the nearby communities of Mojave, Tehachapi, and Rosamond. Haul truck trips for the transport of equipment and solar structural and module components were quantified assuming an in-Basin travel distance of 51 miles/trip, based on the assumption that all materials would be imported through a western sea port (e.g., Port of Long Beach).

Emissions associated with the pumping/conveyance of water for use during construction assumed a total demand of 1.48 million gallons. Emissions of NO_x and SO_x were based on emission factors derived from the U.S. EPA's *Emissions & Generation Resource Integrated Database (eGRID)*, 9th Edition (February 2014) for the WECC California (CAMX) sub-region. PM₁₀ derived from 2008 *Building Energy Efficiency Standards for Residential and Nonresidential Buildings*, revised June 2009; PM_{2.5} assumes 67% of PM₁₀ per U.S. EPA AP42. ROG and CO emission factors assumed based on rates identified in the South Coast Air Quality Management District's (SCAQMD's) *CEQA Air Quality Handbook*, Table A9-11-A (1993) and *ARB Guidance for Permitting of Electric Generating Technologies* (2002).

Table 6
Summary of Off-Road Equipment Required During Project Construction

Off-Road Equipment Type	Number of Pieces
Move On	
Graders	1
Off-Highway Trucks	2
Carts/ATVs	5
Rubber Tired Dozers	1
Scrapers	1
Tractors/Loaders/Backhoes	1
Site Preparation & Grading	
Grader	1
Roller	1
Scrapers	2
Rubber Tired Dozers	1
Off-Highway Trucks	3
Carts/ATVs	5
Tractors/Loaders/Backhoes	2
Internal Roads Construction	
Graders	2
Scrapers	1
Excavator	1
Dozers	1
Off-Highway Trucks	3
Carts/ATVs	5
Rollers	1
Tractors/Loaders/Backhoes	3
Solar Array & Collector Line Construction	
Crane	1
Forklifts	1
Graders	1
Post Drivers	4
Off-Highway Trucks	2
Trencher	1
Other Construction Equipment	1
Excavator	1
Skid Steer	1
Carts/ATVs	5
Tractors/Loaders/Backhoes	2
Battery Storage Construction	
Forklifts	2
Grader	1
Rubber Tired Dozer	1
Off-Highway Trucks	1
Carts/ATVs	5
Tractors/Loaders/Backhoes	2
Trenchers	1
<i>Based on information provided by the project applicant and information derived from similar projects. All equipment assumed to operate an average of 10 hours per day.</i>	

Mitigated construction-generated fugitive dust emissions were quantified assuming an on-site speed limit of 15 miles per hour (mph), a control efficiency of 61% for watering of disturbed surfaces, and a 55% control efficiency for watering of unpaved roadways. Watering control efficiencies were based on a minimum application rate of three times daily, sufficient to keep soils and roadway base materials moist. Given that construction activities would be short-term occurring over an approximate 6-month period and the lack of sensitive land uses in the project area, short-term exposure to odors and localized pollutant concentrations were qualitatively assessed. Emissions modeling assumptions and output files are included in Appendix C of this report.

Long-term Operational Emissions

Long-term operational emissions associated with the proposed project were calculated using the CalEEMod, version 2016.3.1. Emissions modeling included worker trips, as well as haul truck trips and equipment operations (i.e., power washers) associated with the washing of solar panels. Emissions modeling assumed an average of 2 worker trips per day for routine maintenance and operations, which would utilize existing staff from the existing operations and maintenance facility located adjacent to the Manzana substation. An average trip distance of 2.5 miles was assumed for worker trips. Based on information provided by the project proponent, panel washing was assumed to occur a total of 9 days annually. In total, panel washing activities are estimated to require an additional 6 workers and 2 trucks daily for the transport of water. A 5-mile trip length for worker trips and a 15-mile trip length for haul trucks was assumed, based on information provided by the project proponent. Panel washing was assumed to require the use of two pressure washers operating 8 hours/day, up to 9 days/year.

Electrical emissions associated with the pumping/conveyance of water for use during project operation assumed a total demand of 1,201 gallons per year. Displaced emissions from electricity production were modeled based on an estimated electricity generation rate of 132,032 MWh/year. Electrical emissions of NO_x and SO_x were based on emission factors derived from the U.S. EPA's *Emissions & Generation Resource Integrated Database (eGRID)*, 9th Edition (February 2014) for the WECC California (CAMX) sub-region. PM₁₀ derived from 2008 *Building Energy Efficiency Standards for Residential and Nonresidential Buildings*, revised June 2009; PM_{2.5} assumes 67% of PM₁₀ per U.S. EPA AP42. ROG and CO emission factors assumed based on rates identified in SCAQMD's *CEQA Air Quality Handbook, Table A9-11-A* (1993) and ARB *Guidance for Permitting of Electric Generating Technologies* (2002).

Long-term increases of odors and toxic air contaminants attributable to the proposed project were qualitatively assessed. In addition, given that decommissioning of the project would entail many of the same construction-related activities with similar levels of equipment use, emissions associated with project decommissioning were assumed to be similar to those generated during project construction. Emissions modeling assumptions and output files are included in Appendix C of this report.

PROJECT-LEVEL IMPACTS & MITIGATION MEASURES

IMPACT AQ-1: Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

The *California Clean Air Act Ozone Air Quality Attainment Plan* was approved by the California Air Resources Board (CARB) on February 18, 1993. The AQAP identifies measures to reduce emissions of ozone-precursor pollutants (i.e., ROG and NO_x) within the EKAPCD.

Short-Term Construction Emissions

As described further in Impact AQ-2, construction-generated emissions attributable to the proposed project would exceed the EKAPCD-recommended significance thresholds for PM₁₀. Implementation of mitigation measures AQ-1 and AQ-2 would, however, require implementation of EKAPCD-recommended mitigation measures for the control of construction-generated PM, consistent with applicable air quality plans, as well as, applicable policies and implementation measures of the *Kern County General Plan*. With implementation

of proposed mitigation measures, construction-generated emissions would not conflict with or obstruct implementation of applicable air quality plans.

Long-Term Operational Emissions

Consistency with air quality plans is typically conducted based on a comparison of project-generated growth in employment, population, and vehicle miles traveled (VMT) within the region, which is used for development of the emissions inventories contained in the air quality plans.

While the project would contribute to energy supply, which is one factor of population growth, the development of power infrastructure is a response to increased market demand and statewide regulatory mandates, including the Renewable Portfolio Standard mandate, and is not a factor that induces new growth. Kern County planning documents already permit and anticipate a certain level of growth in the area of the project site, along with attendant growth in energy demand. It is this anticipated growth that drives energy-production projects, not vice versa. The project would supply energy to accommodate and support existing demand and projected growth, but it would not foster any new growth. Therefore, any link between the project and growth in Kern County would be speculative.

The proposed project would not induce substantial growth because it would result in temporary construction jobs, but not simultaneously, most of which are expected to be filled by workers based in the nearby areas of Rosamond, Lancaster, Mojave, and Tehachapi, or other local cities. However, as noted in Impact AQ-2, implementation of the proposed project would not require additional full-time staff to operate the facility. Long-term increases in operational emissions of the ozone-precursor pollutants ROG and NO_x would be negligible totaling approximately 0.7 tons/year and would not exceed applicable significance thresholds of 25 tons/year for each pollutant. Furthermore, as noted in Impact AQ-2, increases in operational emissions would be more than offset by displaced emissions from electricity generation. For these reasons, long-term operation of the proposed project would not conflict with implementation of applicable air quality plans. Therefore, the proposed project would not result in a large increase in employment that would significantly induce growth beyond levels assumed in existing Kern County planning documents. For these reasons, long-term operation of the proposed project would not conflict with applicable air quality plans for the attainment or maintenance of ambient air quality standards.

Mitigation Measures

Implement mitigation measures AQ-1 and AQ-2 [described under Impact AQ-2]

Level of Significance after Mitigation

Less than significant.

IMPACT AQ-2: Would the proposed project violate any air quality standards or contribute substantially to an existing or projected air quality violation?

Short-term Construction

Short-term increases in emissions would occur during the construction process. Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with various activities, including site preparation, grading, trenching, construction of roads, installation of collector lines, electrical infrastructure, solar array modules, and the battery storage facility. Emissions of fugitive dust would be primarily associated with ground-disturbing activities (e.g., site preparation, grading, trenching, etc.) and vehicle travel on unpaved surfaces. Emissions of ozone-precursor pollutants (ROG and NO_x) would be largely associated with off-road equipment use, as well as on-road vehicle operations associated with workers commuting to and from the project site and haul truck trips. Onsite vehicle parking areas for workers will be designated in areas that minimize vehicle travel distances, such as laydown areas located nearest the site access road and/or areas of primary

construction activity. In addition, onsite worker trips will be limited to necessary activities only. In addition, the pumping of water required during construction would result in slight increases in emissions, primarily associated with electricity use at offsite locations. However, emissions associated with electricity use would be minor, averaging fewer than 0.002 tons/year of ozone-precursor, CO, SO_x, and PM emissions. Estimated construction-generated emissions are summarized in Table 7.

Table 7
Short-term Construction-Generated Emissions of Criteria Air Pollutants - Unmitigated

Construction Activity	Annual Emissions (Tons/Year) ⁽¹⁾					
	ROG/VOC	NO _x	CO	SO _x	PM ₁₀ ⁽³⁾	PM _{2.5}
Move-On	0.0	0.2	0.1	0.0	1.5	0.2
Site Preparation & Grading	0.3	2.6	1.8	0.0	15.1	1.7
Internal Roads	0.3	2.6	1.7	0.0	15.1	1.7
Solar Array, Collector Lines & Battery Storage	0.7	5.5	4.6	0.0	44.2	4.7
Water Pumping ⁽²⁾	0.0	0.0	0.0	0.0	0.0	0.0
<i>Total</i>	1.3	10.9	8.2	0.0	75.9	8.3
<i>Significance Thresholds:</i>	25	25	--	27	15	--
<i>Exceed Thresholds?</i>	No	No	N/A	No	Yes	N/A
Construction Activity	Daily Indirect Emissions (lbs/day) ⁽¹⁾					
	ROG/VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Haul Trucks & Worker Trips	2.2	5.4	13.8	0.1	676.6	68.2
<i>Significance Thresholds?:</i>	137	137	--	--	--	--
<i>Exceed Thresholds?</i>	No	No				
<p><i>Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding.</i></p> <p><i>1. EKAPCD daily emissions threshold applies to indirect on-road mobile-sources only. These thresholds typically apply to operational emissions, but have been included to ensure a conservative analysis of construction-generated emissions.</i></p> <p><i>2. Emissions associated with pumping/conveyance of water would be minor averaging fewer than 0.002 tons/year of ozone precursor, CO, SO_x, and PM emissions. Does not include water truck use. Water trucks are included in the estimated emissions for the construction activities noted above.</i></p> <p><i>3. Does not include implementation of dust control measures. However, assuming an on-site speed limit of 15 miles per hour (mph), a control efficiency of 61% for watering of disturbed surfaces, and a 55% control efficiency for watering of unpaved roadways, construction-generated PM₁₀ emissions would be reduced to approximately 24 tons/year (refer to CalEEMod emissions modeling in Appendix C of this report).</i></p> <p><i>-- No applicable threshold.</i></p> <p><i>Refer to Appendix C for modeling results and assumptions.</i></p>						

As indicated in Table 7, construction of the proposed project would generate maximum uncontrolled annual emissions of approximately 1.3 tons/year of ROG, 10.9 tons/year of NO_x, 8.2 tons/year of CO, 75.9 tons/year of PM₁₀, and 8.3 tons/year of PM_{2.5}. Emissions of SO_x would be negligible. Uncontrolled emissions of PM₁₀ would exceed the EKAPCD's significance threshold of 15 tons/year. A majority of the PM₁₀ emissions generated (roughly 95%) would be associated with vehicle travel along unpaved access roads, including worker trips and haul trucks required for the delivery of structural materials and solar modules. The remaining emissions of PM₁₀ would be largely associated with ground-disturbing activities (i.e., site preparation, trenching, grading, etc.). To a lesser extent, emissions associated with the operation of diesel-fueled vehicles and off-road equipment would also contribute to short-term emissions of PM₁₀.

Table 7 also presents a summary of daily construction-generated emissions from indirect (i.e., mobile) sources. As noted, daily indirect construction-generated emissions would total approximately 2.2 lbs/day of ROG and 5.4 lbs/day of NO_x and would not exceed EKAPCD's daily significance thresholds of 137 lbs/day/pollutant. However, because total annual emissions of PM₁₀ would exceed EKAPCD's significance thresholds short-term construction-generated emissions of PM₁₀ would be considered to have a potentially significant impact.

Reduced Visibility Impacts

Short-term construction activities may also result in increased emissions of airborne PM that could impact visibility at off-site locations. Of particular concern are federally designated Class I areas, which include many wilderness areas and national parks. Military aircraft use areas within the Upper Mojave Desert region, such as Edwards Air Force Base, Fort Irwin, China Lake Naval Weapons Station and the R-2508 Airspace Complex are also of concern with regard to visibility.

No federally-designated Class I areas are located in the vicinity of the project site that would be adversely affected by short-term construction activities. The nearest federal Class I area is the San Gabriel Wilderness area, which is located approximately 47 miles southeast of the project site. The nearest military installation is Edwards Air Force Base, which is located approximately 29 miles east of the project site. The project site is located near the southwestern boundary of the R-2508 airspace, which is used by various military installations within the Upper Mojave Desert region.

Long-term project operations would not include activities or emission sources that would contribute to decreased visibility. Short-term construction, however, may result in increased emissions of fugitive dust that, if uncontrolled, could potentially visibility in the project vicinity. As noted earlier in this report, the EKAPCD has adopted various rules and regulations for the control of fugitive dust and visibility-reducing emissions. Implementation of mitigation measures AQ-1 and AQ-2 would reduce emissions of visibility-reducing particles and would ensure compliance with EKAPCD rules and regulations.

Decommissioning

The proposed project is anticipated to operate a total of approximately 30–35 years. At the end of the proposed project site's operational term, the applicant may determine that the proposed project site should be decommissioned and deconstructed, or it may seek an extension of its CUP. Because the PV arrays supporting equipment sit on the surface of the land, when the arrays are removed after the proposed project's lifetime, the land will be largely unaltered from its natural state. Extensive ground-disturbing activities would not be required. Other activities required for deconstruction of the facilities would likely require similar levels of equipment and construction vehicle use. As discussed above, fugitive dust emissions are largely influenced by vehicle travel on unpaved surfaces, which could potentially exceed applicable EKAPCD significance thresholds. Therefore, emissions of fugitive dust associated with project decommissioning would be considered to have a potentially significant impact.

Mitigation Measures

Mitigation Measure AQ-1: A Fugitive Dust Control Plan (FDCP) shall be developed for the proposed project. The FDCP shall address short-term construction, long-term operational, and decommissioning activities. The FDCP shall be endorsed by the EKAPCD prior to the start of any earthmoving activity. The plan shall include all EKAPCD-recommended measures, including but not limited to, the following:

- a. Vehicle speed for all on-site construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. Signs identifying construction vehicle speed limits shall be posted along onsite roadways, at the site entrance/exit, and along unpaved site access roads.
- b. All onsite unpaved roads and offsite unpaved project-site access road(s) shall be effectively stabilized of dust emissions using water or EKAPCD-approved dust suppressants/palliatives, sufficient to prevent wind-blown dust exceeding 20% opacity at nearby residences or public roads. If water is used, watering shall occur a minimum of three times daily, sufficient to keep soil moist along actively used roadways. During the dry season, unpaved road surfaces and vehicle parking/staging areas

shall be watered immediately prior to periods of high use (e.g., worker commute periods, truck convoys, etc.) Reclaimed (non-potable) water shall be used to the extent available.

- c. Reduce and/or phase the amount of the disturbed area (e.g., grading, excavation) where possible.
- d. All disturbed areas shall be sufficiently watered or stabilized by an EKAPCD- approved methods to prevent excessive dust. On dry days, watering shall occur a minimum of three times daily on actively disturbed areas. Watering frequency shall be increased whenever wind speeds exceed 15 mph or, as necessary, to prevent wind-blown dust exceeding 20% opacity at nearby residences or public roads. Reclaimed (non-potable) water shall be used to the extent available.
- e. All clearing, grading, earth moving, and excavation activities will cease during periods when dust plumes of 20% or greater opacity affect public roads or nearby occupied structures.
- f. All disturbed areas anticipated to be inactive for periods of 30 days, or more, shall be treated to minimize wind-blown dust emissions. Treatment may include, but is not limited to, the application of an EKAPCD-approved chemical dust suppressant, gravel, hydro-mulch, revegetation/seeding, or wood chips,
- g. All active and inactive disturbed surface areas shall be compacted, where feasible.
- h. Limit equipment and vehicle access to disturbed areas.
- i. Where applicable, permanent dust control measures shall be implemented as soon as possible following completion of any soil disturbing activities
- j. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate methods sufficient to reduce visible dust emissions to a limit of 20% opacity. If necessary and where feasible, 3-sided barriers shall be constructed around storage piles and/or piles shall be covered by use of tarps, hydro-mulch, woodchips, or other materials sufficient to minimize wind-blown dust.
- k. Water shall be applied prior to and during the demolition of onsite structures sufficient to minimize wind-blown dust.
- l. Where acceptable to the fire department, weed control will be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering.
- m. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or shall maintain at least two feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with California Vehicle Code Section 23114.
- n. Gravel pads, grizzly strips, or other material track-out control methods approved for use by the EKAPCD shall be installed where vehicles enter or exit unpaved roads onto paved roadways.
- o. Haul trucks and off-road equipment leaving the site shall be washed with water or high-pressure air, and/or use rocks/grates at the project entry points, when necessary, to remove soil deposits and to minimize the track-out/deposition of soil onto nearby paved roadways.
- p. Paved road surfaces located adjacent to the site access road(s), including adjoining paved aprons, shall be cleaned, as necessary, to remove visible accumulations of track-out material. If dry sweepers are used, the area shall be sprayed with water prior to sweeping to minimize the entrainment of dust. Reclaimed water shall be used to the extent available.
- q. Portable equipment, 50 horsepower (hp) or greater, used during construction activities (e.g., portable generators, concrete batch plant) will require California statewide portable equipment registration (issued by the California Air Resources Board) or an EKAPCD permit.
- r. The FDCP shall identify a designated person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures, as necessary, to minimize the transport of dust offsite and to ensure compliance with identified fugitive dust control measures. Their duty hours shall include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the EKAPCD Compliance Division prior to the start of any grading, earthwork or demolition.

- s. Signs shall be posted at the project site entrance and written notifications shall be provided a minimum of 30 days prior to initiation of project construction to residential land uses located within 1000 feet of the project site. The signs and written notifications shall include the following information: (a) Project Name; (b) Anticipated construction schedule(s); and (c) Telephone number(s) for designated construction activity monitor(s) or, if established, a complaint hotline.
- t. The designated construction monitor will document and immediately notify EKAPCD of any air quality complaints received. If necessary, the applicant and/or contractor will coordinate with EKAPCD to identify any additional feasible measures and/or strategies to be implemented to address public complaints.

Mitigation Measure AQ-2: The following additional measures shall be implemented to reduce PM emissions generated by mobile sources during project construction and decommissioning:

- a. Off-road equipment shall be maintained and properly tuned in accordance with manufacturer recommendations.
- b. The owner/operator shall require that off-road diesel engines be shut off when not in use for more than five minutes to reduce emissions from idling, to the extent possible.
- c. Alternatively, fueled equipment (e.g., electric, propane, etc.), in lieu of diesel- or gasoline-fueled equipment, shall be used whenever possible and to the extent available.
- d. All on-road and off-road equipment shall be fitted with emission control devices (e.g., diesel particulate filters, oxidation catalysts, etc.), per manufacturer recommendations.
- e. The on-site idling of on-road diesel fueled trucks shall be restricted to no more than 5 minutes, per ARB engine idling limitations, excluding vehicles that need to idle as part of their operation, such as concrete mixer trucks.
- f. Heavy-duty off-road equipment shall meet, at a minimum, ARB's Tier 3 emission standards.

Level of Significance after Mitigation

With implementation of Mitigation Measure AQ-1 and Mitigation Measure AQ-2, construction-generated emissions of PM₁₀, including those generated during decommissioning, would be reduced to approximately 24 tons/year (refer to Table 7 and CalEEMod emissions modeling in Appendix C of this report). Implementation of the proposed mitigation measures would also ensure compliance with applicable EKAPCD rules and regulations, including Rule 402, which imposes limitations on visible dust emissions at offsite locations. Nonetheless, because total mitigated emissions of PM₁₀ generated during project construction and decommissioning would exceed EKAPCD's significance thresholds, this impact would be considered significant and unavoidable.

Long-term Operation

Upon completion of the construction and testing phases, the proposed project would typically be operated on an unstaffed basis and monitored remotely. Emissions modeling assumed an average of 2 worker trips per day for routine maintenance and operations, which would utilize existing staff from the existing operations and maintenance facility located adjacent to the Manzana substation. An average trip distance of 2.5 miles was assumed for worker trips. Panel washing was assumed to occur annually over a total of 9 days. In total, panel washing activities are estimated to require an additional 6 workers and 2 trucks daily for the transport of water. A 5-mile trip length for worker trips and a 15-mile trip length for haul trucks was assumed, based on information provided by the project proponent. Panel washing was assumed to require the use of two pressure washers operating 8 hours/day, up to 9 days/year. Estimated annual and daily operational emissions are summarized in Table 8.

Table 8
Long-term Operational Emissions of Criteria Air Pollutants

Source	Annual Emissions (tons/year) ⁽¹⁾					
	ROG/VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Worker Trips ⁽¹⁾	0.0	0.0	0.0	0.0	0.8	0.1
Panel Washing ⁽²⁾	0.1	0.6	0.5	0.0	0.0	0.0
Total:	0.1	0.6	0.5	0.0	0.8	0.1
Significance Thresholds:	25	25	--	27	15	--
Exceed Thresholds?	No	No	N/A	No	No	N/A
Displaced Electricity Emissions	-0.4	-15.2	-7.5	-6.4	-3.4	-2.3
Net Total:	-0.3	-14.6	-7.0	-6.4	-2.6	-2.2
Source	Daily Emissions (lbs/day) ⁽³⁾					
	ROG/VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Worker Trips	0.0	0.0	0.0	0.0	4.5	0.5
Panel Washing ⁽⁴⁾	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Daily Emissions:	0.0	0.0	0.0	0.0	4.5	0.5
Significance Thresholds:	137	137	--	--	--	--
Exceed Thresholds?	No	No	N/A	N/A	N/A	N/A
<p><i>Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding.</i></p> <p><i>1. Assumes an average of 2 worker trips/day, 365 days/year.</i></p> <p><i>2. Includes off-road equipment operations, water pumping, worker trips, and haul trucks required for water transport.</i></p> <p><i>3. Daily emissions are based on the highest emissions anticipated to occur during winter or summer conditions.</i></p> <p><i>4. Includes worker and haul trucks required for water transport.</i></p> <p><i>Refer to Appendix C for modeling results and assumptions.</i></p>						

As indicated in Table 8, annual operation of the proposed project would generate a total of approximately 0.01 tons/year of ROG, 0.06 tons/year of NO_x, 0.5 tons/year of CO, 0.8 tons/year of PM₁₀, and 0.1 tons/year of PM_{2.5}. Emissions of SO_x would be negligible. Estimated operational emissions would not exceed EKAPCD's significance thresholds of 25 tons/year of ROG or NO_x, 27 tons per year of SO_x, or 15 tons per year of PM₁₀. Daily emissions of ROG and NO_x from indirect mobile sources would be negligible (less than 0.1 lbs/day) and would, likewise, not exceed EKAPCD's significance thresholds. Because long-term operational emissions would not exceed EKAPCD's significance thresholds, this impact would be considered less than significant.

Displaced Grid Electricity Emissions

It is important to note that operation of the proposed project would reduce or "offset" electricity on the state-wide electrical transmission and distribution system (more commonly referred to as the grid), which includes energy generated by traditional sources, such as natural gas and coal-fired plants. These emissions are often referred to as "displaced" or "avoided" emissions. Calculating displaced emissions can be complicated and is dependent on multiple factors, such as seasonal changes, weather conditions, fuel demands and availability, and changes in the state-wide energy resource mix. These factors often fluctuate, sometimes daily, which complicates the estimation of displaced emissions. For instance, during drought years, less hydroelectricity is available and other power sources are used to supplement the lack of available hydroelectricity. These other sources can be in-state or out-of-state plants, including those powered by fossil fuels (e.g., natural gas, coal).

Because electricity enters the state-wide grid from multiple sources and locations, it is typically not possible or recommended to calculate displaced emissions for a specific facility or in-state geographic area. As a result, displaced emissions were conservatively estimated based on the state-wide electricity power system resource mix, which includes plants powered by fossil fuels, as well as renewable resources (biomass, geothermal, hydro, solar, wind, etc.). Displaced emissions specific to fossil-fuel plants would likely be higher.

Estimated annual emissions likely displaced by the project are noted in Table 8. This information is included to provide a more accurate interpretation of the overall impacts associated with the proposed project. As depicted, displaced emissions would total approximately 0.4 tons/year of ROG, 15.2 tons/year of NO_x, 7.5 tons/year of CO, 6.4 tons/year of SO_x, 3.4 tons/year of PM₁₀, and 2.3 tons/year of PM_{2.5}. Actual emissions displaced by the proposed project would vary for the reasons discussed above. Nonetheless, implementation of the proposed project would be anticipated to result in an overall net reduction in statewide emissions of criteria air pollutants. Regardless, the determination of significance above does not depend on calculation of offsets, and even without these offsets, project-generated emissions would not exceed applicable thresholds.

Federal General Conformity

Supporting components of the proposed project include construction of an inner-facility road network, a portion of which would be constructed on BLM lands. As a result, activities associated with the construction and operation of the road network would be subject to Federal General Conformity requirements. As noted in Table 7, direct and indirect emissions associated with the construction of the roadway network would total approximately 0.3 tons/year of VOCs and 2.6 tons/year of NO_x. Excluding displaced emissions associated with electricity production, annual operation of the proposed project would generate a total of approximately 0.01 tons/year of ROG, 0.06 tons/year of NO_x (refer to Table 8). Total direct and indirect construction and operational emissions of VOCs and NO_x would not exceed General Conformity *de minimis* levels. As a result, the proposed Project is not subject to Federal General Conformity determination requirements.

IMPACT AQ-3: Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Sensitive receptors located in the project area consist predominantly of rural residential dwellings located at varying distances from the project site. As previously noted, the nearest sensitive land use is located approximately 3 miles from the project site.

Implementation of the proposed project would not result in the long-term operation of any emission sources that would adversely affect nearby sensitive receptors. However, short-term construction activities could result in temporary increases in pollutant concentrations. Pollutants of primary concern commonly associated with construction-related activities include toxic air contaminants (i.e., DPM), asbestos, and fugitive dust. Within the project area, the potential for increased occurrences of Valley Fever is also of concern. Localized air quality impacts associated with these pollutants are discussed in greater detail, as follows:

Toxic Air Contaminants

As noted above, implementation of the proposed project would not result in the long-term operation of any major onsite stationary sources of TACs. However, construction of the proposed project may result in temporary increases in emissions of DPM associated with the use of off-road diesel equipment. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. As such, the calculation of cancer risk associated with exposure of to TACs are typically calculated based on a long-term (e.g., 30 to 70-year) period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. Construction activities would occur over an approximate six-month period, which would constitute approximately 0.02%, or less, of the typical exposure period used for health risk assessment. For this

reason and given the relatively high dispersive properties of DPM, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 10 in one million). In addition, it is important to note that no sensitive land uses are located within approximately three miles of the project site. For these reasons, this impact would be considered less than significant.

Naturally Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to asbestos during the construction process would be considered less than significant.

Localized Particulate Concentrations

Construction of the proposed project would include ground-disturbing activities which would be anticipated to result in increased emissions of airborne particulates. As noted in Impact AQ-2, onsite PM emissions would be primarily associated with ground-disturbing activities, including site preparation, grading and road construction activities. The highest concentrations of PM associated with construction-related ground-disturbing activities that have a potential to exceed ambient air quality standards typically occur within a few hundred feet of a construction site. As noted above, no sensitive land uses are located in the vicinity of the project site. The nearest sensitive land use is a rural residential dwelling located three miles from the project site. Furthermore, it is important to note that ambient air quality standards are based on a 24-hour and annual average. Given that construction activities would be limited to the daytime hours over an approximate six-month period, the lack of sensitive land uses in the area, and given that airborne PM emissions would dissipate rapidly with increased distance from the source, this impact would be considered less than significant.

Carbon Monoxide

Localized concentrations of CO are typically associated with the idling of vehicles, particularly in highly congested areas. For this reason, the areas of primary concern are congested roadway intersections that experience high levels of vehicle traffic with degraded levels of service (LOS). With regard to potential increases in CO concentrations that could potentially exceed applicable ambient air quality standards, signalized intersections that are projected to operate at an unacceptable LOS E or F are of particular concern.

Nearby signalized intersections primarily affected by short-term construction activities are not expected to operate at unacceptable levels of service. Based on traffic analyses prepared for similar projects in the area, short-term construction activities would not be anticipated to result in a degradation of LOS at nearby signalized intersections to unacceptable LOS (Kern County 2016). In addition, the long-term operation of the project would result in only minimal increases in vehicle traffic and would not result in a substantial contribution to the LOS of nearby roadway intersections. For these reasons, the proposed project would not be anticipated to result in a substantial increase in localized CO concentrations having the potential to exceed applicable ambient air quality standards. Localized concentrations of CO are, therefore, considered to be less than significant.

Valley Fever

As noted earlier in this report, Valley Fever is an infection caused by the fungus *Coccidioides*. *Coccidioides* spores can become airborne after contaminated soil and dust are disturbed. Construction activities would include ground-disturbing activities, which could result in an increased potential for exposure of nearby residents and onsite construction workers to airborne spores. As a result, the potential for increased exposure and contraction of Valley Fever would be considered to have a potentially significant impact.

Mitigation Measures

Implement *Mitigation Measure AQ-1*; and

Mitigation Measure AQ-3: To minimize personnel and public exposure to potential Valley Fever–containing dust both on- and off-site, the following additional control measures shall be included in the FDCP to be prepared for this project as required by *Mitigation Measure AQ-1*:

- a. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved offsite to other work locations.
- b. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or down-wind of workers on the ground.
- c. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.
- d. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust are to leave the area until a full truck resumes water spraying.
- e. All heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system.
- f. Workers shall receive training to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Community Development Department within 24 hours of the training session.
- g. A Valley Fever informational handout shall be provided to all on-site construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department.
- h. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health (NIOSH)-approved respirators shall be provided to onsite personnel, upon request. Evidence of training shall be provided to the Kern County Planning and Community Development Department within 24 hours of the training session.

Level of Significance after Mitigation

In addition to the dust control measures specified in *Mitigation Measure AQ-1*, implementation of *Mitigation Measure AQ-3* would require the inclusion of additional measures in the FDCP to minimize personnel and public exposure to potential Valley Fever–containing dust. These measures would include a program for the training of onsite personnel and identification of measures to be implemented to minimize the potential for exposure to Valley Fever. With mitigation, this impact would be considered less than significant.

IMPACT AQ-4: Would the proposed project create objectionable odors affecting a substantial number of people?

Implementation of the proposed project would not result in long-term emissions of odors. However, construction of the proposed project would involve the use of a variety of gasoline or diesel-powered equipment that would emit exhaust fumes. Exhaust fumes, particularly diesel-exhaust, may be considered objectionable by some people. However, construction-generated emissions would dissipate rapidly with increasing distance from the source. As noted above, no sensitive land uses are located in the immediate vicinity of the project site. The nearest sensitive land use is a rural residential dwelling located approximately three miles from the project site. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions. For these reasons, potential short-term exposure of sensitive receptors to odorous emissions would be considered less than significant.

CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

Cumulative Setting

The geographic extent for considering cumulative regional air quality impacts would include the eastern portion of Kern County as well as the MDAB, within which the project is located. For the assessment of localized cumulative air quality impacts Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006) recommends that the assessment include projects located within a one-mile and six-mile radius of the project boundaries. The list of cumulative projects included in this analysis was provided by the County and every attempt to acquire and quantify the corresponding emissions for these projects was made, based on available environmental documentation at the time this report was prepared.

Cumulative Impacts and Mitigation Measures

In accordance with the Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006), the evaluation of cumulative air quality impacts should:

- 1) evaluate localized impacts, including projects located within a one-mile and six-mile radius;
- 2) evaluate consistency with existing air quality plans; and
- 3) summarize ARB air basin emissions.

Significant cumulative impacts from the project, when considered with nearby, reasonably foreseeable planned solar and wind energy projects, would be largely limited to short-term emissions generated during project construction. Long-term operation of the proposed project would result in increased emissions that would result in a significant contribution to local or regional air quality.

Cumulative Local Air Quality Impacts

No projects are located within a one-mile radius of the project site. A total of 20 projects are located within a six-mile radius of the project site. Cumulative construction and operational emissions are summarized in Table 9 and Table 10, respectively. For some projects located within the 6-mile radius, emissions information was not available at the time this report was prepared. Where emissions for projects were known, emissions were conservatively assumed to occur concurrent with project construction and operation, respectively. Nonetheless, even without the inclusion of emissions from some projects, cumulative construction emissions of NO_x and PM₁₀ would be projected to exceed EKAPCD's significance thresholds (refer to Table 9). As depicted in Table 10, cumulative operational emissions for which information is currently available would not exceed EKAPCD's significance thresholds. Furthermore, as discussed in Impact AQ-2, long-term localized increases in operational emissions of primary concern within the region would be minimal and would not exceed applicable significance thresholds (refer to Table 9). Of particular concern with regard to localized air quality impacts are emissions of PM₁₀. As previously discussed and noted in Table 7, construction of the proposed project would result in temporary increases of PM₁₀ that would exceed EKAPCD's significance thresholds. As a result, construction-generated emissions along with other cumulative projects located within the project area, would exceed EKAPCD's significance thresholds. For these reasons, cumulative local air quality impacts associated with short-term construction activities would be considered potentially significant.

Table 9
Cumulative Construction Emissions within a Six-Mile Radius

Project	Construction Emissions (tons/year)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Proposed Project	1.3	10.9	8.2	0.0	23.2	2.8
Projects within a 6-Mile Radius						
Antelope Valley Development LLC	1.4	17.5	5.7	10.3	2.7	0.0
Bruce Hatchett	Not Available					
Cameron Canyon Ridgeline Wind Project by Jon Lantz	Not Available					
David Firestone Project	Not Available					
Dennis Harper	Not Available					
Diana Frieling	Not Available					
EDF Renewable Energy/BAR 13 Solar	Not Available					
EDF Renewable Development Inc.-Richard Miller	Not Available					
EDF Renewable Energy (enXco)/Catalina Solar 2 LL	Not Available					
Kingbird Solar Project	3.6	21.0	24.0	0	5.8	1.2
Lena Makshanoff	Not Available					
McDaniel Lowell by Landmark Surveying	Not Available					
Mon-Wei Lin Solar Project	Not Available					
Pacific Wind/Enxco Development Corp.	4.9	17.4	24.8	0.0	96.2	13.4
Renewable Resources/Rupal Patel	Not Available					
Renewable Resources Group Holding Company, Inc.	Not Available					
Rosamond Solar Array Project by First Solar	8.7	46.1	41.4	0.1	38.5	3.8
SGS Antelope Valley Development, LLC by Sempra	Not Available					
WDS Cal II LLC	Not Available					
Willow Springs Solar, LLC	0.9	13.4	14.3	0.0	2.3	1.4
<i>Total:</i>	20.8	126.4	118.3	10.4	168.7	22.6
<i>Significance Thresholds:</i>	25	25	--	27	15	--
<i>Exceeds Thresholds?</i>	No	Yes	--	No	Yes	--
<i>Totals may not sum due to rounding.</i> <i>Based on highest reported annual emissions, with mitigation.</i> <i>Refer to Appendix C for a more detailed listing of cumulative projects.</i>						

Table 10
Cumulative Operational Emissions within a Six-Mile Radius

Project	Construction Emissions (tons/year)					
	ROG	NOX	CO	SOX	PM10	PM2.5
Proposed Project	0.1	0.6	0.5	0.0	0.8	0.1
Projects within a 6-Mile Radius						
Antelope Valley Development LLC	Not Available					
Bruce Hatchett	Not Available					
Cameron Canyon Ridgeline Wind Project by Jon Lantz	Not Available					
David Firestone Project	Not Available					
Dennis Harper	Not Available					
Diana Frieling	Not Available					
EDF Renewable Energy/BAR 13 Solar	Not Available					
EDF Renewable Development Inc.-Richard Miller	Not Available					
EDF Renewable Energy (enXco)/Catalina Solar 2 LL	Not Available					
Kingbird Solar Project	-0.5	-15.4	-11.2	-6.8	-5.1	-3.4
Lena Makshanoff	Not Available					
McDaniel Lowell by Landmark Surveying	Not Available					
Mon-Wei Lin Solar Project	Not Available					
Pacific Wind/Enxco Development Corp.	0.9	4.5	4.4	5.8	0.9	0.0
Renewable Resources/Rupal Patel	Not Available					
Renewable Resources Group Holding Company, Inc.	Not Available					
Rosamond Solar Array Project by First Solar	-1.7	-47.6	-21.2	-34.4	-15.9	-10.6
SGS Antelope Valley Development, LLC by Semptra	Not Available					
WDS Cal II LLC	Not Available					
Willow Springs Solar, LLC	-2.0	-55.0	-24.6	-40.4	-18.4	-12.3
Total:	-3.3	-113.4	-52.4	-75.8	-18.4	-12.3
Significance Thresholds:	25	25	--	27	15	--
Exceeds Thresholds?	No	No	--	No	No	--
<i>Totals may not sum due to rounding.</i> <i>Based on highest reported annual emissions, with mitigation.</i> <i>Reported emissions for Pacific Wind/Enxco Development Corp. did not identify emissions reductions associated with displaced electricity emissions.</i> <i>Refer to Appendix C for a more detailed listing of cumulative projects.</i>						

Cumulative Regional Air Quality Impacts

To evaluate the contribution of the project's operational emissions relative to the cumulative regional air quality, project-generated emissions were compared to emissions inventories for Kern County and the MDAB (refer to Table 11). As indicated in Table 11, operational emissions associated with the proposed project would be negligible when compared to total projected emissions for Kern County and the MDAB. In addition, as discussed in Impact AQ-2, long-term increases in operational emissions of primary concern within the region (i.e., ROG, NO_x, CO, SO_x, PM₁₀ and PM_{2.5}) would be minimal and would not exceed applicable significance thresholds (refer to Table 8). Furthermore, to the extent that the power is used to offset power production from fossil fueled power plants within the MDAB, long-term increases in emissions would likely be more than offset by reductions in emissions anticipated to occur from traditional electricity generation sources, which would result in a net overall beneficial impact. However, as previously discussed and noted

in Table 7, construction of the proposed project would result in temporary increases of PM₁₀ that would exceed EKAPCD's significance thresholds. As a result, construction-generated emissions along with other cumulative projects located within the project area, would exceed EKAPCD's significance thresholds. Of particular concern with regard to regional air quality impacts are emissions of ozone-precursors (ROG and NO_x) and PM₁₀ for which the region is designated nonattainment. For these reasons, cumulative regional air quality impacts associated with short-term construction activities would be considered potentially significant.

Table 11
Comparison of Project Emissions with Year 2020
EKAPCD and MDAB Emissions Inventories

	Emissions (tons/year)					
	ROG	NOX	CO	SOX	PM10	PM2.5
Project	0.1	0.6	0.5	0.0	0.8	0.1
Kern County Portion of MDAB	13651	41720	18871	1825	13286	5110
MDAB	48509	157753	75592	4088	83512	24492
Project Percent of Kern County Portion of MDAB	0.0007	0.0014	0.0026	0.0	0.006	0.002
Project Percent of MDAB	0.0002	0.0004	0.0007	0.0	0.001	0.0004
<i>Excludes displaced emissions. Refer to Table 8 for a detailed summary of project-generated emissions.</i>						
<i>Source: ARB 2015</i>						

Mitigation Measures

Implement *Mitigation Measures AQ-1 and AQ-2*.

Level of Significance after Mitigation

With implementation of the proposed mitigation measures, project-generated emissions of PM₁₀ would be substantially reduced. However, project-generated construction emissions, as well as cumulative emissions in conjunction with the related past, present, or reasonably foreseeable probable future projects, would continue to exceed applicable thresholds. Likewise, depending on the emissions generated by projects for which information is not currently available, it's possible that operational emissions could potentially exceed EKAPCD's significance thresholds. As a result, the proposed project's contribution to cumulative short-term and long-term air quality impacts would be considered significant and unavoidable.

GREENHOUSE GASES AND CLIMATE CHANGE

This section describes the existing setting related to climate change, provides a summary of the regulatory framework, and evaluates potential greenhouse gas (GHG) impacts associated with the proposed project.

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- **Carbon Dioxide.** Carbon dioxide (CO_2) is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2008a).
- **Methane.** Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87% by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2016a).
- **Nitrous Oxide.** Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years (U.S. EPA 2016b).
- **Hydrofluorocarbons.** Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 260 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2016c).

- **Perfluorocarbons.** Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF₄), perfluoroethane (C₂F₆), perfluoropropane (C₃F₈), perfluorobutane (C₄F₁₀), perfluorocyclobutane (C₄F₈), perfluoropentane (C₅F₁₂), and perfluorohexane (C₆F₁₄). Natural geological emissions have been responsible for the PFCs that have accumulated in the atmosphere in the past; however, the largest current source is aluminum production, which releases CF₄ and C₂F₆ as byproducts. The estimated atmospheric lifetimes for CF₄ and C₂F₆ are 50,000 and 10,000 years, respectively (EFCTC 2003; U.S. EPA 2016a).
- **Nitrogen Trifluoride.** Nitrogen trifluoride (NF₃) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells. In 2009, NF₃ was listed by California as a potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).
- **Sulfur Hexafluoride.** Sulfur hexafluoride (SF₆) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF₆ is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80% of all SF₆ produced worldwide. Leaks of SF₆ occur from aging equipment and during equipment maintenance and servicing. SF₆ has an atmospheric life of 3,200 years (U.S. EPA 2016d).
- **Black Carbon.** Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands). California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (ARB 2014).

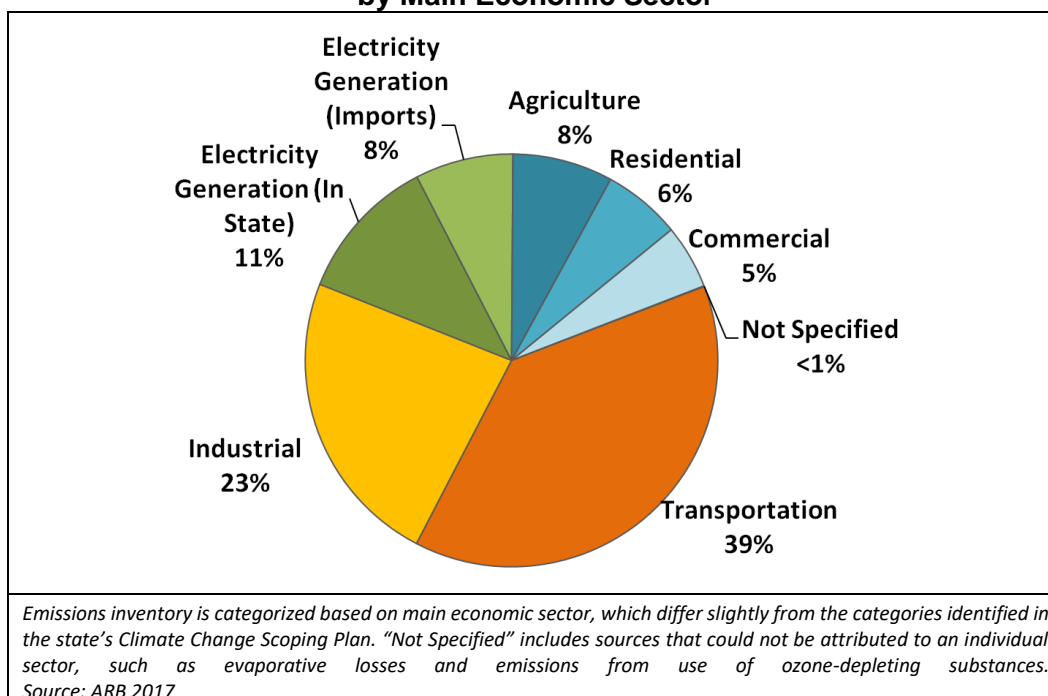
Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e), which weight each gas by its global warming potential (GWP). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted. Based on a 100-year time horizon, Methane traps over 25 times more heat per molecule than CO₂, and N₂O absorbs roughly 298 times more heat per molecule than CO₂. Additional GHGs with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

SOURCES OF GHG EMISSIONS

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions.

In 2015, GHG emissions within California totaled 440.4 million metric tons of carbon dioxide equivalents (MMTCO₂e). Within California, the transportation sector is the largest contributor, accounting for roughly 39 percent of the total state-wide GHG emissions. Emissions associated with the industrial sector are the second largest contributor, totaling approximately 23 percent. Emissions from in-state electricity generation, imported electricity, agriculture, residential, and commercial uses constitute the remaining major sources on GHG emissions. The State of California GHG emissions inventory for year 2015, by main economic sector, is depicted in Figure 3.

Figure 3
State of California Greenhouse Gases Emissions Inventory
by Main Economic Sector



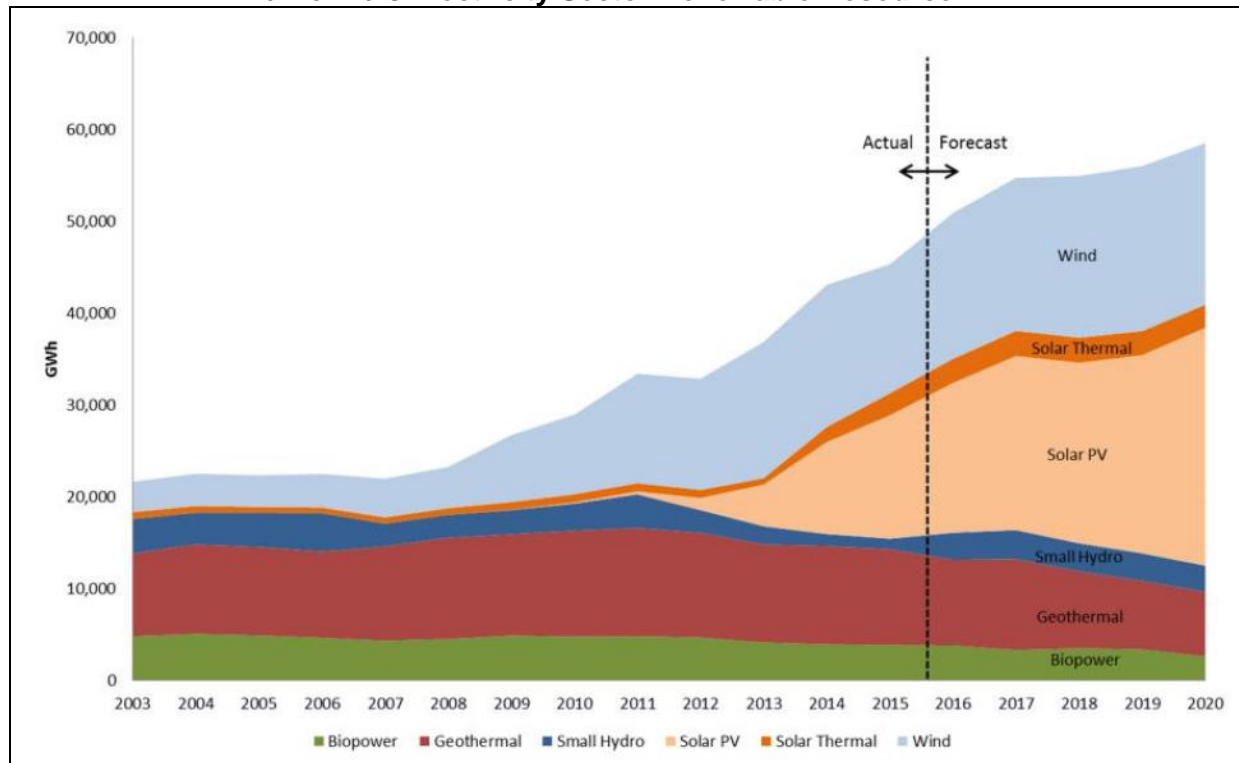
GREENHOUSE GAS EMISSIONS AND THE ELECTRICITY SECTOR

As depicted in Figure 3, in-state electricity production accounts for roughly 11 percent of the State's overall GHG emissions inventory. With the enactment of AB 32, the *California Global Warming Solutions Act of 2006*, achieving reductions in GHG emissions from the utility sector became increasingly important. Although initially established in 2002 and subsequently revised over the years, the *Renewables Portfolio Standard (RPS) Program* was accelerated in 2008, with the signing of Executive Order S-14-08, which required that retail sellers of electricity to obtain 33 percent of their load from renewable resources by 2020. The following year, Executive Order S-21-09 directed the California Air Resources Board, under the authority of AB 32, to enact regulations to achieve the goal of 33 percent renewables by 2020. In accordance with current RPS requirements, all electricity retailers in the state must now achieve an RPS requirement of 33 percent renewables by the end of 2020 and 50 percent by the end of 2050.

CALIFORNIA'S ELECTRICITY SECTOR RENEWABLE RESOURCE MIX

To date, the mix of renewable technologies related to electricity production within the State of California has been largely comprised of wind, solar PV, solar thermal, hydroelectric, geothermal, and biomass. In 2015, wind and geothermal generating facilities supplied the majority of California's renewable generation, contributing approximately 31 percent and 29.7 percent, respectively. However, over the last few years, the contribution from solar PV facilities has been steadily increasing (see Figure 4). By year 2020, the state's resource mix is projected to shift due to a substantial projected increase in contributions from solar PV facilities. By year 2020, PV technology is forecasted to contribute nearly 58,000 GWh of electricity, roughly 44.3 percent of the state's total renewable mix.

Figure 4
California's Electricity Sector Renewable Resource Mix



Source: CPUC 2016.

PV technology is a major constituent in meeting future RPS goals, as well as AB 32 requirements to reduce the State's GHG emissions to 1990 levels by 2020. Figure 4 depicts California's historical and forecasted mix of renewable generation, by technology type, through year 2020 (CPUC 2016).

EFFECTS OF GLOBAL CLIMATE CHANGE

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snow pack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the State's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (ARB 2014, CEC 2003).

REGULATORY FRAMEWORK

FEDERAL

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule

On October 30, 2009, the U.S. Environmental Protection Agency (EPA) published a rule for the mandatory reporting of greenhouse gases (GHG) from sources that emit 25,000 metric tons, or more, of carbon dioxide equivalent per year within the United States. Implementation of 40 CFR Part 98 is referred to as the Greenhouse Gas Reporting Program (GHGRP). This collection of comprehensive, nationwide emissions data is intended to provide a better understanding of the sources of GHGs and to guide development of policies and programs to reduce emissions. Smaller sources and certain sectors such as the agricultural sector and land use changes are not included in the Greenhouse Gas Reporting Program.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V GHG Tailoring Rule.

This rule establishes thresholds for GHG emissions emitted from new and existing facilities. The proposed thresholds would "tailor" the federal permit programs to limit which facilities would be required to obtain permits. This rule reportedly covers nearly 70 percent of the national GHG emissions that come from stationary sources, including power plants, refineries, and cement production facilities. Prevention of Significant Deterioration requirements generally apply to facilities whose stationary source CO₂e emissions exceed 75,000 tons per year.

Executive Order 13693

Executive Order (EO) 13693 (Planning for Federal Sustainability in the Next Decade) was signed by President Obama on March 19, 2015. The goal of EO 13693 is to maintain Federal leadership in sustainability and greenhouse gas emission reductions. EO 13693 promotes building energy conservation and efficiency, and improves environmental performance. The EO also includes the establishment of sustainability goals and GHG-reduction targets for federal agencies.

STATE

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the ARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the Clean Air Act, to allow the State to require reduced tailpipe emissions of CO₂. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

Also in 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers

who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Executive Order No. S-01-07

EO S-1-07, the Low Carbon Fuel Standard (LCFS) was issued on January 18, 2007 and called for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. This order instructed the CalEPA to coordinate activities between the University of California, the California Energy Commission (CEC) and other state agencies to develop and propose a draft compliance schedule to meet the 2020 target. Furthermore, it directed ARB to consider initiating regulatory proceedings to establish and implement the LCFS. In response, ARB adopted the LCFS regulation in 2010.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan

In October 2008, ARB published its *Climate Change Proposed Scoping Plan*, which is the State's plan to achieve GHG reductions in California required by AB 32. This initial Scoping Plan contained the main strategies to be implemented in order to achieve the target emission levels identified in AB 32. The Scoping Plan included ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations were associated with improving emissions standards for light-duty vehicles, implementation of the Low Carbon Fuel Standard program, energy efficiency

measures in buildings and appliances and the widespread development of combined heat and power systems, and a renewable portfolio standard for electricity production.

A key component of the Scoping Plan is the Renewable Portfolio Standard, which is intended to increase the percentage of renewables in California's electricity mix to 33 percent by year 2020, resulting in a reduction of 21.3 MMTCO₂e. Sources of renewable energy include, but are not limited to, biomass, wind, solar, geothermal, hydroelectric, and anaerobic digestion. Increasing the use of renewables will decrease California's reliance on fossil fuels, thus reducing GHG emissions.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMTCO₂e will be achieved associated with implementation of Senate Bill 375, which is discussed further below.

The initial Scoping Plan was first approved by ARB on December 11, 2008 and is updated every five years. The first update of the Scoping Plan was approved by the ARB on May 22, 2014, which looked past 2020 to set mid-term goals (2030-2035) on the road to reaching the 2050 goals. ARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target established in SB 32 and EO B-30-15.

Senate Bill 1368

Senate Bill (SB) 1368 (codified at Public Utilities Code Chapter 3) is the companion bill of AB 32. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emissions performance standard for baseload generation from investor-owned utilities by February 1, 2007. The bill also required the California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and the CEC.

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. This Executive Order was superseded by statute SB X1-2 in 2011, which obligates all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020. In 2015, the California state legislature passed Senate Bill 350, which extended this requirement and requires all utilities in the state to source 50 percent of their electricity sales from renewable sources by year 2030.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing greenhouse gas emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The CEC and CPUC serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of Greenhouse Gas Emissions

Reporting of greenhouse gases by major sources is required by the California Global Warming Solutions Act (AB 32, 2006). Revisions to the existing ARB mandatory GHG reporting regulation were considered at the board hearing on December 16, 2010. The revised regulation was approved by the California Office of Administrative Law and became effective on January 1, 2012. The revised regulation affects industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's greenhouse gas emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013 and apply to large electric power plants and large industrial plants. In 2015, they will extend to fuel distributors (including distributors of heating and transportation fuels). At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total greenhouse gas emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions, and are free to buy and sell allowances on the open market. California held its first auction of greenhouse gas allowances on November 14, 2012. California's GHG cap-and-trade system will reduce GHG emissions from regulated entities by approximately 16 percent, or more, by 2020.

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the State's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 375 (Sustainable Communities and Climate Protection Act)

SB 375 supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of developing more sustainable communities. Under SB 375, ARB sets regional targets for GHG emissions reductions associated with passenger vehicle use. Each of California's metropolitan planning organizations must prepare a "sustainable communities strategy" (SCS) as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. The Sustainable Communities Act also establishes incentives to encourage local governments and developers to implement the identified GHG-reduction strategies.

EKAPCD

On March 8, 2012, the EKAPCD Governing Board adopted an addendum to the EKAPCD CEQA Guidelines titled: "Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency." This Policy establishes and details the process of evaluating new or modified stationary source GHG emissions impacts on global climate change for CEQA purposes. This Policy is to be used when the EKAPCD has discretionary approval authority over new stationary source projects and serves as lead CEQA review agency when determining GHG emissions significance. In such cases, project-specific CEQA significance for GHG emissions will be assessed as follows (EKAPCD 2014):

- A. If project is exempt from CEQA due to either a statutory or categorical exemption, no further analysis under CEQA is required.
- B. Project-Specific GHG Emissions must be quantified if the project is not exempt from CEQA.

- C. Project is considered to have a less than significant or cumulatively considerable impact on GHG emissions if it meets one of the following conditions:
1. Project-Specific (stationary source) GHG emissions are less than 25,000 tons per year (tpy);
 2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan;
 3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20 percent below Business-As-Usual (BAU) through implementation of one or more of the following strategies:
 - (a) Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy;
 - (b) Compliance with GHG Offset as detailed in Section VI of this Policy;
 - (c) Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.
- D. If none of the above is met the project will be deemed significant and an Environmental Impact Report will be required.

KERN COUNTY

Kern County General Plan

The Kern County General Plan Land Use, Conservation, and Open Space Element contains numerous policies and implementation measures related to air quality that would have indirect beneficial impacts to GHG emissions. The Energy Element also includes policies pertaining to the development of solar energy projects for the purpose of improving air quality. Applicable policies and implementation measures are summarized in the Air Quality section of this report, Table 4.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the State CEQA Guidelines, the City considers impacts related to climate change significant if implementation of the proposed project would result in any of the following:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Kern County has not adopted recommended thresholds for determining the significance of GHG emissions of a proposed project constitute a considerable contribution to global climate change and, therefore, would be classified as a cumulative significant impact. Absent such thresholds, the CEQA lead agency must make such significance determinations on a case-by case basis. Despite the absence of adopted analysis procedures or thresholds of significance, CEQA requires that GHG emissions attributable to a proposed project be described in order for a lead agency to determine the significance of impacts. The 2010 State CEQA Guidelines (Section 15064.4) provide the following direction for the assessment and mitigation of GHG emissions:

- A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.
- A lead agency should consider the extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.

- A lead agency should consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In March 2012, the EKAPCD adopted an addendum to their *CEQA Guidelines* to address GHG impacts, including quantitative thresholds for determining significance of GHG emissions for permitted stationary sources for which EKAPCD is the CEQA lead agency. Accordingly, a project would be considered to have a less-than-significant impact if project-generated emissions would not exceed 25,000 metric tons of CO₂e per year (MTCO₂e/year). Additionally, GHG impacts of this proposed project were also evaluated based on whether the project would be consistent with the state's applicable GHG reduction goals, plans, policies, and regulatory requirements, including those established in accordance with AB 32 and the state's RPS program. This approach is consistent with EKAPCD's internal guidance for the evaluation of permitted stationary source GHG impacts.

METHODOLOGY

Short-term Construction

Short-term construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, and on-road worker vehicle trips, were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. Emissions modeling included emissions generated during initial move on, site preparation, on-site road construction, the installation of electrical infrastructure and solar arrays, and construction of the battery storage facility. Total construction-generated emissions were amortized over an assumed 30-year project life.

Emissions modeling was based on anticipated construction schedules and construction equipment requirements provided by the project applicant, information derived from similar projects, and default parameters contained in the model for the portion of Kern County located within the MDAB. The project construction activity durations used for emissions modeling purposes are summarized in Table 5. Off-road equipment anticipated to be required during project construction is summarized in Table 6. For the purposes of the construction activities noted in Table 5 the construction activity period is anticipated to occur over an approximate 6-month period. Although the overall construction period may vary, the duration of individual construction activities is not expected to change significantly. As a result, the combined total construction-generated emissions from these activities are, likewise, not expected to vary significantly, regardless of the overall period during which these activities would occur.

On-road vehicle use assumed a one-way trip distance of 51 miles for workers and delivery trips. The trip distance was quantified based on the average distances to nearby communities assuming that 40 percent of the worker trips would come from the Palmdale/Lancaster area, 20 percent from the Santa Clarita/northern LA area, 20 percent from the Bakersfield metropolitan area, and 20 percent from the nearby communities of Mojave, Tehachapi, and Rosamond. Haul truck trips for the transport of equipment and solar structural and module components were quantified assuming an in-Basin travel distance of 51 miles/trip, based on the assumption that all materials would be imported through a western sea port (e.g., Port of Long Beach). Emissions associated with the pumping and conveyance of water used during the construction process were quantified based on Southern California Edison's carbon intensity rates, derived from the CalEEMod computer program.).

Long-term Operation

Long-term operational emissions associated with the proposed project were calculated using the CalEEMod, version 2016.3.1. Emissions modeling included worker trips, as well as haul truck trips and equipment operations (i.e., power washers) associated with the washing of solar panels. Emissions modeling assumed an average of 2 worker trips per day for routine maintenance and operations, which would utilize existing staff from the existing operations and maintenance facility located adjacent to the Manzanita substation. An average trip distance of 2.5 miles was assumed for worker trips. Panel washing was assumed to occur annually over a total of 9 days. In total, panel washing activities are estimated to require an additional 6 workers and 2 trucks daily for the transport of water. A 5-mile trip length for worker trips and a 15-mile trip length for haul trucks was assumed, based on information provided by the project proponent. Panel washing was assumed to require the use of

two pressure washers operating 8 hours/day, up to 9 days/year. Emissions associated with the pumping and conveyance of water used during the construction process were quantified based on Southern California Edison's carbon intensity rates, derived from the CalEEMod computer program.

Displaced Grid Electricity Emissions

Displaced emissions from electricity production were modeled based on an estimated electricity generation rate of 132,032 MWh/year, provided by the project proponent. Emission factors were derived from the U.S. EPA's *Emissions Generation Resource Integration Database* (eGRID; 2014). Emissions modeling assumptions and output files are included in Appendix C of this report.

A life-cycle assessment (LCA) was not included given the lack of consensus on the methodologies to be used. LCAs address all stages of a product's life-cycle, taking into account associated waste streams, raw material extraction, material transport and processing, product manufacturing, distribution and use, repair and maintenance, and emissions associated with a product's end-of-life disposal, reuse, or recycling. The preparation of a GHG LCA is dependent on multiple factors, including emission factors, inventory data, and econometric factors that are not well established for all processes. Conducting LCAs involves some speculation on how the processing, manufacturing, transportation and eventual disposal of materials would occur, which are often far removed both spatially and temporally from the project site. Emission factors specific to various locations and sources, particularly at some overseas manufacturing and processing locations, are often limited or unavailable. For these reasons and in accordance with CEQA requirements, this analysis focuses on the physical changes to the environment that are not speculative and are reasonably foreseeable.

PROJECT IMPACTS

IMPACT GHG-1: Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Short-term Construction

Construction of the proposed project would result in the temporary generation of emissions associated with various activities, including site preparation, grading, trenching, construction of roads, installation of collector lines, electrical infrastructure, solar array modules, and the battery storage facility. GHG emissions would be largely associated with off-road equipment use, as well as on-road vehicle operations associated with workers commuting to and from the project site and haul truck trips. In addition, the pumping of water required during construction would result in slight increases in emissions, primarily associated with electricity use at offsite locations.

Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 12. As depicted, annual GHG emissions associated with construction of the proposed project would total approximately 1,660.7 MTCO₂e. Amortized GHG emissions, when averaged over the assumed minimum 30-year life of the project, would total approximately 55.4 MTCO₂e/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative.

Long-term Operation

GHG emissions associated with the long-term operation of the proposed project would be primarily associated with routine maintenance activities, including panel washing. To a lesser extent, GHG emissions would also be generated by worker trips. On average, operation of the proposed facility is estimated to result in approximately 2 worker trips/day. Routine maintenance activities would include panel washing, which is expected to occur approximately 9 days/year. Panel washing activities are estimated to require an additional 6 worker trips/day and 2 haul truck trips per day. Panel washing activities were also assumed to require the use of two power washers operating 8 hours/day.

Table 12
Construction-Generated GHG Emissions

Construction Phase/Source	GHG Emissions (MTCO ₂ e)
Move-On	31.0
Site Preparation & Grading	371.7
Internal Roads	370.7
Solar Array, Collector Lines & Battery Storage	885.7
Water Pumping	1.6
Total	1,660.7
Amortized (30-Year Project Life)	55.4
<i>Totals may not sum due to rounding. Refer to Appendix C for modeling results and assumptions.</i>	

Estimated operational emissions are summarized in Table 13. As indicated, operation of the proposed project, with the inclusion of amortized construction emissions, would total approximately 177.2 MTCO₂e/year. In addition, as noted previous in this report, sulfur hexafluoride (SF₆) is a GHG that is commonly used for insulation in electric power transmission and distribution equipment. Onsite electrical equipment may contain SF₆, which could potentially leak into the atmosphere. However, any fugitive emissions of SF₆ associated with the unintentional leakage from equipment would be speculative. The project would also require minimal energy for security and monitoring systems during nighttime hours; however, this amount would be negligible and provided by the onsite PV system.

Table 13
Operational GHG Emissions

Source	GHG Emissions (MTCO ₂ e/Year)
Worker Trips	0.7
Panel Washing	121.1
Amortized Construction	55.4
Total:	177.2
Displaced Electricity Emissions	-23,089
Net Total (w/displaced emissions):	-22,912
<i>Totals may not sum due to rounding. 1. Includes emissions associated with water pumping, worker trips, and operation of off-road equipment. Refer to Appendix C for modeling results and assumptions.</i>	

Displaced Grid Electricity Emissions

It is important to note that operation of the proposed project would help to reduce or "offset" electricity on the state-wide utility grid, which includes energy generated by traditional sources, such as natural gas and coal-fired plants. These emissions are often referred to as "displaced" or "avoided" emissions. Calculating displaced emissions can be complicated and is dependent on multiple factors, such as seasonal changes, weather conditions, fuel demands and availability, and changes in the state-wide energy resource mix. These factors often fluctuate, sometimes daily, which complicates the estimation of displaced emissions. For instance, during drought years, less hydroelectricity is available and other power sources are used to supplement the lack of available hydroelectricity. These other sources can be in-state or out-of-state plants, including those powered by fossil fuels (e.g., natural gas, coal).

Because electricity enters the state-wide electrical transmission and distribution system (more commonly referred to as the grid) from multiple sources and locations, it is typically not possible or recommended to calculate displaced emissions for a specific facility or in-state geographic area. As a result, displaced

emissions were conservatively estimated based on the state-wide electricity power system resource mix and associated carbon intensity factors, which includes plants powered by fossil fuels, as well as renewable resources (biomass, geothermal, hydro, solar, wind, etc.). Displaced emissions specific to fossil-fuel plants would be higher.

Estimated emissions displaced by the project are presented in Table 13. This information is included to provide a more accurate interpretation of the overall impacts associated with the proposed project. As depicted, displaced emissions would total approximately 23,089 MTCO₂e/year. After accounting for annual operational emissions and amortized construction emissions, the proposed project would be anticipated to result in an overall net displacement of approximately 22,912 MTCO₂e/year. Actual emissions displaced by the proposed project would vary for the reasons discussed above. Nonetheless, because the proposed project would be anticipated to result in an overall net reduction in GHG emissions it would be considered a benefit to the environment. Therefore, the proposed project would not result in a cumulatively considerable contribution of greenhouse gas emissions.

IMPACT GHG-2: Would the proposed project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Kern County has not yet adopted a GHG-reduction plan. In October 2008, ARB published its Climate Change Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. A key component of the Scoping Plan is the Renewable Portfolio Standard, which is intended to increase the percentage of renewables in California's electricity mix to 33 percent by year 2020, resulting in a reduction of 21.3 MMTCO₂e. In October 2015, the California state legislature passed Senate Bill 350, which requires all utilities in the state to source 50 percent of their electricity sales from renewable sources by year 2030. Increasing the use of renewables will decrease California's reliance on fossil fuels, thus reducing GHG emissions.

As noted in *Impact GHG-1*, implementation of the proposed project would result in displaced emissions from electricity generation that would otherwise be obtained from non-renewable resources. Displaced emissions would total approximately 23,089 MTCO₂e/year. The amount of emissions displaced by the project would vary depending on various factors, such as seasonal changes, weather conditions, fuel demands and availability, and changes in the state-wide energy resource mix. As previously discussed and depicted in Figure 4, electricity from PV facilities is vital to meeting projected year 2020 and 2030 RPS goals and AB 32 requirements, constituting approximately 33 percent of the state's projected total renewable mix for year 2020 and 50 percent by year 2030. Implementation of the proposed project would, therefore, be considered a notable contributor to the state's GHG reduction goals. Implementation of the proposed project would be consistent with the state's RPS program and would not conflict with AB 32 requirements. Because the project would not conflict with any applicable plan, policy or regulation for GHG reduction or managing global climate change, no impact would occur.

REFERENCES

Air Quality

- Agency for Toxic Substances & Disease Registry (ATSDR). Accessed: October 23, 2016a. Toxic Substances Portal-Lead. Website url: <https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=93&tid=22>.
- Agency for Toxic Substances & Disease Registry (ATSDR). Accessed: October 23, 2016b. Toxic Substances Portal-Hydrogen Sulfide/Carbonyl Sulfide. Website url: <https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=388&tid=67>.
- California Air Resources Board (ARB). 2000. *Diesel Risk Reduction Plan*. Available at url: <http://www.arb.ca.gov/diesel/documents/rrpapp.htm>.
- . 2001. Staff Report: Ozone Transport: 2001 Review.
- . 2002. *Guidance for the Permitting of Electrical Generation Technologies*.
- . March 16, 2004a. Fact Sheet: Hexavalent Chromium. Available at website url: <https://www.arb.ca.gov/coatings/thermal/factsheets/factsheethexchrome.pdf>.
- . March 16, 2004b. Indoor Air Quality Guideline: Formaldehyde in the Home. Available at website url: <https://www.arb.ca.gov/research/indoor/formaldGL08-04.pdf>.
- . 2009. The California Almanac of Emissions and Air Quality-2009 Edition. Available at website url: <https://www.arb.ca.gov/aqd/almanac/almanac.htm>.
- . 2013. The California Almanac of Emissions and Air Quality-2013 Edition. Available at website url: <https://www.arb.ca.gov/aqd/almanac/almanac.htm>.
- . Accessed: October 7, 2016a. Vinyl Chloride. Website url: <https://www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm>
- . Accessed: October 7, 2016b. History of Sulfates Air Quality Standard. Website url: <https://www.arb.ca.gov/research/aaqs/caaqs/sulf-1/sulf-1.htm>
- . Accessed: October 7, 2016c. Vinyl Chloride. Website url: <https://www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm>
- . Accessed: October 7, 2016d. Overview of Diesel Exhaust and Health. Website url: <https://www.arb.ca.gov/research/diesel/diesel-health.htm>.
- . Accessed: October 7, 2016e. AQ Monitoring Results: Wilmington: Para-Dichlorobenzene. Website url: https://www.arb.ca.gov/ch/aa_result/wilmington/wm_pdcbb.htm.
- . Accessed: June 13, 2017. *Air Quality Standards and Area Designations*. <http://www.arb.ca.gov/desig/desig.htm>.
- California Department of Conservation (DOC). August 2000. *A General Location Guide for Ultramafic Rocks in California, Areas More Likely to Contain Naturally Occurring Asbestos*.
- Centers for Disease Control and Prevention (CDC). Accessed: November 13, 2014. *Valley Fever: Awareness is Key*. Website url: <http://www.cdc.gov/features/valleyfever/>.
- County of Kern. June 15, 2004. *Kern County General Plan. Land Use, Open Space, and Conservation Element*.
- . December 1, 2006. *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports*.
- . 2016. *Valentine Solar Project Draft Environmental Impact Report*.
- Eastern Kern Air Pollution Control District (EKAPCD). 1996. *Guidelines for Implementation of the California Environmental Quality Act (CEQA) of 1970, as Amended*. Available at website url: http://www.kernair.org/Documents/CEQA/CEQA_Guidelines%20&%20Charts.pdf.
- . Accessed: July 23, 2017. Website url: <http://www.kernair.org/Documents/Reports/EKAPCD%20Attainment%20Status%2011-20-14.pdf>.

———. 2005. California Clean Air Act Ozone Air Quality Attainment Plan

Kern County Public Health Services (KCPHS). 2015. Valley Fever (*Coccidioidomycosis*) in Kern County. Website url: <http://kerncountyvalleyfever.com/>.

South Coast Air Quality Management District (SCAQMD). CEQA Air Quality Handbook, Table A9-11-A (1993) and ARB Guidance for Permitting of Electric Generating Technologies (2002).

SWCA Environmental Consultants. 2017. Camino Solar Project Plan of Development.

U.S. Environmental Protection Agency (U.S. EPA). February 2014. Emissions & Generation Resource Integrated Database (eGRID), 9th Edition. Available at website url: <http://epa.gov/cleanenergy/energy-resources/egrid/index.html>.

———. Accessed: October 17, 2016a. Ozone Pollution. Website url: <https://www.epa.gov/ozone-pollution>

———. Accessed: October 7, 2016b. Basic Information about NO₂. Website url: <https://www.epa.gov/no2-pollution/basic-information-about-no2#What%20is%20NO2>.

———. Accessed: October 7, 2016c. Effects of Acid Rain. Website url: <https://www.epa.gov/acidrain/effects-acid-rain>.

———. Accessed: October 7, 2016d. Health Effects Notebook for Hazardous Air Pollutants. Available at website url: <https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>.

———. 2016e. Accessed: October 7, 2016e. Carbon Monoxide (CO) Pollution in Outdoor Air. Website url: <https://www.epa.gov/co-pollution>.

———. Accessed: October 22, 2016f. Air Trends. Sulfur Dioxide. Website url: [ftp://ftp.soc.uoc.gr/students/aslanidis/My%20documents/Aslanidis%20&%20Xepapadeas%20\(2004\)/EPA%20Air%20Trends%20Sulfur%20Dioxide.htm](ftp://ftp.soc.uoc.gr/students/aslanidis/My%20documents/Aslanidis%20&%20Xepapadeas%20(2004)/EPA%20Air%20Trends%20Sulfur%20Dioxide.htm)

———. Accessed: October 7, 2016g. Accessed: October 22, 2016g. Website url: Vinyl Chloride. <https://www.epa.gov/sites/production/files/2016-09/documents/vinyl-chloride.pdf>

Greenhouse Gases

California Air Resources Board (ARB). Assembly Bill 32 Overview. Accessed: January 23, 2014. Website url: <http://www.arb.ca.gov/cc/ab32/ab32.htm>.

———. May 2014. Climate Change Scoping Plan.

———. May 2014. California Greenhouse Gas Emissions Inventory: 2000-2012. Available at website url: www.arb.ca.gov/cc/inventory/.../ghg_inventory_00-12_report.pdf.

———. 2017. California Greenhouse Gas Emissions Inventory-2017 Edition. Website URL: <https://www.arb.ca.gov/cc/inventory/data/data.htm>.

California Energy Commission (CEC). 2003. Global Climate Change: California Impacts. Website url: <http://www.energy.ca.gov/pier/portfolio/Content/Completed97to06/Completedprior05plusEISG05/Global%20Climate%20Change%20California.htm>

California Public Utilities Commission (CPUC). 2016. Renewables Portfolio Standard Quarterly Report. 4th Quarter 2016. Available at website url: http://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Reports_and_White_Papers/Q4_2016_RPS_Report_to_the_Legislature_FINAL.pdf

Eastern Kern Air Pollution Control District (EKAPCD). March 8, 2012. Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency.

European Fluorocarbons Technical Committee (EFCTC). 2003. Fluorocarbons and Sulphur Hexafluoride: Perfluorocarbons (PFCs) Fact Sheet. http://www.fluorocarbons.org/en/info/brochures/fact_10.html.

United States Environmental Protection Agency (U.S. EPA). February 2014. Emissions & Generation Resource Integrated Database (eGRID), 9th Edition. Available at website url: <http://epa.gov/cleanenergy/energy-resources/egrid/index.html>.

———. 2016a. Methane. Website url: <http://www.epa.gov/climatechange/ghgemissions/gases/ch4.html>.

———. 2016b. Nitrous Oxide. Website url: <http://www.epa.gov/nitrousoxide/index.html>.

- . 2016c. High Global Warming Potential Gases. Website url: <http://www.epa.gov/highgwp/scientific.html>.
- . 2016d. Global Greenhouse Gas Emissions Data. Website url: <http://epa.gov/climatechange/ghgemissions/global.html>
- . 2016e. SF₆ Emission Reduction Partnership for Electric Power Systems: Basic Information. Website url: <http://www.epa.gov/electricpower-sf6/basic.html>.
- . Accessed: November 10, 2018. *General Conformity De Minimis Tables*. Website url: <https://www.epa.gov/general-conformity/de-minimis-tables>.
- . Accessed: December 12, 2018. *Final revisions to the General Conformity Regulations - Fact Sheet*. Available at: url: <https://www.epa.gov/sites/production/files/2016-03/documents/20100324fs.pdf>.

APPENDIX A

Information on Valley Fever (Coccidioidomycosis)

The following information was obtained from the Kern County Public Health Services Department's Valley Fever Website. For additional information on Valley Fever, please refer to:
<http://kerncountyvalleyfever.com/>

Diagnosis

Usually diagnosis is made on the basis of one or more of the following tests: recovery of the cocci organisms from sputum (phlegm) or some other body fluid or by blood tests that reflect the body's reaction to the presence of the fungus. In some cases a biopsy may be needed.

These tests are quite reliable, but they may fluctuate according to the stage of the disease. The tests are not positive in every case of cocci. In some instances, the diagnosis may rest on circumstantial evidence, particularly for people living in an area of the Southwest where much cocci is found. In most cases, however, these tests are helpful.

Chest X-rays reveal some of the abnormalities associated with cocci, but the shadows may be mistake for those of tuberculosis or some other lung disease.

Treatment

Patients suffering from the flu-like symptoms of cocci in its primary form will probably be sent to bed by the doctor. Symptoms, such as cough and fever, will be treated.

For the disseminated form of the disease, a number of drugs are now available.

Occasionally surgery is recommended to remove a diseased portion of the lung, bone or skin.

The Future

There are many mysteries—yet unraveled—about cocci. Better methods both to prevent and treat the disease remain to be found.

Simple avoidance of infected areas is probably best for newcomers among black, Mexican and Filipino adults. Those who have lived there since childhood may well have developed a kind of immunity to the disease that newcomers do not have.

Methods for the control and sterilization of dust are being studied and improved.

Some research, including work on a vaccine, is now being done on ways to make people immune to cocci.



1800 Mt. Vernon Avenue
Bakersfield, CA 93306

For more information please call

(661) 321-3000

More information can be obtained by calling your
local American Lung Association at

1-800-LUNG-USA

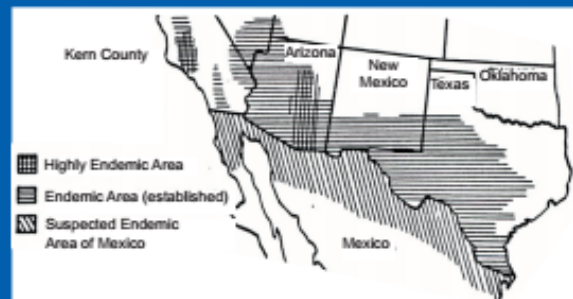
1-800-586-4872

Adapted from the Valley Fever Center for Excellence
Coccidioidomycosis website www.vfce.arizona.edu
8/29/2006



What is Valley Fever?

The technical name for Valley Fever is *Coccidioidomycosis*, or "cocci" for short. It is caused by *Coccidioides immitis*, a fungus somewhat like yeast or mildew which lives in the soil in the southwestern United States and northwestern Mexico. The tiny seeds, or spores, become wind-borne and are inhaled into the lungs, where the infection starts. About 60 percent of the people who breathe in the spores do not get sick at all. For some, it may feel like a cold or flu. For those sick enough to go to the doctor, it can be serious, with pneumonia-like symptoms that require medication and bed rest. Of all the people infected with cocci, about one out of 200



will develop the disseminated form, which is devastating and can be fatal. These are cases in which the disease spreads beyond the lungs through the blood stream—typically to the skin, bones, and the membranes surrounding the brain, causing meningitis. Cocci is not contagious from person to person. It appears that after one exposure, the body develops immunity.

Who Gets Valley Fever?

The disease may occur in any resident of the infected areas—or a visitor; often offering a diagnostic puzzle to the doctor back home. People most likely to be exposed are those in dusty occupations, such as farm workers, earth movers and archaeologists. However, the more serious or disseminated form of cocci is many times more frequent in non-white people, and those with impaired immune systems. Persons between the ages of 25 and 55 are most likely to develop symptoms of the disease—although people of all ages can have symptoms. In its simple form, with the flu-like symptoms, cocci affects both men and women equally. But the serious form of the disease is found more often in men than in nonpregnant women. Pregnant women seem to be more susceptible to the serious form.

How the Spores Affect the Body

Floating freely in clouds of dust, the tiny cocci spores enter the body when we breathe air into our lungs.

Most never get anywhere. The body's wonderful defense system works too well: the spores get caught in sticky mucus inside the air tubes and are moved back up into the throat where they are either spit out or swallowed harmlessly.

But a few cocci spores do continue the invasion. They work their way down the air tubes to the end of the passage: the little air sacs of the lung, where the air ends up when it is inhaled.

Deep in the lung, the spores begin to grow. They

develop into pods that are filled with even tinier seeds. The pods burst open, the seeds pour out and spread in the lung and sometimes to other parts of the body.

Wherever the spores settle down, the body reacts with inflammation. In the lungs, little patches of pneumonia develop around the spores. Cavities or scars may result, and eventually deposits of calcium.

When the spores stay in the lungs, the disease is said to be in its primary form. When the fungus spreads throughout the body—to the internal organs, bones, brain, and even the skin—cocci is in its disseminated form.

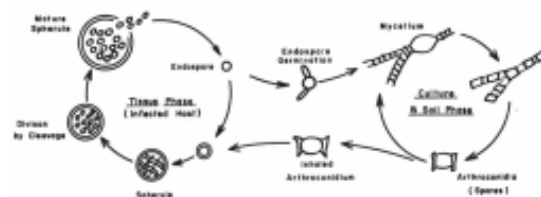
Symptoms

Perhaps as many as 60 to 70 percent of all people infected with cocci develop no symptoms at all. Some 30 to 40 percent do get sick—usually within one to three weeks after the cocci spores invade the body. Fever may go as high as 104 degrees. There are usually aches and pains and a cough. A week or two after the fever develops some patients get a rash that resembles the measles. There may also be tender red spots on the shins and pain in the joints. Usually symptoms disappear within a month or so, though full return of energy may take some months.

The disseminated form of the disease is a great deal more serious—with very high fever and extreme fatigue. It has been estimated that about one percent of white patients develops the disseminated form of the disease. However in ten to twenty percent of dark-skinned patients, cocci progresses to its disseminated form, which can be fatal.

It is wise always to check with a doctor—because only he or she can tell.

LIFE CYCLE OF COCCIDIODES IMMITIS



APPENDIX B

General Conformity Applicability Determination

GENERAL CONFORMITY REGULATORY OVERVIEW

Title 40 of the Code of Federal Regulations, Part 93, requires that the federal government not engage, support, or provide financial assistance for licensing, permitting, or approving any activity not conforming to an approved CAA implementation plan. Title I, section 176(c)(1), of the CAA defines conformity as the upholding of "an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving attainment of such standards." Accordingly, proposed Federal actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of any NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity regulations take into account air pollutant emissions associated with actions that are federally funded, licensed, permitted, or approved. These regulations ensure that emissions associated with federal actions do not contribute to air quality degradation, thus preventing the achievement of state and federal air quality goals. In short, General Conformity refers to the process of evaluating plans, programs, and projects to determine and demonstrate that they meet the requirements of the CAA and applicable SIP. In general, the General Conformity regulations divide the air conformity process into two distinct areas: (1) Applicability Analysis, and (2) Conformity Determination. Federal agencies must initially assess if an action is subject to the Conformity Rule (Applicability Analysis) and then, if applicable, whether the action conforms to an applicable implementation plan (Conformity Determination).

On March 24, 2010, the U.S. EPA revised the General Conformity regulations. These revisions improved the process federal entities use to demonstrate that their actions will not contribute to a NAAQS violation, provides tools to encourage better communication and air quality planning between states and federal agencies, and encourages both the federal agencies and the states to take early actions to ensure projects will conform to the appropriate state, tribal, or federal implementation plans for attaining or maintaining the NAAQS. The following is a summary of the revisions made to the Conformity regulations (U.S.EPA 2010).¹

- Allows federal facilities expecting future expansion or modifications to negotiate a facility-wide emission budget with applicable state air quality agencies. Actions taken that do not exceed these budgets would be deemed to conform to the SIP and would not need a conformity determination.
- Incorporates an early emission reduction credit program for all agencies that follow the Airport Early Emission Reduction guidance developed jointly by EPA and the Federal Aviation Administration. This program encourages emission reduction actions on federal installations by providing emission reduction credits that can be used to demonstrate conformity for subsequent actions on the facility.
- Allows emissions of one precursor pollutant to be offset by the reduction of emissions of another precursor pollutant. For example, both oxides of nitrogen and volatile organic compounds are ozone precursors – they are emitted and then react in the atmosphere to form ground-level ozone. In an area that does not meet EPA's ground-level ozone standard, reductions in nitrogen oxide emissions could be offset by reductions of volatile organic compounds.
- Allows alternative schedules for mitigating emission increases where state air quality agencies can accommodate temporary emission increases in exchange for long-term or permanent emission reductions.
- Removes requirements for federal agencies to conduct conformity determinations for "regionally significant" actions. Such actions have emissions greater than 10 percent of the emissions inventory for a nonattainment area. These analyses have been conducted for 16 years and have never shown an action to interfere with attainment or maintenance of a NAAQS.
- Lists categories of actions that federal agencies can presume to conform. The final rule also allows states to establish "presumed to conform" lists for actions in their state.

¹ United States Environmental Protection Agency (U.S.EPA). Accessed: December 12, 2018. *Final revisions to the General Conformity Regulations - Fact Sheet*. Available at: [url: https://www.epa.gov/sites/production/files/2016-03/documents/20100324fs.pdf](https://www.epa.gov/sites/production/files/2016-03/documents/20100324fs.pdf).

GENERAL CONFORMITY *DE MINIMIS* EMISSION LEVELS

When assessing the applicability of a proposed Federal action to General Conformity requirements, General Conformity requirements would be deemed to apply to a Proposed Federal action when the total of direct and indirect emissions caused by the Federal action would equal or exceed the *de minimis* emission levels of criteria pollutants within corresponding nonattainment or maintenance areas. General Conformity *de minimis* emission levels, expressed in tons per year (TPY), are summarized in Table A-1. If the federal action will cause emissions that equal or exceed the *de minimis* emission levels in any nonattainment or maintenance area and the action is not otherwise exempt, "presumed to conform," or included in the existing emissions budget of the applicable implementation plan for attaining or maintaining the NAAQS, the agency must conduct a conformity determination before implementation of the proposed Federal action. In such instances, compliance with the General Conformity Rule can be demonstrated in one or more of the following ways, which must be completed prior to initiation of construction:

- By reducing emissions to below the General Conformity *de minimis* emission levels;
- By showing that the emissions are included in the area's emission budget for the state implementation plan (SIP);
- By demonstrating that the state agrees to include the emission increases in the area's SIP without exceeding emission budgets;
- By offsetting the project's emissions in each year that the General Conformity *de minimis* threshold values are exceeded;
- By an air quality modeling analysis demonstrating the project would not cause or exacerbate a national ambient air quality standard (NAAQS)

EXEMPTIONS FROM GENERAL CONFORMITY REQUIREMENTS

In accordance with General Conformity regulations, the following actions are exempt:

- Actions where the total of direct and indirect emissions are below the specified emissions levels
- Actions which would result in no emissions increase or an increase in emissions that is clearly *de minimis*
- Actions where the emissions are not reasonably foreseeable, such as the following:
 - Initial Outer Continental Shelf lease sales which are made on a broad scale and are followed by exploration and development plans on a project level
 - Electric power marketing activities that involve the acquisition, sale and transmission of electric energy
- Actions which implement a decision to conduct or carry out a conforming program such as prescribed burning actions which are consistent with a conforming land management plan.
- Actions which include major or minor new or modified stationary sources requiring a permit under the New Source Review program or the prevention of significant deterioration program.
- Actions in response to emergencies or natural disasters such as hurricanes, earthquakes, etc., which are commenced on the order of hours or days after the emergency or disaster and, if applicable, which meet the requirements for Federal actions which are part of a continuing response
- Actions which include research, investigations, studies, demonstrations, or training (unless otherwise exempted) where no environmental detriment is incurred and/or, the particular action furthers air quality research, as determined by the State agency primarily responsible for the applicable SIP
- Actions which include alteration and additions of existing structures as specifically required by new or existing applicable environmental legislation or environmental regulations (e.g., hush houses for aircraft engines and scrubbers for air emissions)
- Actions which include direct emissions from remedial and removal actions carried out under CERCLA (and associated regulations to the extent such emissions either comply with the substantive requirements of the PSD/NSR permitting program or are exempted from other environmental regulation under the provisions of CERCLA and applicable regulations issued under CERCLA.)

Table B-1
Federal General Conformity *de minimis* Levels

Pollutant	Emission Levels (tons per year)
Nonattainment Areas	
Ozone (VOC's or NO _x)	
Serious NAA's	50
Severe NAA's	25
Extreme NAA's	10
Other Ozone NAA's outside an ozone transport region	100
Other Ozone NAA's inside an ozone transport region	(See Below)
VOC	50
NO _x	100
Carbon Monoxide: All NAA's	100
SO ₂ and NO ₂ : All NAA's	100
PM ₁₀	
Moderate NAA's	100
Serious NAA's	70
PM _{2.5}	
Moderate NAA's	100
Serious NAA's	70
Maintenance Areas	
Ozone (NO _x), SO ₂ or NO ₂ : All MA's	100
Ozone (VOC's):	
Maintenance areas inside an ozone transport region	50
Maintenance areas outside an ozone transport region	100
Carbon Monoxide: All MA's	100
PM ₁₀ (All MA's):	100
Pb (All MA's):	25

Source: United States Environmental Protection Agency (U.S.EPA). Accessed: April 27, 2018. General Conformity.
Website url: <https://www.epa.gov/general-conformity>.

APPLICABILITY ANALYSIS

The first step in a general conformity evaluation is an analysis of whether the General Conformity requirements apply to a Federal action proposed to be taken in a nonattainment or a maintenance area. Unless exempted by the regulations or otherwise presumed to conform, a Federal action requires a general conformity determination for each pollutant where the total of direct and indirect emissions caused by the Federal action would equal or exceed an annual *de minimis* emission level for the criteria air pollutants identified within corresponding nonattainment or maintenance areas. The following provides an analysis of General Conformity requirements applicable to the proposed Project.

FEDERAL ATTAINMENT STATUS

The proposed action is located within Eastern Kern County within the Antelope Valley portion of the Mojave Desert Air Basin (MDAB). This area of Kern County is designated "serious nonattainment" for the federal ozone standard. As noted in Table 3, the applicable *de minimis* levels for areas designated serious nonattainment for ozone is 50 tons per year for each of the ozone-precursor pollutants (i.e., VOC and NO_x). Direct and indirect emissions of VOC and NO_x associated with the proposed action would need to be analyzed in comparison to these *de minimis* levels to determine applicability to the General Conformity Rule.

Table B-2
Federal General Conformity De Minimis Levels for Eastern Kern County
(Antelope Valley)

Pollutant	De Minimis Level (tons/year)
VOC	50
NO _x	50

Source: U.S. EPA. Accessed: November 10, 2018. *General Conformity De Minimis Tables*. Website url: <https://www.epa.gov/general-conformity/de-minimis-tables>.

EMISSIONS ANALYSIS

METHODOLOGY

Short-term Construction-Generated Emissions

Short-term construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, and vehicle travel on paved and unpaved surfaces and fugitive dust from material handling activities were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. Emissions modeling was based on anticipated construction schedules and construction equipment requirements provided by the project applicant, information derived from similar projects, and default parameters contained in the model for the portion of Kern County located within the MDAB. Construction of the roadway network was assumed to occur over an approximate 50-day period. Emissions modeling assumptions and output files are included in Appendix C of this report.

Long-term Operational Emissions

Long-term operational emissions associated with the proposed project were calculated using the CalEEMod, version 2016.3.1. Emissions modeling included worker trips, as well as haul truck trips and equipment operations (i.e., power washers) associated with the washing of solar panels. Emissions modeling assumed an average of 2 worker trips per day for routine maintenance and operations, which would utilize existing staff from the existing operations and maintenance facility located adjacent to the Manzana substation. An average trip distance of 2.5 miles was assumed for worker trips. Based on information provided by the project proponent, panel washing was assumed to occur a total of 9 days annually. In total, panel washing activities are estimated to require an additional 6 workers and 2 trucks daily for the transport of water. A 5-mile trip length for worker trips and a 15-mile trip length for haul trucks was assumed, based on information provided by the project proponent. Panel washing was assumed to require the use of two pressure washers operating 8 hours/day, up to 9 days/year.

Electrical emissions associated with the pumping/conveyance of water for use during project operation assumed a total demand of 1,201 gallons per year. Displaced emissions from electricity production were modeled based on an estimated electricity generation rate of 132,032 MWh/year. Electrical emissions of NO_x were based on emission factors derived from the U.S. EPA's *Emissions & Generation Resource Integrated Database (eGRID)*, 9th Edition (February 2014) for the WECC California (CAMX) sub-region. Emissions modeling assumptions and output files are included in Appendix C of this report.

APPLICABILITY DETERMINATION

Based on the air quality analysis prepared for this project, direct and indirect emissions associated with the construction of the on-site roadway network would total approximately 0.3 tons/year of VOC and 2.6 tons/year of NO_x. Excluding displaced emissions associated with electricity production, annual operation of the proposed project would generate a total of approximately 0.01 tons/year of ROG, 0.06 tons/year of NO_x. Total direct and indirect construction and operational emissions of VOCs and NO_x would not exceed General Conformity *de minimis* levels. As a result, the proposed Project is not subject to Federal General Conformity determination requirements.

APPENDIX C

Emissions Modeling

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

Kern County - Camino Solar Project, Construction
Kern-Mojave Desert County, Annual**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

Project Characteristics - Construction emissions only for this model run.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - Based on data provided by the project proponent.

Off-road Equipment -

Off-road Equipment - 1 dozer, 1 t/l/b, 1 grader, 1 scraper, 2 water trucks. 10 hrs/day.

Off-road Equipment - dozer, 2 tlb, grader, 3 water trucks, 1 roller, 2 scrapers

Off-road Equipment - exc, 2 graders, dozer, scraper, 3 tlb, 3 water trucks, 1 roller

Off-road Equipment - crane, forklift, 2 tlb, 2 water trucks, 4 post drivers (48 hp), trencher, grader, exc, skid, screen

Off-road Equipment - 2 forklift, 2 tlb, grader, water truck, dozer, trencher

Grading - 10155 imported, 1028.5 exported.

Trips and VMT - 106 worker/misc trips/day, 30 haul trucks/day, 51 mile trip length

On-road Fugitive Dust - Assumed 4 miles (8%) unpaved travel per trip.

Vehicle Trips - Operational emissions modeled separately.

Energy Use - .

Construction Off-road Equipment Mitigation - 50% CE for roads, 61%CE for disturbed/exposed areas, 15 mph speed limit on unpaved surfaces, T3

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
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tblConstructionPhase	PhaseEndDate	9/17/2047	12/21/2018
tblConstructionPhase	PhaseEndDate	1/2/2018	5/25/2018
tblConstructionPhase	PhaseEndDate	1/1/2018	3/16/2018
tblConstructionPhase	PhaseStartDate	1/3/2018	5/26/2018

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tblConstructionPhase	PhaseStartDate	1/2/2018	3/17/2018
tblConstructionPhase	PhaseStartDate	1/1/2018	1/6/2018
tblGrading	MaterialExported	0.00	1,028.50
tblGrading	MaterialImported	0.00	10,155.00
tblLandUse	LotAcreage	0.00	421.00
tblOffRoadEquipment	HorsePower	172.00	48.00
tblOffRoadEquipment	HorsePower	172.00	50.00
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tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.50	0.50

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tblOffRoadEquipment	OffRoadEquipmentType		Graders
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tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
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tblOffRoadEquipment	OffRoadEquipmentType		Rollers
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tblOffRoadEquipment	OffRoadEquipmentType		Rollers
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tblOffRoadEquipment	OffRoadEquipmentType		Graders
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00

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tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOnRoadDust	HaulingPercentPave	100.00	92.00
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tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
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tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	51.00
tblTripsAndVMT	HaulingTripLength	20.00	51.00
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tblTripsAndVMT	HaulingTripLength	20.00	51.00
tblTripsAndVMT	HaulingTripLength	20.00	51.00

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tblTripsAndVMT	HaulingTripNumber	0.00	30.00
tblTripsAndVMT	HaulingTripNumber	0.00	30.00
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tblTripsAndVMT	HaulingTripNumber	0.00	30.00
tblTripsAndVMT	WorkerTripLength	16.80	51.00
tblTripsAndVMT	WorkerTripLength	16.80	51.00
tblTripsAndVMT	WorkerTripLength	16.80	51.00
tblTripsAndVMT	WorkerTripLength	16.80	51.00
tblTripsAndVMT	WorkerTripLength	16.80	51.00
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2.0 Emissions Summary

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	1.2925	10.7473	7.9864	0.0181	75.3950	0.5092	75.9042	7.7830	0.4685	8.2515						1,653.3185
2019	0.0310	0.3254	0.1726	3.6000e-004	0.0000	0.0165	0.0165	0.0000	0.0152	0.0152						32.4711
Maximum	1.2925	10.7473	7.9864	0.0181	75.3950	0.5092	75.9042	7.7830	0.4685	8.2515						1,653.3185

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.5614	6.5956	9.2083	0.0181	23.4599	0.2999	23.7598	2.4882	0.2996	2.7878						1,653.3171
2019	8.7800e-003	0.1793	0.2151	3.6000e-004	0.0000	8.7900e-003	8.7900e-003	0.0000	8.7900e-003	8.7900e-003						32.4710
Maximum	0.5614	6.5956	9.2083	0.0181	23.4599	0.2999	23.7598	2.4882	0.2996	2.7878						1,653.3171

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	56.92	38.81	-15.50	0.00	68.88	41.29	68.69	68.03	36.24	66.17	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	2.8554	1.5933
		Highest	2.8554	1.5933

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	3.7000e-004	4.0000e-005	3.8900e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005						8.0300e-003

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2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	3.7000e-004	4.0000e-005	3.8900e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005						8.0300e-003

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

3.0 Construction Detail**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation & Grading	Site Preparation	1/6/2018	3/16/2018	5	50	Site Preparation & Grading
2	Internal Road Construction	Grading	3/17/2018	5/25/2018	5	50	Internal Road Construction
3	Solar Array & Collector Line Const	Building Construction	5/26/2018	12/21/2018	5	150	Solar Array & Collector Line Const
4	Move On	Site Preparation	1/1/2018	1/5/2018	5	5	Move On
5	Battery Storage Construction	Building Construction	12/22/2018	1/18/2019	5	20	Battery Storage Construction

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Battery Storage Construction	Cranes	0	0.00	231	0.29
Battery Storage Construction	Forklifts	2	10.00	89	0.20
Battery Storage Construction	Generator Sets	0	0.00	84	0.74
Move On	Rubber Tired Dozers	1	10.00	247	0.40
Battery Storage Construction	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Move On	Tractors/Loaders/Backhoes	1	10.00	97	0.37
Battery Storage Construction	Welders	0	0.00	46	0.45
Move On	Graders	1	10.00	187	0.41
Solar Array & Collector Line Const	Cranes	1	10.00	231	0.29
Internal Road Construction	Excavators	1	10.00	158	0.38
Solar Array & Collector Line Const	Forklifts	1	10.00	89	0.20

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Site Preparation & Grading	Rubber Tired Dozers	1	10.00	247	0.40
Move On	Off-Highway Trucks	2	10.00	402	0.38
Solar Array & Collector Line Const	Generator Sets	0	0.00	84	0.74
Move On	Scrapers	1	10.00	367	0.48
Internal Road Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Site Preparation & Grading	Graders	1	10.00	187	0.41
Internal Road Construction	Graders	2	10.00	187	0.41
Site Preparation & Grading	Off-Highway Trucks	3	10.00	402	0.38
Internal Road Construction	Rubber Tired Dozers	1	10.00	247	0.40
Internal Road Construction	Scrapers	1	10.00	367	0.48
Solar Array & Collector Line Const	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Site Preparation & Grading	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Solar Array & Collector Line Const	Welders	0	0.00	46	0.45
Site Preparation & Grading	Rollers	1	10.00	80	0.38
Site Preparation & Grading	Scrapers	2	10.00	367	0.48
Internal Road Construction	Off-Highway Trucks	3	10.00	402	0.38
Internal Road Construction	Rollers	1	10.00	80	0.38
Solar Array & Collector Line Const	Off-Highway Trucks	2	10.00	402	0.38
Solar Array & Collector Line Const	Other Construction Equipment	4	10.00	48	0.42
Solar Array & Collector Line Const	Trenchers	1	10.00	78	0.50
Solar Array & Collector Line Const	Graders	1	10.00	187	0.41
Solar Array & Collector Line Const	Excavators	1	10.00	158	0.38
Solar Array & Collector Line Const	Skid Steer Loaders	1	10.00	65	0.37
Solar Array & Collector Line Const	Other Construction Equipment	1	10.00	50	0.42
Battery Storage Construction	Graders	1	10.00	187	0.41
Battery Storage Construction	Off-Highway Trucks	1	10.00	402	0.38
Battery Storage Construction	Rubber Tired Dozers	1	10.00	247	0.40

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Battery Storage Construction	Trenchers	1	10.00	78	0.50
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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Solar Array & Collector Line Const	15	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Internal Road Construction	12	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	10	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Battery Storage Construction	8	0.00	0.00	0.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Move On	6	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

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3.2 Site Preparation & Grading - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2719	0.0000	0.2719	0.1125	0.0000	0.1125						0.0000
Off-Road	0.2221	2.5316	1.3500	2.9500e-003		0.1070	0.1070		0.0984	0.0984						271.0665
Total	0.2221	2.5316	1.3500	2.9500e-003	0.2719	0.1070	0.3789	0.1125	0.0984	0.2110						271.0665

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0828	4.0000e-005	0.0828	8.3700e-003	4.0000e-005	8.4100e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0459	0.0383	0.3525	1.0700e-003	14.6105	6.8000e-004	14.6112	1.4736	6.3000e-004	1.4743						96.4761
Total	0.0461	0.0475	0.3539	1.1000e-003	14.6933	7.2000e-004	14.6940	1.4820	6.7000e-004	1.4827						99.1540

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3.2 Site Preparation & Grading - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1060	0.0000	0.1060	0.0439	0.0000	0.0439						0.0000
Off-Road	0.0722	1.4195	1.6261	2.9500e-003		0.0588	0.0588		0.0588	0.0588						271.0662
Total	0.0722	1.4195	1.6261	2.9500e-003	0.1060	0.0588	0.1648	0.0439	0.0588	0.1027						271.0662

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0258	4.0000e-005	0.0258	2.6800e-003	4.0000e-005	2.7200e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0459	0.0383	0.3525	1.0700e-003	4.5377	6.8000e-004	4.5384	0.4679	6.3000e-004	0.4685						96.4761
Total	0.0461	0.0475	0.3539	1.1000e-003	4.5635	7.2000e-004	4.5642	0.4706	6.7000e-004	0.4712						99.1540

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3.3 Internal Road Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2545	0.0000	0.2545	0.1106	0.0000	0.1106						0.0000
Off-Road	0.2196	2.4860	1.3080	2.9300e-003		0.1071	0.1071		0.0986	0.0986						270.0486
Total	0.2196	2.4860	1.3080	2.9300e-003	0.2545	0.1071	0.3616	0.1106	0.0986	0.2092						270.0486

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0828	4.0000e-005	0.0828	8.3700e-003	4.0000e-005	8.4100e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0459	0.0383	0.3525	1.0700e-003	14.6105	6.8000e-004	14.6112	1.4736	6.3000e-004	1.4743						96.4761
Total	0.0461	0.0475	0.3539	1.1000e-003	14.6933	7.2000e-004	14.6940	1.4820	6.7000e-004	1.4827						99.1540

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3.3 Internal Road Construction - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0992	0.0000	0.0992	0.0431	0.0000	0.0431						0.0000
Off-Road	0.0719	1.4213	1.6770	2.9300e-003		0.0614	0.0614		0.0614	0.0614						270.0483
Total	0.0719	1.4213	1.6770	2.9300e-003	0.0992	0.0614	0.1606	0.0431	0.0614	0.1045						270.0483

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0258	4.0000e-005	0.0258	2.6800e-003	4.0000e-005	2.7200e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0459	0.0383	0.3525	1.0700e-003	4.5377	6.8000e-004	4.5384	0.4679	6.3000e-004	0.4685						96.4761
Total	0.0461	0.0475	0.3539	1.1000e-003	4.5635	7.2000e-004	4.5642	0.4706	6.7000e-004	0.4712						99.1540

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3.4 Solar Array & Collector Line Const - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5871	5.1795	3.3683	6.2800e-003		0.2768	0.2768		0.2547	0.2547						578.0365
Total	0.5871	5.1795	3.3683	6.2800e-003		0.2768	0.2768		0.2547	0.2547						578.0365

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0828	4.0000e-005	0.0828	8.3700e-003	4.0000e-005	8.4100e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.1375	0.1148	1.0576	3.2000e-003	43.8316	2.0400e-003	43.8336	4.4209	1.8800e-003	4.4228						289.4284
Total	0.1378	0.1241	1.0590	3.2300e-003	43.9144	2.0800e-003	43.9165	4.4292	1.9200e-003	4.4312						292.1062

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3.4 Solar Array & Collector Line Const - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1740	3.3561	3.9078	6.2800e-003		0.1687	0.1687		0.1687	0.1687						578.0359
Total	0.1740	3.3561	3.9078	6.2800e-003		0.1687	0.1687		0.1687	0.1687						578.0359

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0258	4.0000e-005	0.0258	2.6800e-003	4.0000e-005	2.7200e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.1375	0.1148	1.0576	3.2000e-003	13.6131	2.0400e-003	13.6151	1.4037	1.8800e-003	1.4055						289.4284
Total	0.1378	0.1241	1.0590	3.2300e-003	13.6389	2.0800e-003	13.6409	1.4063	1.9200e-003	1.4083						292.1062

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3.5 Move On - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0238	0.0000	0.0238	0.0109	0.0000	0.0109						0.0000
Off-Road	0.0146	0.1665	0.0809	1.9000e-004		6.8800e-003	6.8800e-003		6.3300e-003	6.3300e-003						17.2727
Total	0.0146	0.1665	0.0809	1.9000e-004	0.0238	6.8800e-003	0.0307	0.0109	6.3300e-003	0.0172						17.2727

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0828	4.0000e-005	0.0828	8.3700e-003	4.0000e-005	8.4100e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.5800e-003	3.8300e-003	0.0353	1.1000e-004	1.4611	7.0000e-005	1.4611	0.1474	6.0000e-005	0.1474						9.6476
Total	4.8600e-003	0.0131	0.0366	1.4000e-004	1.5438	1.1000e-004	1.5440	0.1557	1.0000e-004	0.1558						12.3255

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3.5 Move On - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.2800e-003	0.0000	9.2800e-003	4.2400e-003	0.0000	4.2400e-003						0.0000
Off-Road	4.6000e-003	0.0897	0.1018	1.9000e-004		3.5800e-003	3.5800e-003		3.5800e-003	3.5800e-003						17.2727
Total	4.6000e-003	0.0897	0.1018	1.9000e-004	9.2800e-003	3.5800e-003	0.0129	4.2400e-003	3.5800e-003	7.8200e-003						17.2727

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	9.2700e-003	1.3600e-003	3.0000e-005	0.0258	4.0000e-005	0.0258	2.6800e-003	4.0000e-005	2.7200e-003						2.6779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	4.5800e-003	3.8300e-003	0.0353	1.1000e-004	0.4538	7.0000e-005	0.4538	0.0468	6.0000e-005	0.0469						9.6476
Total	4.8600e-003	0.0131	0.0366	1.4000e-004	0.4795	1.1000e-004	0.4797	0.0495	1.0000e-004	0.0496						12.3255

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3.6 Battery Storage Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0142	0.1514	0.0758	1.5000e-004		7.7800e-003	7.7800e-003		7.1600e-003	7.1600e-003						14.1545
Total	0.0142	0.1514	0.0758	1.5000e-004		7.7800e-003	7.7800e-003		7.1600e-003	7.1600e-003						14.1545

Unmitigated Construction Off-Site

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

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3.6 Battery Storage Construction - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.7600e-003	0.0768	0.0922	1.5000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003						14.1544
Total	3.7600e-003	0.0768	0.0922	1.5000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003						14.1544

Mitigated Construction Off-Site

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

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3.6 Battery Storage Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0310	0.3254	0.1726	3.6000e-004		0.0165	0.0165		0.0152	0.0152						32.4711
Total	0.0310	0.3254	0.1726	3.6000e-004		0.0165	0.0165		0.0152	0.0152						32.4711

Unmitigated Construction Off-Site

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

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3.6 Battery Storage Construction - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.7800e-003	0.1793	0.2151	3.6000e-004		8.7900e-003	8.7900e-003		8.7900e-003	8.7900e-003						32.4710
Total	8.7800e-003	0.1793	0.2151	3.6000e-004		8.7900e-003	8.7900e-003		8.7900e-003	8.7900e-003						32.4710

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.472669	0.031291	0.166276	0.125679	0.021211	0.006775	0.020722	0.144029	0.001634	0.001785	0.006011	0.000972	0.000946

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Mitigated

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

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003
Unmitigated	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003
Total	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003
Total	3.7000e-004	4.0000e-005	3.8900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0300e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

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

7.2 Water by Land Use**Unmitigated**

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

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

7.2 Water by Land Use**Mitigated**

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

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

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

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

8.2 Waste by Land Use**Unmitigated**

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

Mitigated

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

9.0 Operational Offroad

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

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

Kern County - Camino Solar Project, Construction
Kern-Mojave Desert County, Summer**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

Project Characteristics - Construction emissions only for this model run.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - Based on data provided by the project proponent.

Off-road Equipment -

Off-road Equipment - 1 dozer, 1 t/l/b, 1 grader, 1 scraper, 2 water trucks. 10 hrs/day.

Off-road Equipment - dozer, 2 tlb, grader, 3 water trucks, 1 roller, 2 scrapers

Off-road Equipment - exc, 2 graders, dozer, scraper, 3 tlb, 3 water trucks, 1 roller

Off-road Equipment - crane, forklift, 2 tlb, 2 water trucks, 4 post drivers (48 hp), trencher, grader, exc, skid, screen

Off-road Equipment - 2 forklift, 2 tlb, grader, water truck, dozer, trencher

Grading - 10155 imported, 1028.5 exported.

Trips and VMT - 106 worker/misc trips/day, 30 haul trucks/day, 51 mile trip length

On-road Fugitive Dust - Assumed 4 miles (8%) unpaved travel per trip.

Vehicle Trips - Operational emissions modeled separately.

Energy Use - .

Construction Off-road Equipment Mitigation - 50% CE for roads, 61%CE for disturbed/exposed areas, 15 mph speed limit on unpaved surfaces, T3

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
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tblConstructionPhase	PhaseEndDate	9/17/2047	12/21/2018
tblConstructionPhase	PhaseEndDate	1/2/2018	5/25/2018
tblConstructionPhase	PhaseEndDate	1/1/2018	3/16/2018
tblConstructionPhase	PhaseStartDate	1/3/2018	5/26/2018

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

tblConstructionPhase	PhaseStartDate	1/2/2018	3/17/2018
tblConstructionPhase	PhaseStartDate	1/1/2018	1/6/2018
tblGrading	MaterialExported	0.00	1,028.50
tblGrading	MaterialImported	0.00	10,155.00
tblLandUse	LotAcreage	0.00	421.00
tblOffRoadEquipment	HorsePower	172.00	48.00
tblOffRoadEquipment	HorsePower	172.00	50.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.50	0.50

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

tbloffRoadEquipment	OffRoadEquipmentType		Graders
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Scrapers
tbloffRoadEquipment	OffRoadEquipmentType		Graders
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Rollers
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tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Rollers
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tbloffRoadEquipment	OffRoadEquipmentType		Trenchers
tbloffRoadEquipment	OffRoadEquipmentType		Graders
tbloffRoadEquipment	OffRoadEquipmentType		Excavators
tbloffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
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Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
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tblOffRoadEquipment	UsageHours	8.00	10.00
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tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00
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tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	51.00
tblTripsAndVMT	HaulingTripLength	20.00	51.00
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tblTripsAndVMT	HaulingTripLength	20.00	51.00
tblTripsAndVMT	HaulingTripLength	20.00	51.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

tblTripsAndVMT	HaulingTripNumber	0.00	30.00
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tblTripsAndVMT	WorkerTripNumber	25.00	106.00
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2.0 Emissions Summary

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	10.8296	103.0413	71.3436	0.1662	686.0893	4.3138	688.8847	72.5479	3.9688	75.1204						16,775.3974
2019	4.4274	46.4813	24.6610	0.0512	0.0000	2.3576	2.3576	0.0000	2.1690	2.1690						5,113.3204
Maximum	10.8296	103.0413	71.3436	0.1662	686.0893	4.3138	688.8847	72.5479	3.9688	75.1204						16,775.3974

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.8329	58.6287	84.4241	0.1662	213.6537	2.4845	215.1293	23.3013	2.4823	24.7741						16,775.3974
2019	1.2544	25.6094	30.7338	0.0512	0.0000	1.2560	1.2560	0.0000	1.2560	1.2560						5,113.3204
Maximum	4.8329	58.6287	84.4241	0.1662	213.6537	2.4845	215.1293	23.3013	2.4823	24.7741						16,775.3974

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	60.10	43.66	-19.95	0.00	68.86	43.93	68.70	67.88	39.09	66.32	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0700e-003	4.0000e-004	0.0433	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	1.6000e-004	1.6000e-004						0.0983

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0700e-003	4.0000e-004	0.0433	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	1.6000e-004	1.6000e-004						0.0983

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation & Grading	Site Preparation	1/6/2018	3/16/2018	5	50	Site Preparation & Grading
2	Internal Road Construction	Grading	3/17/2018	5/25/2018	5	50	Internal Road Construction
3	Solar Array & Collector Line Const	Building Construction	5/26/2018	12/21/2018	5	150	Solar Array & Collector Line Const
4	Move On	Site Preparation	1/1/2018	1/5/2018	5	5	Move On
5	Battery Storage Construction	Building Construction	12/22/2018	1/18/2019	5	20	Battery Storage Construction

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Battery Storage Construction	Cranes	0	0.00	231	0.29
Battery Storage Construction	Forklifts	2	10.00	89	0.20
Battery Storage Construction	Generator Sets	0	0.00	84	0.74
Move On	Rubber Tired Dozers	1	10.00	247	0.40
Battery Storage Construction	Tractors/Loaders/Backhoes	2	10.00	97	0.37

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

Move On	Tractors/Loaders/Backhoes	1	10.00	97	0.37
Battery Storage Construction	Welders	0	0.00	46	0.45
Move On	Graders	1	10.00	187	0.41
Solar Array & Collector Line Const	Cranes	1	10.00	231	0.29
Internal Road Construction	Excavators	1	10.00	158	0.38
Solar Array & Collector Line Const	Forklifts	1	10.00	89	0.20
Site Preparation & Grading	Rubber Tired Dozers	1	10.00	247	0.40
Move On	Off-Highway Trucks	2	10.00	402	0.38
Solar Array & Collector Line Const	Generator Sets	0	0.00	84	0.74
Move On	Scrapers	1	10.00	367	0.48
Internal Road Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Site Preparation & Grading	Graders	1	10.00	187	0.41
Internal Road Construction	Graders	2	10.00	187	0.41
Site Preparation & Grading	Off-Highway Trucks	3	10.00	402	0.38
Internal Road Construction	Rubber Tired Dozers	1	10.00	247	0.40
Internal Road Construction	Scrapers	1	10.00	367	0.48
Solar Array & Collector Line Const	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Site Preparation & Grading	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Solar Array & Collector Line Const	Welders	0	0.00	46	0.45
Site Preparation & Grading	Rollers	1	10.00	80	0.38
Site Preparation & Grading	Scrapers	2	10.00	367	0.48
Internal Road Construction	Off-Highway Trucks	3	10.00	402	0.38
Internal Road Construction	Rollers	1	10.00	80	0.38
Solar Array & Collector Line Const	Off-Highway Trucks	2	10.00	402	0.38
Solar Array & Collector Line Const	Other Construction Equipment	4	10.00	48	0.42
Solar Array & Collector Line Const	Trenchers	1	10.00	78	0.50
Solar Array & Collector Line Const	Graders	1	10.00	187	0.41

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

Solar Array & Collector Line Const	Excavators	1	10.00	158	0.38
Solar Array & Collector Line Const	Skid Steer Loaders	1	10.00	65	0.37
Solar Array & Collector Line Const	Other Construction Equipment	1	10.00	50	0.42
Battery Storage Construction	Graders	1	10.00	187	0.41
Battery Storage Construction	Off-Highway Trucks	1	10.00	402	0.38
Battery Storage Construction	Rubber Tired Dozers	1	10.00	247	0.40
Battery Storage Construction	Trenchers	1	10.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Solar Array & Collector Line Const	15	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Internal Road Construction	12	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	10	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Battery Storage Construction	8	0.00	0.00	0.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Move On	6	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.2 Site Preparation & Grading - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.8747	0.0000	10.8747	4.5006	0.0000	4.5006						0.0000
Off-Road	8.8848	101.2640	53.9986	0.1178		4.2798	4.2798		3.9375	3.9375						11,951.9863
Total	8.8848	101.2640	53.9986	0.1178	10.8747	4.2798	15.1545	4.5006	3.9375	8.4381						11,951.9863

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0111	0.3565	0.0532	1.1300e-003	3.6279	1.7400e-003	3.6296	0.3665	1.6600e-003	0.3681						118.5927
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,704.8184
Total	1.9448	1.7773	17.3451	0.0483	643.9215	0.0290	643.9505	64.8972	0.0268	64.9240						4,823.4111

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.2 Site Preparation & Grading - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.2411	0.0000	4.2411	1.7552	0.0000	1.7552						0.0000
Off-Road	2.8881	56.7788	65.0437	0.1178		2.3513	2.3513		2.3513	2.3513						11,951.9863
Total	2.8881	56.7788	65.0437	0.1178	4.2411	2.3513	6.5925	1.7552	2.3513	4.1066						11,951.9863

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0111	0.3565	0.0532	1.1300e-003	1.1281	1.7400e-003	1.1298	0.1169	1.6600e-003	0.1185						118.5927
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,704.8184
Total	1.9448	1.7773	17.3451	0.0483	199.7896	0.0290	199.8186	20.5521	0.0268	20.5789						4,823.4111

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.3 Internal Road Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.1789	0.0000	10.1789	4.4241	0.0000	4.4241						0.0000
Off-Road	8.7826	99.4418	52.3217	0.1174		4.2848	4.2848		3.9421	3.9421						11,907.1068
Total	8.7826	99.4418	52.3217	0.1174	10.1789	4.2848	14.4637	4.4241	3.9421	8.3661						11,907.1068

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0111	0.3565	0.0532	1.1300e-003	3.6279	1.7400e-003	3.6296	0.3665	1.6600e-003	0.3681						118.5927
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,704.8184
Total	1.9448	1.7773	17.3451	0.0483	643.9215	0.0290	643.9505	64.8972	0.0268	64.9240						4,823.4111

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.3 Internal Road Construction - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9698	0.0000	3.9698	1.7254	0.0000	1.7254						0.0000
Off-Road	2.8746	56.8514	67.0790	0.1174		2.4555	2.4555		2.4555	2.4555						11,907.1068
Total	2.8746	56.8514	67.0790	0.1174	3.9698	2.4555	6.4253	1.7254	2.4555	4.1809						11,907.1068

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0111	0.3565	0.0532	1.1300e-003	1.1281	1.7400e-003	1.1298	0.1169	1.6600e-003	0.1185						118.5927
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,704.8184
Total	1.9448	1.7773	17.3451	0.0483	199.7896	0.0290	199.8186	20.5521	0.0268	20.5789						4,823.4111

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.4 Solar Array & Collector Line Const - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.8275	69.0602	44.9101	0.0837		3.6908	3.6908		3.3955	3.3955						8,495.6829
Total	7.8275	69.0602	44.9101	0.0837		3.6908	3.6908		3.3955	3.3955						8,495.6829

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7100e-003	0.1188	0.0177	3.8000e-004	1.2093	5.8000e-004	1.2099	0.1222	5.5000e-004	0.1227						39.5309
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,704.8184
Total	1.9374	1.5397	17.3096	0.0476	641.5029	0.0278	641.5308	64.6529	0.0257	64.6786						4,744.3493

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.4 Solar Array & Collector Line Const - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3203	44.7478	52.1043	0.0837		2.2497	2.2497		2.2497	2.2497						8,495.6829
Total	2.3203	44.7478	52.1043	0.0837		2.2497	2.2497		2.2497	2.2497						8,495.6829

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7100e-003	0.1188	0.0177	3.8000e-004	0.3760	5.8000e-004	0.3766	0.0390	5.5000e-004	0.0395						39.5309
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,704.8184
Total	1.9374	1.5397	17.3096	0.0476	199.0376	0.0278	199.0654	20.4742	0.0257	20.4999						4,744.3493

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.5 Move On - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.5171	0.0000	9.5171	4.3526	0.0000	4.3526						0.0000
Off-Road	5.8216	66.6130	32.3723	0.0751		2.7509	2.7509		2.5308	2.5308						7,615.9556
Total	5.8216	66.6130	32.3723	0.0751	9.5171	2.7509	12.2680	4.3526	2.5308	6.8834						7,615.9556

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1112	3.5645	0.5323	0.0113	36.2785	0.0174	36.2959	3.6645	0.0166	3.6811						1,185.9268
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,704.8184
Total	2.0448	4.9854	17.8241	0.0585	676.5722	0.0446	676.6168	68.1953	0.0417	68.2370						5,890.7452

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.5 Move On - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7117	0.0000	3.7117	1.6975	0.0000	1.6975						0.0000
Off-Road	1.8392	35.8902	40.7197	0.0751		1.4310	1.4310		1.4310	1.4310						7,615.9556
Total	1.8392	35.8902	40.7197	0.0751	3.7117	1.4310	5.1427	1.6975	1.4310	3.1286						7,615.9556

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1112	3.5645	0.5323	0.0113	11.2805	0.0174	11.2978	1.1686	0.0166	1.1852						1,185.9268
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9337	1.4209	17.2918	0.0472	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,704.8184
Total	2.0448	4.9854	17.8241	0.0585	209.9420	0.0446	209.9866	21.6038	0.0417	21.6455						5,890.7452

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.6 Battery Storage Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7388	50.4769	25.2713	0.0513		2.5934	2.5934		2.3859	2.3859						5,200.8709
Total	4.7388	50.4769	25.2713	0.0513		2.5934	2.5934		2.3859	2.3859						5,200.8709

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.6 Battery Storage Construction - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2544	25.6094	30.7338	0.0513		1.2560	1.2560		1.2560	1.2560						5,200.8709
Total	1.2544	25.6094	30.7338	0.0513		1.2560	1.2560		1.2560	1.2560						5,200.8709

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.6 Battery Storage Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4274	46.4813	24.6610	0.0512		2.3576	2.3576		2.1690	2.1690						5,113.3204
Total	4.4274	46.4813	24.6610	0.0512		2.3576	2.3576		2.1690	2.1690						5,113.3204

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

3.6 Battery Storage Construction - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2544	25.6094	30.7338	0.0512		1.2560	1.2560		1.2560	1.2560						5,113.3204
Total	1.2544	25.6094	30.7338	0.0512		1.2560	1.2560		1.2560	1.2560						5,113.3204

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.472669	0.031291	0.166276	0.125679	0.021211	0.006775	0.020722	0.144029	0.001634	0.001785	0.006011	0.000972	0.000946

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Unmitigated	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Total	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Total	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

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

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Summer

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

Kern County - Camino Solar Project, Construction
Kern-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

Project Characteristics - Construction emissions only for this model run.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - Based on data provided by the project proponent.

Off-road Equipment -

Off-road Equipment - 1 dozer, 1 t/l/b, 1 grader, 1 scraper, 2 water trucks. 10 hrs/day.

Off-road Equipment - dozer, 2 tlb, grader, 3 water trucks, 1 roller, 2 scrapers

Off-road Equipment - exc, 2 graders, dozer, scraper, 3 tlb, 3 water trucks, 1 roller

Off-road Equipment - crane, forklift, 2 tlb, 2 water trucks, 4 post drivers (48 hp), trencher, grader, exc, skid, screen

Off-road Equipment - 2 forklift, 2 tlb, grader, water truck, dozer, trencher

Grading - 10155 imported, 1028.5 exported.

Trips and VMT - 106 worker/misc trips/day, 30 haul trucks/day, 51 mile trip length

On-road Fugitive Dust - Assumed 4 miles (8%) unpaved travel per trip.

Vehicle Trips - Operational emissions modeled separately.

Energy Use - .

Construction Off-road Equipment Mitigation - 50% CE for roads, 61%CE for disturbed/exposed areas, 15 mph speed limit on unpaved surfaces, T3

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
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tblConstructionPhase	PhaseEndDate	9/17/2047	12/21/2018
tblConstructionPhase	PhaseEndDate	1/2/2018	5/25/2018
tblConstructionPhase	PhaseEndDate	1/1/2018	3/16/2018
tblConstructionPhase	PhaseStartDate	1/3/2018	5/26/2018

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

tblConstructionPhase	PhaseStartDate	1/2/2018	3/17/2018
tblConstructionPhase	PhaseStartDate	1/1/2018	1/6/2018
tblGrading	MaterialExported	0.00	1,028.50
tblGrading	MaterialImported	0.00	10,155.00
tblLandUse	LotAcreage	0.00	421.00
tblOffRoadEquipment	HorsePower	172.00	48.00
tblOffRoadEquipment	HorsePower	172.00	50.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
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tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.50	0.50

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

tbloffRoadEquipment	OffRoadEquipmentType		Graders
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Scrapers
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tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Rollers
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tbloffRoadEquipment	OffRoadEquipmentType		Trenchers
tbloffRoadEquipment	OffRoadEquipmentType		Graders
tbloffRoadEquipment	OffRoadEquipmentType		Excavators
tbloffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
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Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
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tblOffRoadEquipment	UsageHours	8.00	10.00
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tblOffRoadEquipment	UsageHours	7.00	10.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00
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tblOnRoadDust	WorkerPercentPave	100.00	92.00
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tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	51.00
tblTripsAndVMT	HaulingTripLength	20.00	51.00
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tblTripsAndVMT	HaulingTripLength	20.00	51.00
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Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

tblTripsAndVMT	HaulingTripNumber	0.00	30.00
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tblTripsAndVMT	WorkerTripLength	16.80	51.00
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tblTripsAndVMT	WorkerTripNumber	15.00	106.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	10.9485	103.2666	67.3283	0.1599	686.0893	4.3138	688.8849	72.5479	3.9688	75.1205						16,153.6002
2019	4.4274	46.4813	24.6610	0.0512	0.0000	2.3576	2.3576	0.0000	2.1690	2.1690						5,113.3204
Maximum	10.9485	103.2666	67.3283	0.1599	686.0893	4.3138	688.8849	72.5479	3.9688	75.1205						16,153.6002

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.9518	58.8540	80.4087	0.1599	213.6537	2.4845	215.1295	23.3013	2.4823	24.7742						16,153.6001
2019	1.2544	25.6094	30.7338	0.0512	0.0000	1.2560	1.2560	0.0000	1.2560	1.2560						5,113.3204
Maximum	4.9518	58.8540	80.4087	0.1599	213.6537	2.4845	215.1295	23.3013	2.4823	24.7742						16,153.6001

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	59.64	43.60	-20.82	0.00	68.86	43.93	68.70	67.88	39.09	66.32	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0700e-003	4.0000e-004	0.0433	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	1.6000e-004	1.6000e-004						0.0983

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0700e-003	4.0000e-004	0.0433	0.0000	0.0000	1.6000e-004	1.6000e-004	0.0000	1.6000e-004	1.6000e-004						0.0983

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation & Grading	Site Preparation	1/6/2018	3/16/2018	5	50	Site Preparation & Grading
2	Internal Road Construction	Grading	3/17/2018	5/25/2018	5	50	Internal Road Construction
3	Solar Array & Collector Line Const	Building Construction	5/26/2018	12/21/2018	5	150	Solar Array & Collector Line Const
4	Move On	Site Preparation	1/1/2018	1/5/2018	5	5	Move On
5	Battery Storage Construction	Building Construction	12/22/2018	1/18/2019	5	20	Battery Storage Construction

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Battery Storage Construction	Cranes	0	0.00	231	0.29
Battery Storage Construction	Forklifts	2	10.00	89	0.20
Battery Storage Construction	Generator Sets	0	0.00	84	0.74
Move On	Rubber Tired Dozers	1	10.00	247	0.40
Battery Storage Construction	Tractors/Loaders/Backhoes	2	10.00	97	0.37

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

Move On	Tractors/Loaders/Backhoes	1	10.00	97	0.37
Battery Storage Construction	Welders	0	0.00	46	0.45
Move On	Graders	1	10.00	187	0.41
Solar Array & Collector Line Const	Cranes	1	10.00	231	0.29
Internal Road Construction	Excavators	1	10.00	158	0.38
Solar Array & Collector Line Const	Forklifts	1	10.00	89	0.20
Site Preparation & Grading	Rubber Tired Dozers	1	10.00	247	0.40
Move On	Off-Highway Trucks	2	10.00	402	0.38
Solar Array & Collector Line Const	Generator Sets	0	0.00	84	0.74
Move On	Scrapers	1	10.00	367	0.48
Internal Road Construction	Tractors/Loaders/Backhoes	3	10.00	97	0.37
Site Preparation & Grading	Graders	1	10.00	187	0.41
Internal Road Construction	Graders	2	10.00	187	0.41
Site Preparation & Grading	Off-Highway Trucks	3	10.00	402	0.38
Internal Road Construction	Rubber Tired Dozers	1	10.00	247	0.40
Internal Road Construction	Scrapers	1	10.00	367	0.48
Solar Array & Collector Line Const	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Site Preparation & Grading	Tractors/Loaders/Backhoes	2	10.00	97	0.37
Solar Array & Collector Line Const	Welders	0	0.00	46	0.45
Site Preparation & Grading	Rollers	1	10.00	80	0.38
Site Preparation & Grading	Scrapers	2	10.00	367	0.48
Internal Road Construction	Off-Highway Trucks	3	10.00	402	0.38
Internal Road Construction	Rollers	1	10.00	80	0.38
Solar Array & Collector Line Const	Off-Highway Trucks	2	10.00	402	0.38
Solar Array & Collector Line Const	Other Construction Equipment	4	10.00	48	0.42
Solar Array & Collector Line Const	Trenchers	1	10.00	78	0.50
Solar Array & Collector Line Const	Graders	1	10.00	187	0.41

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

Solar Array & Collector Line Const	Excavators	1	10.00	158	0.38
Solar Array & Collector Line Const	Skid Steer Loaders	1	10.00	65	0.37
Solar Array & Collector Line Const	Other Construction Equipment	1	10.00	50	0.42
Battery Storage Construction	Graders	1	10.00	187	0.41
Battery Storage Construction	Off-Highway Trucks	1	10.00	402	0.38
Battery Storage Construction	Rubber Tired Dozers	1	10.00	247	0.40
Battery Storage Construction	Trenchers	1	10.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Solar Array & Collector Line Const	15	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Internal Road Construction	12	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	10	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Battery Storage Construction	8	0.00	0.00	0.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT
Move On	6	106.00	0.00	30.00	51.00	6.60	51.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.2 Site Preparation & Grading - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.8747	0.0000	10.8747	4.5006	0.0000	4.5006						0.0000
Off-Road	8.8848	101.2640	53.9986	0.1178		4.2798	4.2798		3.9375	3.9375						11,951.9863
Total	8.8848	101.2640	53.9986	0.1178	10.8747	4.2798	15.1545	4.5006	3.9375	8.4381						11,951.9863

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0113	0.3736	0.0566	1.1200e-003	3.6279	1.7500e-003	3.6296	0.3665	1.6700e-003	0.3681						117.3560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,084.2578
Total	2.0637	2.0026	13.3298	0.0421	643.9215	0.0290	643.9505	64.8972	0.0268	64.9240						4,201.6138

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.2 Site Preparation & Grading - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.2411	0.0000	4.2411	1.7552	0.0000	1.7552						0.0000
Off-Road	2.8881	56.7788	65.0437	0.1178		2.3513	2.3513		2.3513	2.3513						11,951.9863
Total	2.8881	56.7788	65.0437	0.1178	4.2411	2.3513	6.5925	1.7552	2.3513	4.1066						11,951.9863

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0113	0.3736	0.0566	1.1200e-003	1.1281	1.7500e-003	1.1298	0.1169	1.6700e-003	0.1185						117.3560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,084.2578
Total	2.0637	2.0026	13.3298	0.0421	199.7896	0.0290	199.8186	20.5521	0.0268	20.5789						4,201.6138

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.3 Internal Road Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					10.1789	0.0000	10.1789	4.4241	0.0000	4.4241						0.0000
Off-Road	8.7826	99.4418	52.3217	0.1174		4.2848	4.2848		3.9421	3.9421						11,907.1068
Total	8.7826	99.4418	52.3217	0.1174	10.1789	4.2848	14.4637	4.4241	3.9421	8.3661						11,907.1068

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0113	0.3736	0.0566	1.1200e-003	3.6279	1.7500e-003	3.6296	0.3665	1.6700e-003	0.3681						117.3560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,084.2578
Total	2.0637	2.0026	13.3298	0.0421	643.9215	0.0290	643.9505	64.8972	0.0268	64.9240						4,201.6138

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.3 Internal Road Construction - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9698	0.0000	3.9698	1.7254	0.0000	1.7254						0.0000
Off-Road	2.8746	56.8514	67.0790	0.1174		2.4555	2.4555		2.4555	2.4555						11,907.1068
Total	2.8746	56.8514	67.0790	0.1174	3.9698	2.4555	6.4253	1.7254	2.4555	4.1809						11,907.1068

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0113	0.3736	0.0566	1.1200e-003	1.1281	1.7500e-003	1.1298	0.1169	1.6700e-003	0.1185						117.3560
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,084.2578
Total	2.0637	2.0026	13.3298	0.0421	199.7896	0.0290	199.8186	20.5521	0.0268	20.5789						4,201.6138

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.4 Solar Array & Collector Line Const - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.8275	69.0602	44.9101	0.0837		3.6908	3.6908		3.3955	3.3955						8,495.6829
Total	7.8275	69.0602	44.9101	0.0837		3.6908	3.6908		3.3955	3.3955						8,495.6829

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7700e-003	0.1245	0.0189	3.7000e-004	1.2093	5.8000e-004	1.2099	0.1222	5.6000e-004	0.1227						39.1187
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,084.2578
Total	2.0562	1.7536	13.2920	0.0413	641.5029	0.0278	641.5308	64.6529	0.0257	64.6786						4,123.3765

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.4 Solar Array & Collector Line Const - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3203	44.7478	52.1043	0.0837		2.2497	2.2497		2.2497	2.2497						8,495.6829
Total	2.3203	44.7478	52.1043	0.0837		2.2497	2.2497		2.2497	2.2497						8,495.6829

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.7700e-003	0.1245	0.0189	3.7000e-004	0.3760	5.8000e-004	0.3766	0.0390	5.6000e-004	0.0395						39.1187
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,084.2578
Total	2.0562	1.7536	13.2920	0.0413	199.0376	0.0278	199.0654	20.4742	0.0257	20.4999						4,123.3765

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.5 Move On - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.5171	0.0000	9.5171	4.3526	0.0000	4.3526						0.0000
Off-Road	5.8216	66.6130	32.3723	0.0751		2.7509	2.7509		2.5308	2.5308						7,615.9556
Total	5.8216	66.6130	32.3723	0.0751	9.5171	2.7509	12.2680	4.3526	2.5308	6.8834						7,615.9556

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1131	3.7357	0.5656	0.0112	36.2785	0.0175	36.2960	3.6645	0.0167	3.6813						1,173.5602
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	640.2937	0.0273	640.3209	64.5307	0.0251	64.5559						4,084.2578
Total	2.1654	5.3648	13.8388	0.0521	676.5722	0.0448	676.6169	68.1953	0.0419	68.2371						5,257.8181

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.5 Move On - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7117	0.0000	3.7117	1.6975	0.0000	1.6975						0.0000
Off-Road	1.8392	35.8902	40.7197	0.0751		1.4310	1.4310		1.4310	1.4310						7,615.9556
Total	1.8392	35.8902	40.7197	0.0751	3.7117	1.4310	5.1427	1.6975	1.4310	3.1286						7,615.9556

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1131	3.7357	0.5656	0.0112	11.2805	0.0175	11.2980	1.1686	0.0167	1.1853						1,173.5602
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.0524	1.6291	13.2732	0.0410	198.6616	0.0273	198.6888	20.4352	0.0251	20.4603						4,084.2578
Total	2.1654	5.3648	13.8388	0.0521	209.9420	0.0448	209.9868	21.6038	0.0419	21.6456						5,257.8181

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.6 Battery Storage Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.7388	50.4769	25.2713	0.0513		2.5934	2.5934		2.3859	2.3859						5,200.8709
Total	4.7388	50.4769	25.2713	0.0513		2.5934	2.5934		2.3859	2.3859						5,200.8709

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.6 Battery Storage Construction - 2018**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2544	25.6094	30.7338	0.0513		1.2560	1.2560		1.2560	1.2560						5,200.8709
Total	1.2544	25.6094	30.7338	0.0513		1.2560	1.2560		1.2560	1.2560						5,200.8709

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.6 Battery Storage Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4274	46.4813	24.6610	0.0512		2.3576	2.3576		2.1690	2.1690						5,113.3204
Total	4.4274	46.4813	24.6610	0.0512		2.3576	2.3576		2.1690	2.1690						5,113.3204

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

3.6 Battery Storage Construction - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2544	25.6094	30.7338	0.0512		1.2560	1.2560		1.2560	1.2560						5,113.3204
Total	1.2544	25.6094	30.7338	0.0512		1.2560	1.2560		1.2560	1.2560						5,113.3204

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.472669	0.031291	0.166276	0.125679	0.021211	0.006775	0.020722	0.144029	0.001634	0.001785	0.006011	0.000972	0.000946

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Unmitigated	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Total	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983
Total	4.0700e-003	4.0000e-004	0.0433	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004						0.0983

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

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

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Kern County - Camino Solar Project, Construction - Kern-Mojave Desert County, Winter

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

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

Equipment Type	Number
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11.0 Vegetation

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

Camino Solar Project, Construction ATVs
Kern-Mojave Desert County, Annual**1.0 Project Characteristics**

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

Project Characteristics -

Land Use -

Construction Phase - .

Off-road Equipment - Assumes 5 ATVs, diesel fueled, 24 hp, 10 hrs/day all phases

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Grading - .

Trips and VMT - .

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	50.00
tblConstructionPhase	NumDays	0.00	50.00
tblConstructionPhase	NumDays	0.00	150.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	12/31/2017	1/5/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	7/27/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	1/26/2018
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

2.0 Emissions Summary**2.1 Overall Construction****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1785	0.8054	0.8466	8.3000e-004	0.0000	0.0686	0.0686	0.0000	0.0631	0.0631						76.6751
Maximum	0.1785	0.8054	0.8466	8.3000e-004	0.0000	0.0686	0.0686	0.0000	0.0631	0.0631						76.6751

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.1785	0.8054	0.8466	8.3000e-004	0.0000	0.0686	0.0686	0.0000	0.0631	0.0631						76.6750
Maximum	0.1785	0.8054	0.8466	8.3000e-004	0.0000	0.0686	0.0686	0.0000	0.0631	0.0631						76.6750

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	0.1738	0.1738
		Highest	0.1738	0.1738

2.2 Overall Operational

Unmitigated Operational

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

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

2.2 Overall Operational**Mitigated Operational**

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

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

3.0 Construction Detail**Construction Phase**

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Move On	Site Preparation	1/1/2018	1/5/2018	5	5	
2	Site Preparation & Grading	Site Preparation	1/1/2018	3/9/2018	5	50	
3	Internal Road Construction	Grading	1/1/2018	3/9/2018	5	50	
4	Solar Array & Infrastructure	Building Construction	1/1/2018	7/27/2018	5	150	
5	Battery Storage	Building Construction	1/1/2018	1/26/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Move On	Air Compressors	0	6.00	78	0.48
Solar Array & Infrastructure	Cement and Mortar Mixers	0	6.00	9	0.56
Solar Array & Infrastructure	Cranes	0	4.00	231	0.29
Internal Road Construction	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation & Grading	Cranes	0	4.00	231	0.29
Site Preparation & Grading	Forklifts	0	6.00	89	0.20
Battery Storage	Graders	0	8.00	187	0.41
Solar Array & Infrastructure	Pavers	0	7.00	130	0.42
Solar Array & Infrastructure	Rollers	0	7.00	80	0.38
Battery Storage	Cranes	0	4.00	231	0.29
Internal Road Construction	Rubber Tired Dozers	0	1.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Solar Array & Infrastructure	Forklifts	0	6.00	89	0.20
Internal Road Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Solar Array & Infrastructure	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Battery Storage	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Battery Storage	Forklifts	0	6.00	89	0.20
Move On	Graders	0	8.00	187	0.41
Site Preparation & Grading	Graders	0	8.00	187	0.41
Move On	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Architectural Coating	Other Construction Equipment	5	10.00	172	0.42
Site Preparation & Grading	Other Construction Equipment	5	10.00	24	0.42
Internal Road Construction	Other Construction Equipment	5	10.00	24	0.42
Solar Array & Infrastructure	Other Construction Equipment	5	10.00	24	0.42
Battery Storage	Other Construction Equipment	5	10.00	24	0.42
Move On	Other Construction Equipment	5	10.00	24	0.42

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Move On	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Internal Road Construction	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array & Infrastructure	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Move On - 2018****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	3.2500e-003	0.0146	0.0154	2.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003						1.3941
Total	3.2500e-003	0.0146	0.0154	2.0000e-005	0.0000	1.2500e-003	1.2500e-003	0.0000	1.1500e-003	1.1500e-003						1.3941

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3.2 Move On - 2018**Unmitigated Construction Off-Site**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	3.2500e-003	0.0146	0.0154	2.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003						1.3941
Total	3.2500e-003	0.0146	0.0154	2.0000e-005	0.0000	1.2500e-003	1.2500e-003	0.0000	1.1500e-003	1.1500e-003						1.3941

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3.2 Move On - 2018**Mitigated Construction Off-Site**

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

3.3 Site Preparation & Grading - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0325	0.1464	0.1539	1.5000e-004		0.0125	0.0125		0.0115	0.0115						13.9409
Total	0.0325	0.1464	0.1539	1.5000e-004	0.0000	0.0125	0.0125	0.0000	0.0115	0.0115						13.9409

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3.3 Site Preparation & Grading - 2018**Unmitigated Construction Off-Site**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0325	0.1464	0.1539	1.5000e-004		0.0125	0.0125		0.0115	0.0115						13.9409
Total	0.0325	0.1464	0.1539	1.5000e-004	0.0000	0.0125	0.0125	0.0000	0.0115	0.0115						13.9409

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3.3 Site Preparation & Grading - 2018**Mitigated Construction Off-Site**

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

3.4 Internal Road Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0325	0.1464	0.1539	1.5000e-004		0.0125	0.0125		0.0115	0.0115						13.9409
Total	0.0325	0.1464	0.1539	1.5000e-004	0.0000	0.0125	0.0125	0.0000	0.0115	0.0115						13.9409

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3.4 Internal Road Construction - 2018**Unmitigated Construction Off-Site**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0325	0.1464	0.1539	1.5000e-004		0.0125	0.0125		0.0115	0.0115						13.9409
Total	0.0325	0.1464	0.1539	1.5000e-004	0.0000	0.0125	0.0125	0.0000	0.0115	0.0115						13.9409

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3.4 Internal Road Construction - 2018**Mitigated Construction Off-Site**

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

3.5 Solar Array & Infrastructure - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0974	0.4393	0.4618	4.5000e-004		0.0374	0.0374		0.0344	0.0344						41.8228
Total	0.0974	0.4393	0.4618	4.5000e-004		0.0374	0.0374		0.0344	0.0344						41.8228

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3.5 Solar Array & Infrastructure - 2018**Unmitigated Construction Off-Site**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0974	0.4393	0.4618	4.5000e-004		0.0374	0.0374		0.0344	0.0344						41.8227
Total	0.0974	0.4393	0.4618	4.5000e-004		0.0374	0.0374		0.0344	0.0344						41.8227

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3.5 Solar Array & Infrastructure - 2018**Mitigated Construction Off-Site**

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

3.6 Battery Storage - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0130	0.0586	0.0616	6.0000e-005		4.9900e-003	4.9900e-003		4.5900e-003	4.5900e-003						5.5764
Total	0.0130	0.0586	0.0616	6.0000e-005		4.9900e-003	4.9900e-003		4.5900e-003	4.5900e-003						5.5764

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3.6 Battery Storage - 2018**Unmitigated Construction Off-Site**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0130	0.0586	0.0616	6.0000e-005		4.9900e-003	4.9900e-003		4.5900e-003	4.5900e-003						5.5764
Total	0.0130	0.0586	0.0616	6.0000e-005		4.9900e-003	4.9900e-003		4.5900e-003	4.5900e-003						5.5764

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3.6 Battery Storage - 2018**Mitigated Construction Off-Site**

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

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

 Historical Energy Use: N

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5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

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5.2 Energy by Land Use - NaturalGas**Mitigated**

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

5.3 Energy by Land Use - Electricity**Unmitigated**

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

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5.3 Energy by Land Use - Electricity**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

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

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6.2 Area by SubCategory**Unmitigated**

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

Mitigated

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

7.0 Water Detail

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7.1 Mitigation Measures Water

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

7.2 Water by Land Use**Unmitigated**

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

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7.2 Water by Land Use**Mitigated**

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

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

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

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8.2 Waste by Land Use**Unmitigated**

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

Mitigated

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

9.0 Operational Offroad

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

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

Camino Solar Project, Construction ATVs

Kern-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

Project Characteristics -

Land Use -

Construction Phase - .

Off-road Equipment - Assumes 5 ATVs, diesel fueled, 24 hp, 10 hrs/day all phases

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Grading - .

Trips and VMT - .

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	50.00
tblConstructionPhase	NumDays	0.00	50.00
tblConstructionPhase	NumDays	0.00	150.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	12/31/2017	1/5/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	7/27/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	1/26/2018
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

2.0 Emissions Summary**2.1 Overall Construction (Maximum Daily Emission)****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468
Maximum	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468
Maximum	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

[illegible]

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	1.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						2.3000e-004

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	1.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						2.3000e-004

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Move On	Site Preparation	1/1/2018	1/5/2018	5	5	
2	Site Preparation & Grading	Site Preparation	1/1/2018	3/9/2018	5	50	
3	Internal Road Construction	Grading	1/1/2018	3/9/2018	5	50	
4	Solar Array & Infrastructure	Building Construction	1/1/2018	7/27/2018	5	150	
5	Battery Storage	Building Construction	1/1/2018	1/26/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Move On	Air Compressors	0	6.00	78	0.48
Solar Array & Infrastructure	Cement and Mortar Mixers	0	6.00	9	0.56
Solar Array & Infrastructure	Cranes	0	4.00	231	0.29
Internal Road Construction	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation & Grading	Cranes	0	4.00	231	0.29
Site Preparation & Grading	Forklifts	0	6.00	89	0.20
Battery Storage	Graders	0	8.00	187	0.41
Solar Array & Infrastructure	Pavers	0	7.00	130	0.42
Solar Array & Infrastructure	Rollers	0	7.00	80	0.38
Battery Storage	Cranes	0	4.00	231	0.29
Internal Road Construction	Rubber Tired Dozers	0	1.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Solar Array & Infrastructure	Forklifts	0	6.00	89	0.20
Internal Road Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Solar Array & Infrastructure	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Battery Storage	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Battery Storage	Forklifts	0	6.00	89	0.20
Move On	Graders	0	8.00	187	0.41
Site Preparation & Grading	Graders	0	8.00	187	0.41
Move On	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Architectural Coating	Other Construction Equipment	5	10.00	172	0.42
Site Preparation & Grading	Other Construction Equipment	5	10.00	24	0.42
Internal Road Construction	Other Construction Equipment	5	10.00	24	0.42
Solar Array & Infrastructure	Other Construction Equipment	5	10.00	24	0.42
Battery Storage	Other Construction Equipment	5	10.00	24	0.42
Move On	Other Construction Equipment	5	10.00	24	0.42

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Move On	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Internal Road Construction	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array & Infrastructure	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Move On - 2018****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.2 Move On - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.2 Move On - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.3 Site Preparation & Grading - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.3 Site Preparation & Grading - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.3 Site Preparation & Grading - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.4 Internal Road Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.4 Internal Road Construction - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.4 Internal Road Construction - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.5 Solar Array & Infrastructure - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.5 Solar Array & Infrastructure - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.5 Solar Array & Infrastructure - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.6 Battery Storage - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.6 Battery Storage - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

3.6 Battery Storage - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

Historical Energy Use: N

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

5.2 Energy by Land Use - NaturalGas**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

7.0 Water Detail

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Summer

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

Camino Solar Project, Construction ATVs
Kern-Mojave Desert County, Winter**1.0 Project Characteristics**

1.1 Land Usage

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

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

Project Characteristics -

Land Use -

Construction Phase - .

Off-road Equipment - Assumes 5 ATVs, diesel fueled, 24 hp, 10 hrs/day all phases

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Grading - .

Trips and VMT - .

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	50.00
tblConstructionPhase	NumDays	0.00	50.00
tblConstructionPhase	NumDays	0.00	150.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	12/31/2017	1/5/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	3/9/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	7/27/2018
tblConstructionPhase	PhaseEndDate	12/31/2017	1/26/2018
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	HorsePower	172.00	24.00

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

tblOffRoadEquipment	HorsePower	172.00	24.00
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

2.0 Emissions Summary**2.1 Overall Construction (Maximum Daily Emission)****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468
Maximum	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468
Maximum	6.4921	29.2873	30.7843	0.0302	0.0000	2.4955	2.4956	0.0000	2.2959	2.2959						3,073.4468

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

[illegible]

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	1.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						2.3000e-004

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	1.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						2.3000e-004

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Move On	Site Preparation	1/1/2018	1/5/2018	5	5	
2	Site Preparation & Grading	Site Preparation	1/1/2018	3/9/2018	5	50	
3	Internal Road Construction	Grading	1/1/2018	3/9/2018	5	50	
4	Solar Array & Infrastructure	Building Construction	1/1/2018	7/27/2018	5	150	
5	Battery Storage	Building Construction	1/1/2018	1/26/2018	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Move On	Air Compressors	0	6.00	78	0.48
Solar Array & Infrastructure	Cement and Mortar Mixers	0	6.00	9	0.56
Solar Array & Infrastructure	Cranes	0	4.00	231	0.29
Internal Road Construction	Concrete/Industrial Saws	0	8.00	81	0.73
Site Preparation & Grading	Cranes	0	4.00	231	0.29
Site Preparation & Grading	Forklifts	0	6.00	89	0.20
Battery Storage	Graders	0	8.00	187	0.41
Solar Array & Infrastructure	Pavers	0	7.00	130	0.42
Solar Array & Infrastructure	Rollers	0	7.00	80	0.38
Battery Storage	Cranes	0	4.00	231	0.29
Internal Road Construction	Rubber Tired Dozers	0	1.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Solar Array & Infrastructure	Forklifts	0	6.00	89	0.20
Internal Road Construction	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Solar Array & Infrastructure	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Battery Storage	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Battery Storage	Forklifts	0	6.00	89	0.20
Move On	Graders	0	8.00	187	0.41
Site Preparation & Grading	Graders	0	8.00	187	0.41
Move On	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Architectural Coating	Other Construction Equipment	5	10.00	172	0.42
Site Preparation & Grading	Other Construction Equipment	5	10.00	24	0.42
Internal Road Construction	Other Construction Equipment	5	10.00	24	0.42
Solar Array & Infrastructure	Other Construction Equipment	5	10.00	24	0.42
Battery Storage	Other Construction Equipment	5	10.00	24	0.42
Move On	Other Construction Equipment	5	10.00	24	0.42

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Move On	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Internal Road Construction	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array & Infrastructure	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Battery Storage	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Move On - 2018****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.2 Move On - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.2 Move On - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.3 Site Preparation & Grading - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.3 Site Preparation & Grading - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.3 Site Preparation & Grading - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.4 Internal Road Construction - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.4 Internal Road Construction - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003	0.0000	0.4991	0.4991	0.0000	0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.4 Internal Road Construction - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.5 Solar Array & Infrastructure - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.5 Solar Array & Infrastructure - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.5 Solar Array & Infrastructure - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

3.6 Battery Storage - 2018**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.6 Battery Storage - 2018**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894
Total	1.2984	5.8575	6.1569	6.0400e-003		0.4991	0.4991		0.4592	0.4592						614.6894

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

3.6 Battery Storage - 2018**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

 Historical Energy Use: N

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

5.2 Energy by Land Use - NaturalGas**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

7.0 Water Detail

Camino Solar Project, Construction ATVs - Kern-Mojave Desert County, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

Equipment Type	Number
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11.0 Vegetation

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

Kern County - Camino Solar Project, Typical Operational Mobile

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	488.3	CH4 Intensity (lb/MWhr)	0.022	N2O Intensity (lb/MWhr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

Project Characteristics - Operational mobile emissions only calculated using the construction module.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - .

Off-road Equipment -

Off-road Equipment - Offroad equipment not included

Off-road Equipment - dozer, 2 tlb, grader, 3 water trucks, 1 roller, 2 scrapers

Trips and VMT - 2 worker/misc trips/day, 2.5 mile trip length

On-road Fugitive Dust - Assumed 100% unpaved travel per trip. 15 mph

Grading - 10155 imported, 1028.5 exported.

Vehicle Trips - Operational emissions modeled separately.

Energy Use - .

Construction Off-road Equipment Mitigation - .

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstructionPhase	NumDays	300.00	365.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblLandUse	LotAcreage	0.00	421.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripLength	16.80	2.50
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	2.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.7918	8.3174	4.0305	6.9400e-003	4.0473	0.4363	4.4835	1.8871	0.4014	2.2885						629.2160
2020	4.0800e-003	0.0424	0.0215	4.0000e-005	0.0181	2.2000e-003	0.0203	9.9300e-003	2.0200e-003	0.0120						3.3701
Maximum	0.7918	8.3174	4.0305	6.9400e-003	4.0473	0.4363	4.4835	1.8871	0.4014	2.2885						629.2160

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.7918	8.3174	4.0305	6.9400e-003	3.6722	0.4363	4.1085	1.8498	0.4014	2.2511						629.2152
2020	4.0800e-003	0.0424	0.0215	4.0000e-005	0.0181	2.2000e-003	0.0203	9.9300e-003	2.0200e-003	0.0120						3.3701
Maximum	0.7918	8.3174	4.0305	6.9400e-003	3.6722	0.4363	4.1085	1.8498	0.4014	2.2511						629.2152

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	9.23	0.00	8.33	1.97	0.00	1.62	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	1-1-2020	3-31-2020	0.0332	0.0332
		Highest	0.0332	0.0332

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005						8.0200e-003

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005						8.0200e-003

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Move On	Site Preparation	1/1/2019	12/31/2019	7	365	Move On
2	Site Preparation & Grading	Site Preparation	1/1/2020	1/2/2020	5	300	Site Preparation & Grading

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Move On	Rubber Tired Dozers	3	8.00	247	0.40
Move On	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation & Grading	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Move On	7	2.00	0.00	0.00	2.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	7	0.00	0.00	0.00	0.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

3.2 Move On - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2971	0.0000	3.2971	1.8124	0.0000	1.8124						0.0000
Off-Road	0.7911	8.3170	4.0265	6.9300e-003		0.4362	0.4362		0.4013	0.4013						628.5109
Total	0.7911	8.3170	4.0265	6.9300e-003	3.2971	0.4362	3.7333	1.8124	0.4013	2.2137						628.5109

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-004	3.6000e-004	4.0100e-003	1.0000e-005	0.7502	1.0000e-005	0.7502	0.0748	1.0000e-005	0.0748						0.7051
Total	7.0000e-004	3.6000e-004	4.0100e-003	1.0000e-005	0.7502	1.0000e-005	0.7502	0.0748	1.0000e-005	0.0748						0.7051

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

3.2 Move On - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2971	0.0000	3.2971	1.8124	0.0000	1.8124						0.0000
Off-Road	0.7911	8.3170	4.0265	6.9300e-003		0.4362	0.4362		0.4013	0.4013						628.5101
Total	0.7911	8.3170	4.0265	6.9300e-003	3.2971	0.4362	3.7333	1.8124	0.4013	2.2137						628.5101

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-004	3.6000e-004	4.0100e-003	1.0000e-005	0.3752	1.0000e-005	0.3752	0.0374	1.0000e-005	0.0374						0.7051
Total	7.0000e-004	3.6000e-004	4.0100e-003	1.0000e-005	0.3752	1.0000e-005	0.3752	0.0374	1.0000e-005	0.0374						0.7051

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

3.3 Site Preparation & Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.9300e-003	0.0000	9.9300e-003						0.0000
Off-Road	4.0800e-003	0.0424	0.0215	4.0000e-005		2.2000e-003	2.2000e-003		2.0200e-003	2.0200e-003						3.3701
Total	4.0800e-003	0.0424	0.0215	4.0000e-005	0.0181	2.2000e-003	0.0203	9.9300e-003	2.0200e-003	0.0120						3.3701

Unmitigated Construction Off-Site

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

3.3 Site Preparation & Grading - 2020**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.9300e-003	0.0000	9.9300e-003						0.0000
Off-Road	4.0800e-003	0.0424	0.0215	4.0000e-005		2.2000e-003	2.2000e-003		2.0200e-003	2.0200e-003						3.3701
Total	4.0800e-003	0.0424	0.0215	4.0000e-005	0.0181	2.2000e-003	0.0203	9.9300e-003	2.0200e-003	0.0120						3.3701

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Mitigated

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Unmitigated	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

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

7.2 Water by Land Use**Unmitigated**

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

7.2 Water by Land Use**Mitigated**

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

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

8.2 Waste by Land Use**Unmitigated**

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

Mitigated

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

9.0 Operational Offroad

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

Kern County - Camino Solar Project, Typical Operational Mobile
Kern-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

Project Characteristics - Operational mobile emissions only calculated using the construction module.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - .

Off-road Equipment -

Off-road Equipment - Offroad equipment not included

Off-road Equipment - dozer, 2 tlb, grader, 3 water trucks, 1 roller, 2 scrapers

Trips and VMT - 2 worker/misc trips/day, 2.5 mile trip length

On-road Fugitive Dust - Assumed 100% unpaved travel per trip. 15 mph

Grading - 10155 imported, 1028.5 exported.

Vehicle Trips - Operational emissions modeled separately.

Energy Use - .

Construction Off-road Equipment Mitigation - .

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstructionPhase	NumDays	300.00	365.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblLandUse	LotAcreage	0.00	421.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripLength	16.80	2.50
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	2.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.3400	45.5746	22.0860	0.0381	22.5719	2.3904	24.9623	10.3798	2.1992	12.5790						3,800.9231
2020	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975
Maximum	4.3400	45.5746	22.0860	0.0381	22.5719	2.3904	24.9623	10.3798	2.1992	12.5790						3,800.9231

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.3400	45.5746	22.0860	0.0381	20.3194	2.3904	22.7098	10.1554	2.1992	12.3545						3,800.9231
2020	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975
Maximum	4.3400	45.5746	22.0860	0.0381	20.3194	2.3904	22.7098	10.1554	2.1992	12.3545						3,800.9231

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	5.54	0.00	4.98	1.11	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Move On	Site Preparation	1/1/2019	12/31/2019	7	365	Move On
2	Site Preparation & Grading	Site Preparation	1/1/2020	1/2/2020	5	300	Site Preparation & Grading

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Move On	Rubber Tired Dozers	3	8.00	247	0.40
Move On	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation & Grading	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Move On	7	2.00	0.00	0.00	2.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	7	0.00	0.00	0.00	0.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Move On - 2019****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991						3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298						3,796.2445

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

3.2 Move On - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.0300e-003	1.8300e-003	0.0230	5.0000e-005	4.5057	4.0000e-005	4.5057	0.4492	3.0000e-005	0.4492						4.6786
Total	5.0300e-003	1.8300e-003	0.0230	5.0000e-005	4.5057	4.0000e-005	4.5057	0.4492	3.0000e-005	0.4492						4.6786

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991						3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298						3,796.2445

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

3.2 Move On - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	5.0300e-003	1.8300e-003	0.0230	5.0000e-005	2.2531	4.0000e-005	2.2531	0.2247	3.0000e-005	0.2247						4.6786
Total	5.0300e-003	1.8300e-003	0.0230	5.0000e-005	2.2531	4.0000e-005	2.2531	0.2247	3.0000e-005	0.2247						4.6786

3.3 Site Preparation & Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216						3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

3.3 Site Preparation & Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216						3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

3.3 Site Preparation & Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

Historical Energy Use: N

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

5.2 Energy by Land Use - NaturalGas**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Unmitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

7.0 Water Detail

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

Kern County - Camino Solar Project, Typical Operational Mobile

Kern-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

Project Characteristics - Operational mobile emissions only calculated using the construction module.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - .

Off-road Equipment -

Off-road Equipment - Offroad equipment not included

Off-road Equipment - dozer, 2 tlb, grader, 3 water trucks, 1 roller, 2 scrapers

Trips and VMT - 2 worker/misc trips/day, 2.5 mile trip length

On-road Fugitive Dust - Assumed 100% unpaved travel per trip. 15 mph

Grading - 10155 imported, 1028.5 exported.

Vehicle Trips - Operational emissions modeled separately.

Energy Use - .

Construction Off-road Equipment Mitigation - .

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstructionPhase	NumDays	300.00	365.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblLandUse	LotAcreage	0.00	421.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00
tblOnRoadDust	MeanVehicleSpeed	40.00	15.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripLength	16.80	2.50
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	2.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.3387	45.5748	22.0861	0.0380	22.5719	2.3904	24.9623	10.3798	2.1992	12.5790						3,800.3455
2020	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975
Maximum	4.3387	45.5748	22.0861	0.0380	22.5719	2.3904	24.9623	10.3798	2.1992	12.5790						3,800.3455

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.3387	45.5748	22.0861	0.0380	20.3194	2.3904	22.7098	10.1554	2.1992	12.3545						3,800.3455
2020	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975
Maximum	4.3387	45.5748	22.0861	0.0380	20.3194	2.3904	22.7098	10.1554	2.1992	12.3545						3,800.3455

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	5.54	0.00	4.98	1.11	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Move On	Site Preparation	1/1/2019	12/31/2019	7	365	Move On
2	Site Preparation & Grading	Site Preparation	1/1/2020	1/2/2020	5	300	Site Preparation & Grading

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Move On	Rubber Tired Dozers	3	8.00	247	0.40
Move On	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation & Grading	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Move On	7	2.00	0.00	0.00	2.50	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	7	0.00	0.00	0.00	0.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Move On - 2019****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991						3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298						3,796.2445

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

3.2 Move On - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.7100e-003	2.1000e-003	0.0231	4.0000e-005	4.5057	4.0000e-005	4.5057	0.4492	3.0000e-005	0.4492						4.1010
Total	3.7100e-003	2.1000e-003	0.0231	4.0000e-005	4.5057	4.0000e-005	4.5057	0.4492	3.0000e-005	0.4492						4.1010

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991						3,796.2445
Total	4.3350	45.5727	22.0630	0.0380	18.0663	2.3904	20.4566	9.9307	2.1991	12.1298						3,796.2445

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

3.2 Move On - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.7100e-003	2.1000e-003	0.0231	4.0000e-005	2.2531	4.0000e-005	2.2531	0.2247	3.0000e-005	0.2247						4.1010
Total	3.7100e-003	2.1000e-003	0.0231	4.0000e-005	2.2531	4.0000e-005	2.2531	0.2247	3.0000e-005	0.2247						4.1010

3.3 Site Preparation & Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216						3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

3.3 Site Preparation & Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307						0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216						3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523						3,714.8975

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

3.3 Site Preparation & Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

Historical Energy Use: N

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

5.2 Energy by Land Use - NaturalGas**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Unmitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

7.0 Water Detail

Kern County - Camino Solar Project, Typical Operational Mobile - Kern-Mojave Desert County, Winter

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
----------------	--------

11.0 Vegetation

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

**Kern County - Camino Solar Project, Panel Washing
Kern-Mojave Desert County, Annual****1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

Project Characteristics - Panel washing emissions only, calculated using the construction module.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - Nine days per year for panel washing. Site prep/grading does not apply.

Off-road Equipment -

Off-road Equipment - 0

Trips and VMT - 6 worker/misc trips/day, 2 water haul trucks per day maximum. 5 mile trip length for onsite workers, 16 mile trip length for haul trucks.

On-road Fugitive Dust - Assumed 100% unpaved travel per worker trip, 19% unpaved for water trucks. 40 mph composite mean vehicle speed

Grading - .

Vehicle Trips - .

Energy Use - .

Construction Off-road Equipment Mitigation - .

Off-road Equipment - .

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstructionPhase	NumDays	300.00	9.00
tblConstructionPhase	NumDays	300.00	1.00
tblConstructionPhase	PhaseEndDate	12/31/2019	1/11/2019
tblConstructionPhase	PhaseEndDate	1/2/2020	1/1/2020
tblLandUse	LotAcreage	0.00	421.00
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	81.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	16.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	16.80	5.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	4.9000e-004	3.1600e-003	2.6800e-003	1.0000e-005	0.1854	1.4000e-004	0.1855	0.0185	1.4000e-004	0.0186						0.4835
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Maximum	4.9000e-004	3.1600e-003	2.6800e-003	1.0000e-005	0.1854	1.4000e-004	0.1855	0.0185	1.4000e-004	0.0186						0.4835

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	4.9000e-004	3.1600e-003	2.6800e-003	1.0000e-005	0.0927	1.4000e-004	0.0928	9.2600e-003	1.4000e-004	9.4000e-003						0.4835
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Maximum	4.9000e-004	3.1600e-003	2.6800e-003	1.0000e-005	0.0927	1.4000e-004	0.0928	9.2600e-003	1.4000e-004	9.4000e-003						0.4835

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.99	0.00	49.95	49.95	0.00	49.57	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005						8.0200e-003

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0000e-005	1.0000e-005						8.0200e-003

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Panel Washing	Site Preparation	1/1/2019	1/11/2019	5	9	Panel Washing
2	Site Preparation & Grading	Site Preparation	1/1/2020	1/1/2020	5	1	Site Preparation & Grading

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****Offroad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Panel Washing	Rubber Tired Dozers	0	8.00	247	0.40
Panel Washing	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation & Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Panel Washing	Pressure Washers	2	8.00	13	0.30

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Panel Washing	2	6.00	0.00	2.00	5.00	6.60	16.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	0	0.00	0.00	0.00	0.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

3.2 Panel Washing - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	4.1000e-004	2.8600e-003	2.2100e-003	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004						0.3200
Total	4.1000e-004	2.8600e-003	2.2100e-003	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	1.4000e-004	1.4000e-004						0.3200

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.6000e-004	4.0000e-005	0.0000	4.0900e-003	0.0000	4.0900e-003	4.1000e-004	0.0000	4.1000e-004						0.0649
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	4.0000e-005	4.4000e-004	0.0000	0.1813	0.0000	0.1813	0.0181	0.0000	0.0181						0.0986
Total	8.0000e-005	3.0000e-004	4.8000e-004	0.0000	0.1854	0.0000	0.1854	0.0185	0.0000	0.0185						0.1635

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

3.2 Panel Washing - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	4.1000e-004	2.8600e-003	2.2100e-003	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004						0.3200
Total	4.1000e-004	2.8600e-003	2.2100e-003	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	1.4000e-004	1.4000e-004						0.3200

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.6000e-004	4.0000e-005	0.0000	2.0500e-003	0.0000	2.0500e-003	2.1000e-004	0.0000	2.1000e-004						0.0649
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.0000e-005	4.0000e-005	4.4000e-004	0.0000	0.0906	0.0000	0.0906	9.0500e-003	0.0000	9.0500e-003						0.0986
Total	8.0000e-005	3.0000e-004	4.8000e-004	0.0000	0.0927	0.0000	0.0927	9.2600e-003	0.0000	9.2600e-003						0.1635

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

3.3 Site Preparation & Grading - 2020**Unmitigated Construction On-Site**

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

Unmitigated Construction Off-Site

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

3.3 Site Preparation & Grading - 2020**Mitigated Construction On-Site**

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

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Mitigated

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

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

Mitigated

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

6.0 Area Detail**6.1 Mitigation Measures Area**

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Unmitigated	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003
Total	3.6000e-004	4.0000e-005	3.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						8.0200e-003

7.0 Water Detail**7.1 Mitigation Measures Water**

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

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

7.2 Water by Land Use**Unmitigated**

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

7.2 Water by Land Use**Mitigated**

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

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

8.2 Waste by Land Use**Unmitigated**

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

Mitigated

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

9.0 Operational Offroad

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

Kern County - Camino Solar Project, Panel Washing
Kern-Mojave Desert County, Summer**1.0 Project Characteristics**

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

Project Characteristics - Panel washing emissions only, calculated using the construction module.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - Nine days per year for panel washing. Site prep/grading does not apply.

Off-road Equipment -

Off-road Equipment - 0

Trips and VMT - 6 worker/misc trips/day, 2 water haul trucks per day maximum. 5 mile trip length for onsite workers, 16 mile trip length for haul trucks.

On-road Fugitive Dust - Assumed 100% unpaved travel per worker trip, 19% unpaved for water trucks. 40 mph composite mean vehicle speed

Grading - .

Vehicle Trips - .

Energy Use - .

Construction Off-road Equipment Mitigation - .

Off-road Equipment - .

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstructionPhase	NumDays	300.00	9.00
tblConstructionPhase	NumDays	300.00	1.00
tblConstructionPhase	PhaseEndDate	12/31/2019	1/11/2019
tblConstructionPhase	PhaseEndDate	1/2/2020	1/1/2020
tblLandUse	LotAcreage	0.00	421.00
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	81.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	16.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	16.80	5.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.1120	0.7002	0.6072	1.5200e-003	45.1502	0.0312	45.1815	4.5068	0.0312	4.5380						121.0874
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Maximum	0.1120	0.7002	0.6072	1.5200e-003	45.1502	0.0312	45.1815	4.5068	0.0312	4.5380						121.0874

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.1120	0.7002	0.6072	1.5200e-003	22.5780	0.0312	22.6092	2.2544	0.0312	2.2856						121.0874
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Maximum	0.1120	0.7002	0.6072	1.5200e-003	22.5780	0.0312	22.6092	2.2544	0.0312	2.2856						121.0874

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.99	0.00	49.96	49.98	0.00	49.63	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Panel Washing	Site Preparation	1/1/2019	1/11/2019	5	9	Panel Washing
2	Site Preparation & Grading	Site Preparation	1/1/2020	1/1/2020	5	1	Site Preparation & Grading

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Panel Washing	Rubber Tired Dozers	0	8.00	247	0.40
Panel Washing	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation & Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Panel Washing	Pressure Washers	2	8.00	13	0.30

Trips and VMT

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Panel Washing	2	6.00	0.00	2.00	5.00	6.60	16.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	0	0.00	0.00	0.00	0.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Panel Washing - 2019****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0911	0.6352	0.4900	1.1000e-003		0.0308	0.0308		0.0308	0.0308						78.3829
Total	0.0911	0.6352	0.4900	1.1000e-003	0.0000	0.0308	0.0308	0.0000	0.0308	0.0308						78.3829

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

3.2 Panel Washing - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5800e-003	0.0562	7.4100e-003	1.5000e-004	0.9969	1.9000e-004	0.9971	0.1000	1.9000e-004	0.1001						16.0888
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0194	8.8200e-003	0.1097	2.7000e-004	44.1534	1.8000e-004	44.1536	4.4068	1.7000e-004	4.4070						26.6157
Total	0.0209	0.0650	0.1171	4.2000e-004	45.1502	3.7000e-004	45.1506	4.5068	3.6000e-004	4.5072						42.7045

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0911	0.6352	0.4900	1.1000e-003		0.0308	0.0308		0.0308	0.0308						78.3829
Total	0.0911	0.6352	0.4900	1.1000e-003	0.0000	0.0308	0.0308	0.0000	0.0308	0.0308						78.3829

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

3.2 Panel Washing - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.5800e-003	0.0562	7.4100e-003	1.5000e-004	0.4998	1.9000e-004	0.5000	0.0504	1.9000e-004	0.0505						16.0888
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0194	8.8200e-003	0.1097	2.7000e-004	22.0782	1.8000e-004	22.0784	2.2040	1.7000e-004	2.2042						26.6157
Total	0.0209	0.0650	0.1171	4.2000e-004	22.5780	3.7000e-004	22.5784	2.2544	3.6000e-004	2.2547						42.7045

3.3 Site Preparation & Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

3.3 Site Preparation & Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

3.3 Site Preparation & Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

Historical Energy Use: N

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

5.2 Energy by Land Use - NaturalGas**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Unmitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

7.0 Water Detail

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Summer

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

Kern County - Camino Solar Project, Panel Washing
Kern-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	421.00	User Defined Unit	421.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	488.3	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

Project Characteristics - Panel washing emissions only, calculated using the construction module.

Land Use - Total project area of 421 acres. User defined land use.

Construction Phase - Nine days per year for panel washing. Site prep/grading does not apply.

Off-road Equipment -

Off-road Equipment - 0

Trips and VMT - 6 worker/misc trips/day, 2 water haul trucks per day maximum. 5 mile trip length for onsite workers, 16 mile trip length for haul trucks.

On-road Fugitive Dust - Assumed 100% unpaved travel per worker trip, 19% unpaved for water trucks. 40 mph composite mean vehicle speed

Grading - .

Vehicle Trips - .

Energy Use - .

Construction Off-road Equipment Mitigation - .

Off-road Equipment - .

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblConstructionPhase	NumDays	300.00	9.00
tblConstructionPhase	NumDays	300.00	1.00
tblConstructionPhase	PhaseEndDate	12/31/2019	1/11/2019
tblConstructionPhase	PhaseEndDate	1/2/2020	1/1/2020
tblLandUse	LotAcreage	0.00	421.00
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	81.00
tblOnRoadDust	HaulingPercentPave	100.00	92.00

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	92.00
tblOnRoadDust	WorkerPercentPave	100.00	0.00
tblOnRoadDust	WorkerPercentPave	100.00	92.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	488.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2021
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	16.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripLength	16.80	5.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00

2.0 Emissions Summary

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.1087	0.7026	0.5981	1.4800e-003	45.1502	0.0312	45.1815	4.5068	0.0312	4.5380						117.2322
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Maximum	0.1087	0.7026	0.5981	1.4800e-003	45.1502	0.0312	45.1815	4.5068	0.0312	4.5380						117.2322

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.1087	0.7026	0.5981	1.4800e-003	22.5780	0.0312	22.6092	2.2544	0.0312	2.2856						117.2322
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Maximum	0.1087	0.7026	0.5981	1.4800e-003	22.5780	0.0312	22.6092	2.2544	0.0312	2.2856						117.2322

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.99	0.00	49.96	49.98	0.00	49.63	0.00	0.00	0.00	0.00	0.00	0.00

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	4.0300e-003	4.0000e-004	0.0432	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

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

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Panel Washing	Site Preparation	1/1/2019	1/11/2019	5	9	Panel Washing
2	Site Preparation & Grading	Site Preparation	1/1/2020	1/1/2020	5	1	Site Preparation & Grading

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Panel Washing	Rubber Tired Dozers	0	8.00	247	0.40
Panel Washing	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation & Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation & Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Panel Washing	Pressure Washers	2	8.00	13	0.30

Trips and VMT

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Panel Washing	2	6.00	0.00	2.00	5.00	6.60	16.00	LD_Mix	HDT_Mix	HHDT
Site Preparation & Grading	0	0.00	0.00	0.00	0.00	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction**3.2 Panel Washing - 2019****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0911	0.6352	0.4900	1.1000e-003		0.0308	0.0308		0.0308	0.0308						78.3829
Total	0.0911	0.6352	0.4900	1.1000e-003	0.0000	0.0308	0.0308	0.0000	0.0308	0.0308						78.3829

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

3.2 Panel Washing - 2019**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6500e-003	0.0573	8.6700e-003	1.5000e-004	0.9969	2.0000e-004	0.9971	0.1000	1.9000e-004	0.1001						15.6337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0159	0.0101	0.0994	2.3000e-004	44.1534	1.8000e-004	44.1536	4.4068	1.7000e-004	4.4070						23.2156
Total	0.0176	0.0674	0.1081	3.8000e-004	45.1502	3.8000e-004	45.1506	4.5068	3.6000e-004	4.5072						38.8493

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0911	0.6352	0.4900	1.1000e-003		0.0308	0.0308		0.0308	0.0308						78.3829
Total	0.0911	0.6352	0.4900	1.1000e-003	0.0000	0.0308	0.0308	0.0000	0.0308	0.0308						78.3829

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

3.2 Panel Washing - 2019**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.6500e-003	0.0573	8.6700e-003	1.5000e-004	0.4998	2.0000e-004	0.5000	0.0504	1.9000e-004	0.0505						15.6337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0159	0.0101	0.0994	2.3000e-004	22.0782	1.8000e-004	22.0784	2.2040	1.7000e-004	2.2042						23.2156
Total	0.0176	0.0674	0.1081	3.8000e-004	22.5780	3.8000e-004	22.5784	2.2544	3.6000e-004	2.2547						38.8493

3.3 Site Preparation & Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

3.3 Site Preparation & Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

3.3 Site Preparation & Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

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

5.0 Energy Detail

Historical Energy Use: N

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

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

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

5.2 Energy by Land Use - NaturalGas**Mitigated**

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

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Unmitigated	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983
Total	4.0300e-003	4.0000e-004	0.0432	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004						0.0983

7.0 Water Detail

Kern County - Camino Solar Project, Panel Washing - Kern-Mojave Desert County, Winter

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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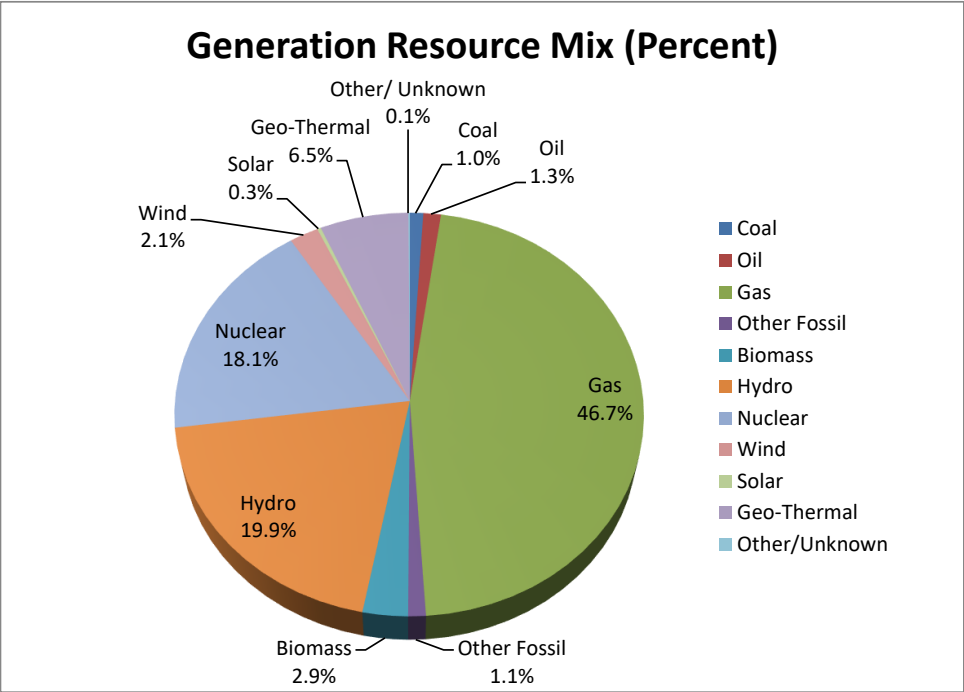
11.0 Vegetation

DISPLACED ELECTRICITY

PROJECT POWER GENERATION: 55 MW
DAILY GENERATION RATE: 362 MWh/day
132,032 MWh/Yr
208 CLEAR DAYS/YEAR

REGION: California (CAMX)
SUBREGION: WECC California
GENERATION RESOURCE MIX:

Resource	Generation Resource Mix (Percent)
Coal	0.98
Oil	1.29
Gas	46.71
Other Fossil	1.13
Biomass	2.91
Hydro	19.88
Nuclear	18.08
Wind	2.13
Solar	0.27
Geo-Thermal	6.51
Other/Unknown	0.10
100.00	
Coal, Oil, Gas & Other Fossil Fuels:	50.11
Renewable:	31.70



*Resource mix for the CAMX WECC-California Subregion.

EMISSION FACTORS

EMISSION FACTORS	LBS/MWh								
	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	N2O	CH4
GHG BASED ON UPDATED YEAR 2010 eGRID (CAMX/WECC California Subregion)	0.01	0.40	0.20	0.17	0.09	0.06	610.82	0.01	0.03

NOX, SOX, and GHGs (i.e., CO2, N2O, and CH4) are based on emission factors derived from the U.S. EPA’s Emissions & Generation Resource Integrated Database (eGRID), 9th Edition. (February 2014) for the WECC California (CAMX) sub-region. PM10 derived from 2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings, revised June 2009; PM2.5 assumes 67% of PM10 per USEPA AP42. ROG and CO emission factors assumed based on rates identified in SCAQMD’s CEQA Air Quality Handbook, Table A9-11-A (1993) and CARB Guidance for Permitting of electric generating technologies.

GHG BASED ON SCE’s CARBON INTENSITY RATES (LGO PROTOCOL)	630.89	0.006	0.029
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Derived from CalEEMod. Based on Carbon Intensity Rates for SCE reported by Local Government Operations Protocol (2010), Power/Utility Protocol (PUP) public reports (2010)

DISPLACED ELECTRICITY (Cont.)

EMISSIONS

	LBS/DAY						CO2	N2O	CH4
	ROG	NOX	CO	SOX	PM10	PM2.5			
GHG BASED ON UPDATED YEAR 2010 eGRID (CAMX/WECC California Subregion)	3.6	146.5	72.4	61.8	32.6	21.7	221,116.8	2.2	10.3
GHG BASED ON SCE's CARBON INTENSITY RATES (LGO PROTOCOL)							228,382.2	2.2	10.5

	LBS/YEAR						CO2	N2O	CH4
	ROG	NOX	CO	SOX	PM10	PM2.5			
GHG BASED ON UPDATED YEAR 2010 eGRID (CAMX/WECC California Subregion)	753.0	30,472.3	15,059.2	12,860.6	6,776.6	4,517.8	45,992,302.7	454.0	2,145.2
GHG BASED ON SCE's CARBON INTENSITY RATES (LGO PROTOCOL)							47,503,493.4	464.6	2,183.6

	TONS/YEAR						CO2	N2O	CH4
	ROG	NOX	CO	SOX	PM10	PM2.5			
GHG BASED ON UPDATED YEAR 2010 eGRID (CAMX/WECC California Subregion)	0.4	15.2	7.5	6.4	3.4	2.3	22,996.2	0.2	1.1
GHG BASED ON SCE's CARBON INTENSITY RATES (LGO PROTOCOL)							23,751.7	0.2	1.1

*CI rates for SCE are presented for comparison purposes only. To be conservative displaced emissions were calculated based on the CAMX rates.

	NET DISPLACED (TONS/YEAR)									CO2e
	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	N2O	CH4	
Electricity Generation*	0.3765	15.2361	7.5296	6.4303	3.3883	2.2589	22,996.151	0.227	1.073	23089

*To be conservative, electricity generation for GHGs is based on state-wide CI rates, which are less than CI rates that are specific to SCE and carbon-based fuel operations (e.g., natural gas, coal, other fossil fuels).

Amortized construction assumes an estimated 30-year project life. Totals may vary slightly due to rounding.

EMISSIONS SUMMARY - WATER USE

WATER DEMAND

CONSTRUCTION	1482967	GALLONS
	1.482967	MG

OPERATIONS	1201	GALLONS
	0.00	MG

ELECTRICITY INTENSITY FACTOR (kWh/MG)

	KWh/MG	Construction		Operation	
		KWh	MWh	KWh	MWh
SUPPLY & CONVEYANCE	2117	3139.44	3.14	2.54	0.00
TREATMENT	111	164.61	0.16	0.13	0.00
DISTRIBUTION	1272	1886.33	1.89	1.53	0.00
OUTDOOR TOTAL	3500	5190.38	5.19	4.20	0.00

*GHG Intensity factors derived from CalEEMod for Imperial County.

EMISSION FACTORS (LBS/MWh)

ROG	0.01
NOX	0.4
CO	0.2
SOX	0.17
PM10	0.09
PM2.5	0.06
CO2	630.89
N2O	0.006
CH4	0.029

ANNUAL EMISSIONS (LBS/MWh)

	CONSTRUCTION		OPERATION	
	LBS	TONS	LBS	TONS
ROG	0.0519	0.0000	0.0000	0.0000
NOX	2.0762	0.0010	0.0017	0.0000
CO	1.0381	0.0005	0.0008	0.0000
SOX	0.8824	0.0004	0.0007	0.0000
PM10	0.4671	0.0002	0.0004	0.0000
PM2.5	0.3114	0.0002	0.0003	0.0000
CO2	3274.5617	1.6373	2.6519	0.0013
N2O	0.0311	0.0000	0.0000	0.0000
CH4	0.1505	0.0001	0.0001	0.0000
MTCO2e		1.6437		0.0013

Appendix D

**Biological Resources Technical
Report for the Camino Solar
Project**



Biological Resources Technical Report for the Camino Solar Project

SEPTEMBER 2018

PREPARED ON BEHALF OF

Aurora Solar, LLC

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PREPARED BY

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LIST OF ABBREVIATED TERMS

ACEC	Area of Critical Environmental Concern
AOS	American Ornithological Society
amsl	above mean sea level
Aurora	Aurora Solar, LLC
Avangrid	Avangrid Renewables, LLC
BBCS	Bird and Bat Conservation Strategy
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BRTR	Biological Resources Technical Report
Cal-IPC	California Invasive Plant Council
CATEX	Categorical Exclusion
CCH	Consortium of California Herbaria
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game (now CDFW)
CDFW	California Department of Fish and Wildlife (formerly CDFG)
CDNPA	California Desert Native Plants Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CMA	Conservation and Management Action
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DFA	Development Focus Area
DPS	Distinct Population Segment
DRECP	Desert Renewable Energy Conservation Plan
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FGC	Fish and Game Code
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
FNWA	Federal Noxious Weed Act
GIS	Geographic Information Systems
GPS	Geographic Positioning System
HRRP	Habitat Restoration and Revegetation Plan
LSAA	Lake and Streambed Alteration Agreement
LUPA	Land Use Plan Amendment
Manzana	Manzana Wind Power Project (also see MWP)
MCV	Manual of California Vegetation
MBTA	Migratory Bird Treaty Act
MGSWG	Mohave Ground Squirrel Working Group
MM	Mitigation Measure
MOU	Memorandum of Understanding
mph	miles per hour

MWP	Manzana Wind Power Project
MWSWS	Madrean Warm Semi-Desert Wash Scrub/Woodland
NEPA	National Environmental Policy Act
NLCS	National Landscape Conservation System
NMFA	National Marine Fisheries Service
NPPA	Native Plant Protection Act
NVC	National Vegetation Classification
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
OHWM	Ordinary High Water Mark
project	Camino Solar Project
PV	photovoltaic
RWQCB	Regional Water Quality Control Board
Sapphos	Sapphos Environmental, Inc.
SSC	Species of Special Concern
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
TNW	Traditional Navigable Waters
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USNVC	U.S. National Vegetation Classification
USGS	U.S. Geological Survey
VPL	Variance Process Lands
WDRs	Waste Discharge Requirements

1 INTRODUCTION

Aurora Solar, LLC, (Aurora), a wholly-owned subsidiary of Avangrid Renewables, LLC (Avangrid), formerly known as Iberdrola Renewables, proposes to construct, operate, maintain, and decommission the Camino Solar Project (project) in southeastern Kern County, California (Figure 1). The site of the proposed solar energy generation project is comprised of both private lands and lands administered by the Bureau of Land Management (BLM) Ridgecrest Field Office (Figure 2).

SWCA Environmental Consultants (SWCA) was retained by Avangrid to provide biological resources services in support of the project. SWCA conducted field surveys throughout the project area, reviewed relevant technical documents, previous studies, and agency-maintained databases on biological resources to compile information about biological resources at the site. This desktop research and field study are summarized in this biological resources technical report (BRTR), which provides the technical basis for the assessment of potential impacts to biological resources that may result from implementation of the project. In addition to a description of the existing conditions, this report also describes how biological resources will be potentially affected by the construction, operation, and maintenance of the project.

This report may be used to support the environmental documentation and evaluation of the project pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). It provides the substantial evidence upon which the required evaluation of feasibility, environmental analysis, and findings of fact in relation to biological resources can be made.

1.1 Intended Audience

This report summarizes the results of desktop and field investigations for consideration by the project applicant in the planning and development of the project. The report is also intended for lead agencies responsible for compliance with NEPA (BLM) and CEQA (Kern County), and trustee and responsible agencies in their respective decision-making positions, and the public for the purpose of intrinsic and full disclosure consistent with the spirit of the National Environmental Policy Act and the California Environmental Quality Act. The information contained in the report has been an integral part of the project planning process effort to avoid and minimize impacts to biological resources to the maximum extent practicable while attaining the basic objectives of the project.

1.2 Project Location

The project site is in southern Kern County, California (Figure 1, Figure 2, Figure 3). The closest major roads are California State Route 14 (Antelope Valley Freeway) approximately 15 miles to the east, California State Route 58 (Blue State Memorial Highway) 12.5 miles to the north, and State Route 138 (West Avenue D) 8 miles to the south. The nearest populated areas are the unincorporated community of Mojave 17 miles to the northeast, the unincorporated community of Rosamond 16 miles to the southeast, and the City of Tehachapi 12 miles to the north (see Figure 1). The main project site where the solar arrays will be installed is located in Township 10 North, Range 15 West, Sections 23 and 26; the electrical collector corridor passes through Sections 26, 34 and 35; and the battery storage components and operations and maintenance facilities are located in Section 35. The BLM portion of the project area is Township 10 North, Range 15 West, Section 36, lots 1 through 8. The project property ranges in elevation from approximately 3,370 to 3,820 feet above mean sea level (amsl). The project includes part or all of 18 separate parcels that total approximately 890 acres, comprised of approximately 359 acres of BLM-administered land and 531 acres of privately owned land. The project is within the U.S. Geological Survey (USGS) 7.5-minute series Tylerhorse Canyon topographic quadrangle.

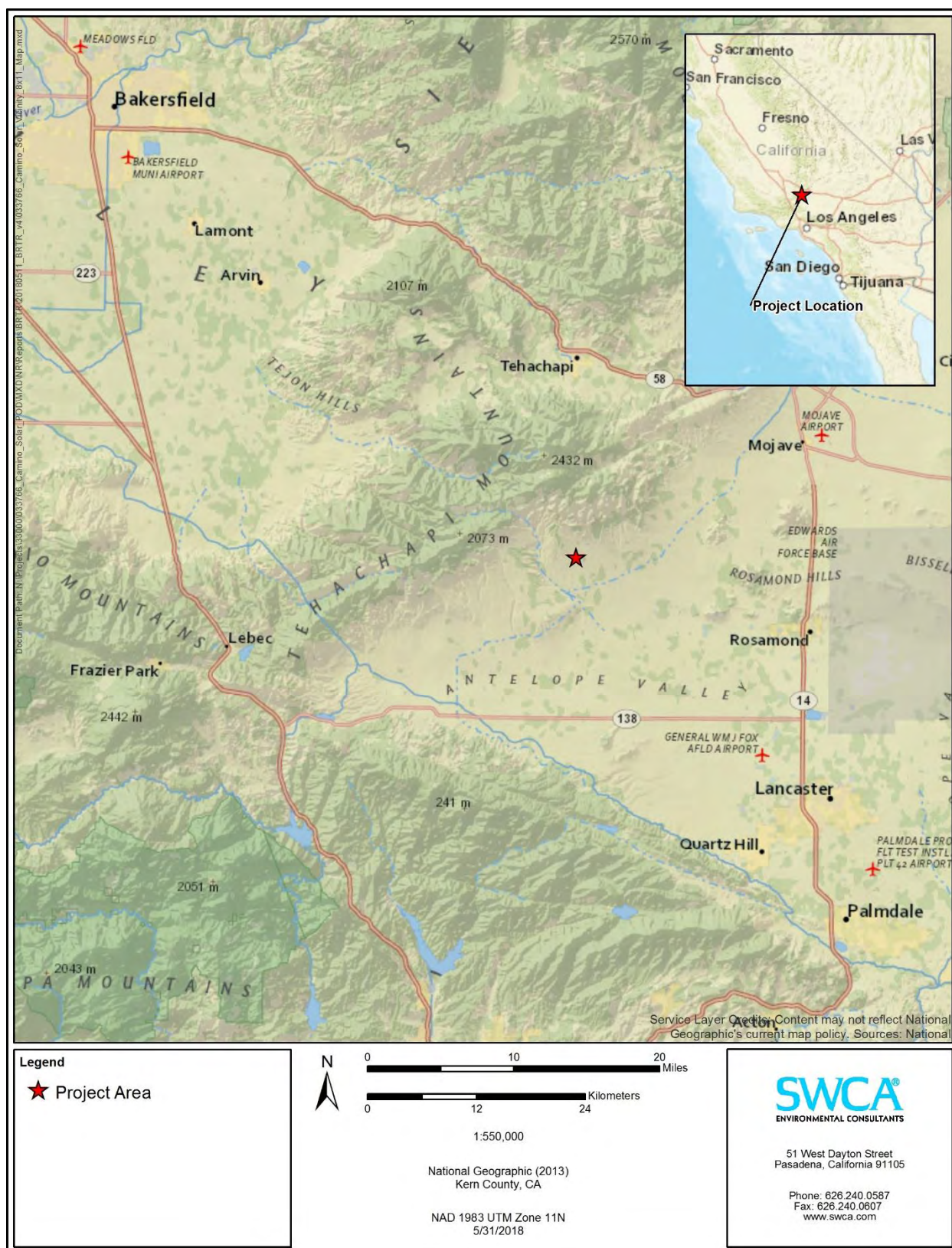
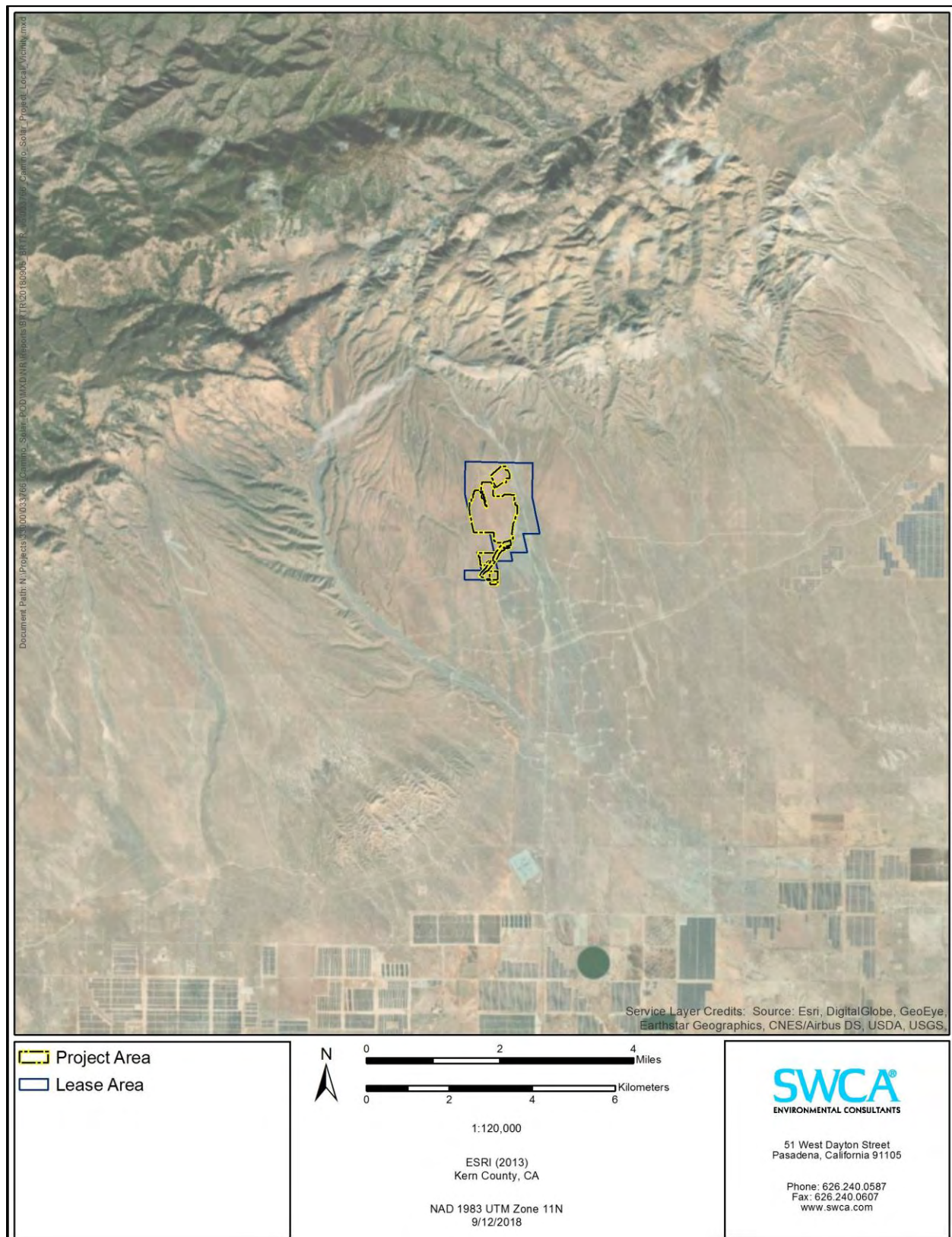
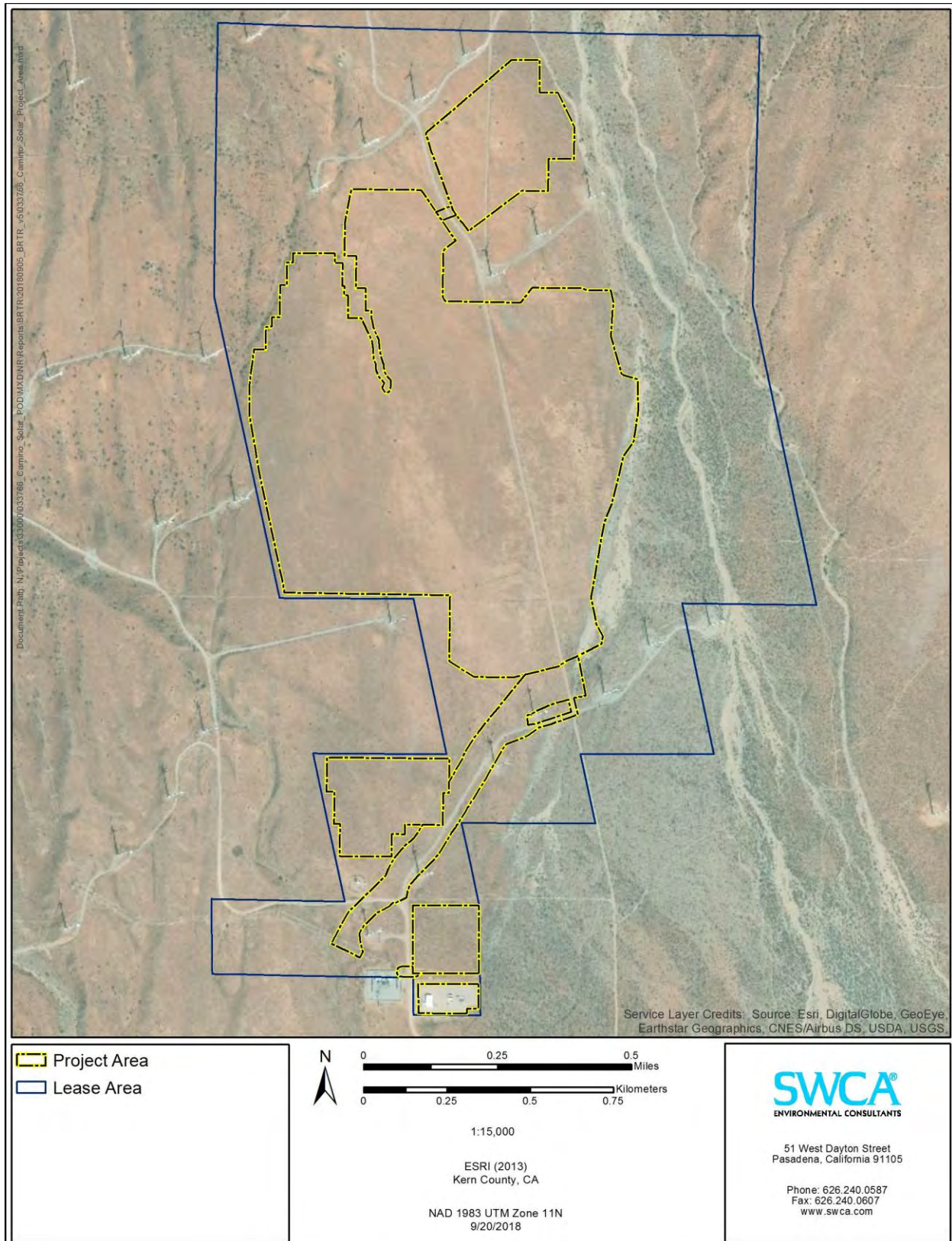


Figure 1. Regional Vicinity Map.

**Figure 2. Local Vicinity Map.**

**Figure 3. Project Area Map.**

1.2.1 Project Elements

The project will generate up to 44 MW of power from photovoltaic (PV) solar panels (Figure 4). Supporting components will include a 34.5-kV electrical collection system, and an inner-facility access road network. The project will make use of previously approved and existing infrastructure associated with the Manzana Wind Power Project (Manzana or MWP), including the operations and maintenance (O&M) facility, staging and refueling areas, concrete batch plant site, and transmission line. Manzana is a wind farm owned and operated by an Avangrid subsidiary.

The project will include arrays of solar PV panels, their supporting structures and local electrical collection equipment; access roads; stormwater detention basins; and two underground electrical collection lines. Acreage requirements for each project element are provided in Table 1. The solar arrays, internal access roads, inverters, and other equipment will be contained within fencing, which has been divided into two parts to allow the existing road to pass between them uninterrupted. One underground electrical collection line will span the gap between the two fenced areas. A second underground electrical collection line will run from the southernmost part of the fenced area to interconnect with a substation located on the Manzana project site. Both of these collection lines will be entirely located on private lands.

Table 1. Projected spatial requirements of the project

Component	Estimated Extent		
	Total	BLM	Private
Entire Project Area	383 acres	233 acres	150 acres
Fenced Area	351 acres	230 acres	121 acres
Solar Array Fields and Internal Roads	337 acres	230 acres	107 acres
Battery Storage	10 acres	--	10 acres
Operations and Maintenance Facility (existing)	4 acres	--	4 acres
Electrical Collection Corridor*	0.75 mile / 26 acres*	--	0.75 mile / 26 acres*
Rerouted BLM Road	1.1 miles / 6 acres	0.6 miles / 3 acres	0.5 miles / 3 acres

Note: All values were calculated in GIS for accuracy and rounded to the nearest 1 acre or 0.1 mile for presentation. Subtotals may vary slightly from the GIS calculated totals.

Temporary laydown and parking areas will use the existing Manzana O&M yard on private land approximately 0.25 mile south of the project site, and will not entail any new ground disturbance. Trenches and work areas for the electrical collection lines may be up to 100 feet wide, and will be sited within the electrical collection corridors. On-site battery storage may also be incorporated into the project; this would be located immediately north of the O&M facility (Figure 4). The Manzana substation is interconnected to Southern California Edison's Whirlwind Substation (Tehachapi Renewable Transmission Project Substation 5) by means of a 220-kV overhead transmission line constructed in 2012 as part of Manzana. No improvements will be required for the Manzana substation or the overhead transmission line. The project area is crossed by an existing unimproved road that provides north-south access to a residence and a calcite mine located on private land north of the project. Aurora will maintain this access by constructing a new road around the eastern edge of the project boundary. The rerouted road will be constructed to match the width and surface type (i.e. compacted dirt) of the existing road (see Figure 4).

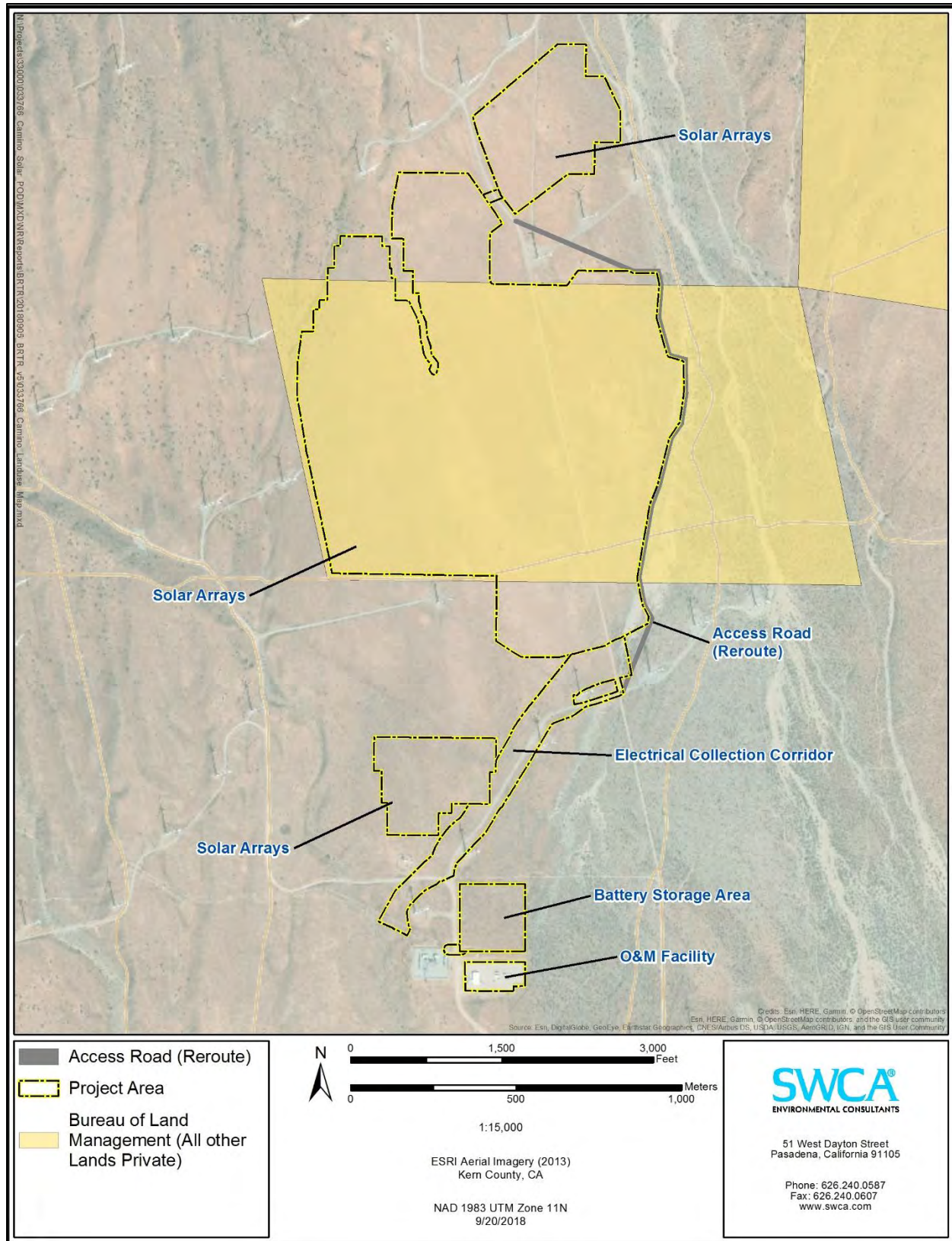


Figure 4. Project Conceptual Layout.

2 REGULATORY FRAMEWORK

The following discussion reviews the federal, state, and local regulations and policies relating to biological resources and which may be applicable to the project. Natural resources present at the project site, or those with a high probability of occurring in the project area may require mitigation for impacts that will, or could, result from project development. Mitigation requirements are based on a number of federal, state, and local laws, regulations, and policies relating to plants and wildlife, migratory and nesting birds, environmental quality, and lake or streambed alteration.

2.1 Federal Regulations and Plans

2.1.1 *Federal Endangered Species Act*

The U.S. Congress passed the Endangered Species Act (ESA) in 1973 to protect endangered species and species threatened with extinction (federally listed species). The ESA operates in conjunction with NEPA to help protect the ecosystems upon which endangered and threatened species depend.

Section 9 of the ESA prohibits the “take” of endangered or threatened wildlife species. The legal definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 United States Code [USC] 1532 [19]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] 17.3). Harassment is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR 17.3). Actions that result in take can result in civil or criminal penalties.

The ESA authorizes the U.S. Fish and Wildlife Service (USFWS) to issue permits under Sections 7 and 10 of that act. Section 7 mandates that all federal agencies consult with the USFWS for terrestrial species and/or National Marine Fisheries Service (NMFS) for marine species to ensure that federal agency actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. Any anticipated adverse effects require preparation of a biological assessment to determine potential effects of the project on listed species and critical habitat. If the project adversely affects a listed species or its habitat, the USFWS or NMFS prepares a Biological Opinion. The Biological Opinion may recommend “reasonable and prudent alternatives” to the project to avoid jeopardizing or adversely modifying habitat including “take” limits.

The ESA defines critical habitat as habitat deemed essential to the survival of a federally listed species. The ESA requires the federal government to designate “critical habitat” for any species it lists under the ESA. Under Section 7, all federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat. These complementary requirements apply only to federal agency actions, and the latter only to specifically designated habitat. A critical habitat designation does not set up a preserve or refuge, and applies only when federal funding, permits, or projects are involved (i.e., a federal nexus). Critical habitat requirements do not apply to activities on private land that do not involve a federal nexus.

Section 10 of the ESA includes provisions to authorize take that is incidental to, but not the purpose of, activities that are otherwise lawful. Under Section 10(a)(1)(B), USFWS may issue permits (incidental take permits) for take of ESA-listed species if the take is incidental and does not jeopardize the survival and recovery of the species. To obtain an incidental take permit, an applicant must submit a habitat conservation plan outlining steps to minimize and mitigate permitted take impacts to listed species.

Federally listed plants and wildlife are known to occur in Kern County and near the project. Should it be determined that listed species may be impacted by the project, Aurora will consult with USFWS and develop an applicant-prepared Biological Assessment for BLM to complete interagency Section 7 consultation.

2.1.2 **Clean Water Act**

Under provisions of the Clean Water Act (CWA), the U. S. Army Corps of Engineers (USACE) administers the day-to-day activities required by Section 404. These include the individual permit decisions, jurisdictional determinations, developing policy and guidance, and enforcing provisions of Section 404. Waters of the U.S. are defined in section 33 CFR 328.3, implementing the CWA, as follows:

328.3 - Definitions.

For the purpose of this regulation these terms are defined as follows:

(a) The term waters of the United States means

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with U. S. Environmental Protection Agency (EPA).

The Antelope Valley Watershed is a closed basin situated within the western Mojave Desert, with a system of Rosamond, Buckhorn, and Rogers dry lakes as the central watershed terminus. Rosamond, Buckhorn, and Rogers Lakes and their tributaries (Antelope Valley Watershed) function as an isolated intrastate watershed system, which lacks the presence of a traditional navigable waterway (TNW). Moreover, Rosamond, Buckhorn, and Rogers Lakes and all tributaries to them are not (a)(3) waters as defined by 33 CFR 328.3, as they do not meet Criteria (a)(3)(iii), because surface waters are not used for industrial or other commercial purposes by interstate commerce industries. The USACE has concluded that all tributaries to Rosamond, Buckhorn, and Rogers Lakes, and the lakes themselves, (i.e., the Antelope Valley Watershed, excluding Lake Palmdale and its tributaries) are non-jurisdictional waters of the U.S., because

Antelope Valley waters are not tributary to either a TNW or an (a)(3) water and Rosamond, Buckhorn, and Rogers Lakes are not (a)(3) waters themselves. The USACE makes such a watershed conclusion since the Antelope Valley Watershed is an isolated, intrastate watershed without any surface water related commerce (USACE 2013).

Due to its location in the regions of the Antelope Valley, the waters of which have been determined to be non-jurisdictional by USACE, the CWA is not applicable to the project.

2.1.3 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), first enacted in 1918, prohibits any person, unless permitted by regulations, to

“...pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatsoever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention ... for the protection of migratory birds ... or any part, nest, or egg of any such bird.” (16 U.S. Code 703)

The list of migratory birds includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. The statute was extended in 1974 to include parts of birds, as well as eggs and nests. Thus, it is illegal under MBTA to directly kill, or destroy a nest of, nearly any native bird species, not just endangered species. Activities that result in removal or destruction of an active nest (a nest with eggs or young being attended by one or more adults) will violate the MBTA. Removal of unoccupied nests, and bird mortality resulting indirectly from disturbance activities, are not considered violations of the MBTA.

Aurora will comply with the intent of the MBTA by preparing a Bird and Bat Conservation Strategy (BBCS) for the project in coordination with USFWS and BLM.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668–668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles (*Haliaeetus leucocephalus*), including their parts, nests, or eggs. In 1962, Congress amended the act to cover golden eagles (*Aquila chrysaetos*).

The act provides criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

Under USFWS rules (16 USC § 22.3; 72 Federal Register 31,132, June 5, 2007), “disturb” means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

The project is not expected to directly affect bald or golden eagles, as either take or disturbance.

2.1.5 National Environmental Policy Act

NEPA was enacted by the federal government in 1970 (42 USC § 4321 et seq.). NEPA applies to most government actions that might affect natural resource management. NEPA requires the federal government to evaluate potential environmental impacts of proposed federal actions. Under NEPA, federal project proponents must consider reasonable alternatives to projects that may lessen the environmental impacts. Environmental review under NEPA can involve three different levels of analysis: (1) Categorical Exclusion determination (CATEX); (2) Environmental Assessment/Finding of No Significant Impact (EA/FONSI); or, (3) Environmental Impact Statement (EIS).

A federal action may be "categorically excluded" from a detailed environmental analysis if the federal action does not, "individually or cumulatively have a significant effect on the human environment" (40 CFR 1508.4). If a federal agency determines that a CATEX does not apply to, or sufficiently address a proposed action, that agency may then prepare an EA. The EA determines whether or not a federal action has the potential to cause significant environmental effects. An EA is typically brief and addresses the need for the project, describes project alternatives, evaluates impacts, and references sources consulted. An EIS is the most rigorous and detailed level of project environmental review, and is prepared for proposed major federal actions determined to significantly affect the quality of the human environment. The NEPA environmental review process provides opportunities for public comment, which is often required before decisions about natural resource use can be made.

The Camino Solar Project is subject to NEPA because it will require the BLM to issue a Right-of-Way grant for use of the BLM-administered lands.

2.1.6 Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act (FLPMA) provides the BLM's overarching mandate to manage the lands and resources under its stewardship based on the principles of multiple use and sustained yield. Multiple use is a concept that directs management of lands and resource values in a way that best meets the present and future needs of Americans and is defined as "a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources" (FLPMA §103[c]). In processing a land use plan amendment, the BLM must also comply with the BLM Planning Regulations (43 CFR Part 1600) and the BLM's *Land Use Planning Handbook* (BLM 2005a).

2.1.7 California Desert Conservation Area Plan

The California Desert Conservation Area (CDCA) encompasses 25 million acres in southern California and was designated by Congress in 1976 through FLPMA. The BLM manages approximately 10 million of those acres. Congress directed the BLM to prepare and implement a comprehensive long-range plan for the management, use, development, and protection of public lands within the CDCA. The CDCA Plan is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for BLM-administered lands in the CDCA and establishes long-term goals for protection and use of the California desert.

2.1.7.1 WEST MOJAVE PLAN

Enacted in 2006, the West Mojave Plan is an amendment to the CDCA Plan. The West Mojave Plan is a federal land use plan amendment that (1) presents a comprehensive strategy to conserve and protect desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Xerospermophilus mohavensis*), and nearly 100

other plants and animals and the natural communities of which they are part and (2) provides a streamlined program for complying with the requirements of the ESA and the California Endangered Species Act (CESA; BLM 1980, 2005b).

2.1.7.2 DESERT RENEWABLE ENERGY CONSERVATION PLAN

In September 2016, BLM adopted the Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (LUPA) to the CDCA Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan (BLM 2016). The DRECP LUPA addresses solar, wind, geothermal energy generation, and transmission projects on 10.8 million acres of BLM-administered lands in the desert regions of southern California. The BLM DRECP LUPA is Phase I of the DRECP; Phase II, which is still in development, is focused on local, state, and federal plans relevant to renewable energy development. The participation of the California counties within the DRECP administrative boundaries (Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino) as well as the City of Lancaster, which together have permitting authority for land use and development of private lands and contain almost all of the DRECP, is central to Phase II of the DRECP.

The BLM DRECP LUPA establishes five classifications of lands: Development Focus Areas (DFAs), Variance Process Lands (VPLs), BLM Conservation Areas, Recreation Management Areas, and General Public Lands. In DFAs, renewable energy projects are incentivized and permitting is streamlined. VPLs are carried over from the Western Solar Plan designations, and have moderate to low ecological value and uncertain renewable energy potential. Renewable energy projects are allowable on VPLs, but they must first be evaluated under a variance process and then approved by BLM to proceed through NEPA environmental review. BLM Conservation Areas include National Landscape Conservation System (NLCS) lands, Areas of Critical Environmental Concern (ACECs), and Wildlife Allocations. Recreation Management Areas are designated for recreation actions. This designation includes Extensive Recreation Management Areas, which entail management specifically to address recreation use and demand; and Special Recreation Management Areas, which are high priority areas for recreation, and have unique value and importance for recreation. General Public lands are BLM-administered lands that do not have any of the above designations.

The DRECP LUPA includes a list of Conservation and Management Actions (CMAs) that prescribe avoidance, minimization, and compensatory mitigation actions which are applicable to renewable energy projects on BLM-administered lands in the DRECP plan area. The over 200 CMAs address siting, design, pre-construction, construction, maintenance, implementation, operation, and decommissioning activities of renewable energy projects. The applicability of each CMA to a particular project depends on the BLM land designation(s) at the project site, project type, and resources present at the site.

The BLM-administered parcel in Camino Solar Project site is located in a DFA.

2.1.8 Noxious Weed Act

The Federal Noxious Weed Act of 1974 (FNWA) (7 USC 2801 et seq.), under the authority of the Secretary of Agriculture, establishes a federal program to control the spread of noxious weeds.

2.1.9 Executive Order 13186

Executive Order 13186, issued by President Clinton on January 10, 2001, directs each federal agency taking actions that are likely to have a measurable effect on migratory bird populations to develop and implement a Memorandum of Understanding (MOU) with the USFWS that will promote the conservation of migratory bird populations.

2.1.10 Executive Order 13112

Executive Order 13112, issued by President Clinton on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.

2.1.11 Executive Order 11990

Executive Order 11990, signed by President Carter in 1977, directs federal agencies to avoid development in wetlands whenever there is a practicable alternative and to avoid, to the extent possible, adverse impacts associated with the occupancy or modification of wetlands.

2.2 State Regulations

2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the CESA, which prohibits the “taking” of listed species except as otherwise provided in state law. Section 86 of the Fish and Game Code defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Pursuant to the requirements of CESA, state lead agencies (as defined under CEQA Public Resources Code Section 21067) are required to consult with the CDFW to ensure that any action or project is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat. The CESA requires the CDFW to maintain a list of threatened and endangered species, and species accepted as candidates for listing. Species that are accepted as candidates for listing are afforded the same protections as species that are listed.

2.2.2 California Fish and Game Code

2.2.2.1 DESERT KIT FOX

Under section 460 of the California Fish and Game Code (FGC), desert kit fox may not be taken at any time. Under sections 4000-4003 of the FGC, it is unlawful to conduct activities that would result in the taking, possessing, or destroying of any fur-bearing mammals, including kit foxes, without prior authorization from CDFW.

2.2.2.2 LAKE AND STREAMBED ALTERATION

These sections prohibit alteration of any lake or streambed under CDFW jurisdiction, including intermittent and seasonal channels and many artificial channels, without execution of a Lake and Streambed Alteration Agreement (LSAA) through the CDFW. This applies to any channel modifications that will be required to meet drainage, transportation, or flood control objectives of the project.

2.2.2.3 NESTING BIRDS AND RAPTORS

Section 3503 of the FGC states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 provides protection for all birds of prey, including their eggs and nests.

2.2.2.4 MIGRATORY BIRD PROTECTION

Take or possession any migratory non-game bird as designated in the MBTA is prohibited by FGC section 3513.

2.2.2.5 FULLY PROTECTED SPECIES

The FGC provides protection from take for a variety of species, referred to as fully protected species. Except for take related to scientific research, all take of fully protected species is prohibited. Section 5050 of the FGC lists protected amphibians and reptiles, and section 5515 prohibits take of fully protected fish species. A list of fully protected birds, which also applies to their eggs and nests, is included under section 3511. Migratory nongame birds are protected under section 3800, and mammals are protected under section 4700.

2.2.2.6 NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act (NPPA) of 1977 (FGC sections 1900-1913) directed the California Department of Fish and Game (CDFG; now known as CDFW) to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare," and protect endangered and rare plants from take. The NPPA thus includes measures to preserve, protect, and enhance rare and endangered native plants.

CESA has largely superseded NPPA for all plants designated as endangered by the NPPA. The NPPA nevertheless provides limitations on take of rare and endangered species as follows: "...no person will import into this state, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the CESA. Individual land owners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material.

2.2.3 California Desert Native Plants Act

The California Desert Native Plants Act (CDNPA) protects non-listed California desert native plants from unlawful harvesting on public and private lands in the counties of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego (California Food and Agriculture Code, Sections 80001-80006, Division 23). A number of desert plants are protected under this act, including all species in the agave and cactus families. Harvest, transport, sale, or possession of specific native desert plants is prohibited unless a person has a valid permit, or wood receipt, and the required tags and seals.

This provision excludes any plant that is declared to be a rare, endangered, or threatened species by federal or state law or regulations, including, but not limited to, the California Fish and Game Code. The fee for the permit to remove any of these plants will not be less than \$1 per plant, except for Joshua trees (*Yucca brevifolia*), which will not be less than \$2 per plant.

2.2.4 California Porter-Cologne Water Quality Act

The Regional Water Quality Control Board (RWQCB) regulates discharge of waste in any region that could affect the Waters of the State under the California Porter-Cologne Water Quality Act. Under the Porter-Cologne Act, a Report of Waste Discharge must be submitted prior to discharging waste, or proposing to discharge waste, within any region that could affect the quality of the Waters of the State (California Water Code Section 13260). Waste Discharge Requirements (WDRs) or a waiver of WDRs will then be issued by the RWQCB. Waters of the State are defined as any surface water or groundwater, including saline waters that are within the boundaries of the state (California Codes: Public Resource Code Section 71200). This differs from the CWA definition of waters of the U.S. by its inclusion of groundwater and waters outside the ordinary high water mark in its jurisdiction.

2.2.5 California Environmental Quality Act

The CEQA was adopted in 1970 and applies to discretionary actions directly undertaken, financed or permitted by State or local government lead agencies. CEQA requires that a project's effects on environmental resources must be analyzed and assessed using criteria determined by the lead agency. CEQA section 15380(b) defines a rare species in a broader sense than the definitions of threatened, endangered, or California species of concern. These criteria have been modeled after the definition in the Federal ESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. Under this definition, the CDFW can request additional consideration of species not otherwise protected.

2.2.5.1 CEQA SIGNIFICANCE CRITERIA

Section 15064.7 of the CEQA guidelines encourages local agencies to develop and publish the thresholds that the agency will use in determining the significance of environmental effects caused by projects or actions under its review. Appendix G of the CEQA guidelines provides thresholds to evaluate impacts that will normally be considered significant. Based upon these guidelines, impacts to biological resources will normally be considered significant if the project:

- Has 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 CDFW or USFWS;
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS;
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites; or
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether an impact to biological resources will be significant must consider both the resource itself and how that resource fits into a regional or local context. Significant impacts will be those that will diminish, or result in the loss of, an important biological resource, or those that will obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. The evaluation of impacts considers direct impacts, indirect impacts, cumulative impacts, as well as temporary and permanent impacts.

2.3 Local Regulations and Plans

2.3.1 Kern County General Plan

The Kern County General Plan (Kern County 2009) identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County during the decision-making process for any project that could affect biological resources.

The Land Use, Open Space, and Conservation Element of the Kern County General Plan provides for a variety of land uses to ensure future economic growth while also ensuring the conservation of the county's agricultural and natural resources. Section 1.10: General Provisions provides goals, policies, and implementation measures that typically apply to discretionary projects. Sections of the General Plan that are applicable to biological resources are listed below.

Chapter 1. Land Use, Open Space, and Conservation Element

1.10.5 Threatened and Endangered Species

Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with state and federal laws.

Policy 28. County should work closely with state and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29. County will seek cooperative efforts with local, state, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 30. County will promote public awareness of endangered species laws to help educate property owners and the development community of local, state, and federal programs concerning endangered species conservation issues.

Policy 31. Under the provisions of the CEQA, the county, as lead agency, will solicit comments from the CDFW and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.

Policy 32. Riparian areas will be managed in accordance with USACE and the CDFG rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measure Q. Discretionary projects shall consider effects to biological resources as required by the CEQA.

Implementation Measure R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to the CEQA.

Implementation Measure S. Pursue the development and implementation of conservation programs with state and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

1.10.10 Oak Tree Conservation

Policy 65. Oak woodlands and large oak trees shall be protected where possible and incorporated into project developments.

Policy 66. Promote the conservation of oak tree woodlands for their environmental value and scenic beauty.

Implementation Measure KK. The following applies to discretionary development projects (General Plan Amendment, zone change, conditional use permit, tract maps, parcel maps, precise development plan) that contain oak woodlands, which are defined as development parcels having canopy cover by oak trees of at least 10%, as determined from base line aerial photography or by site survey performed by a licensed or certified arborist or botanist. If this study is used in an Environmental Impact Report, then a Registered Professional Forester shall perform the necessary analysis.

- a) Development parcels containing oak woodlands are subject to a minimum canopy coverage retention standard of 30%. The consultant shall include recommendations regarding thinning and diseased tree removal in conjunction with the discretionary project.
- b) Use of aerial photography and a dot grid system shall be considered adequate in determining the required canopy coverage standard.
- c) Adjustments below 30% minimum canopy standard may be made based on a report to assess the management of oak woodlands.
- d) Discretionary development, within areas designated as meeting the minimum canopy standard, shall avoid the area beneath and within the trees unaltered dripline unless approved by a licensed or certified arborist or botanist.

Implementation Measure LL. The following applies to development of parcels having oak tree canopy cover of less than 10%, but containing individual oak trees equal to or greater than a 12-inch diameter trunk at 4.5 feet above the ground.

- a) Such trees shall be identified on plot plans.
- b) Discretionary development shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.
- c) Specified tree removal related to the discretionary action may be granted by the decision making body upon showing that a hardship exists based on substantial evidence in the record.

Kern County Energy Element of the General Plan

Section 5.4.5 under the Energy Element of the General Plan (Chapter 5) encourages development of commercial solar energy within the County.

- The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.
- The County should attempt to identify and remove disincentives to domestic and commercial solar energy development.
- The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

- The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Section 5.4.7 under the Energy Element of the General Plan (Chapter 5) encourages development of transmission lines in urban areas to limit impacts and identifies the following policies with respect to transmission line development:

- The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.
- The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.
- In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.
- The County should work with other agencies in establishing routes for proposed transmission lines.
- The County should discourage the siting of above-ground transmission lines in visually sensitive areas.
- The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.

3 METHODS

This section of the Biological Resources Technical Report identifies the methods and information sources used to describe and evaluate the biological resources at the proposed Camino Solar project. The first step was to conduct a search of literature and databases to identify biological resources that may occur at the project. These sources included species records from wildlife studies completed at or near the project, published literature, and SWCA biologists' professional judgment based on past work in the Antelope Valley.

The next step was to perform field surveys at the project property to characterize existing habitat conditions at the property, and conduct focused surveys for sensitive species expected to occur in the area. These field surveys were completed between 2015 and 2018, and the timing of surveys was based on the season. The survey methods were guided by the species considered potentially present in the area, review of the local, state, and federal regulations regarding sensitive biological resources and the environmental impacts of large projects, and survey guidelines published by CDFW and USFWS.

Project-specific studies on biological resources were supplemented with information from previous studies conducted in support of the Manzana and Tylerhorse wind energy projects between 2004 and 2016. Manzana is a 189-MW wind project located on private lands that began operations in December 2012 and is owned and operated by a wholly-owned subsidiary of Avangrid. It was originally called the PdV Wind Project. Avangrid also proposed the development of the 60-MW Tylerhorse Wind Project on BLM lands adjacent to the Manzana project boundary, including the BLM parcel that is under analysis for Camino Solar. Surveys conducted for both of these projects partly overlap with the Camino Solar Project (Figure 5). Development plans for the Tylerhorse project were abandoned in 2015 due market constraints.

Field survey plans and methodologies were developed in coordination with the BLM. A Biological Resources Work Plan detailing the surveys conducted and planned for the project was prepared and transmitted to the BLM on May 6, 2016. Following BLM input, the plan was revised and finalized on June 20, 2016 (Appendix A). The field survey plans were developed primarily with the aim of collecting the environmental data needed to provide substantial evidence to analyze the project's environmental impacts. Field surveys also served to identify natural resources constraints that informed the design of the project. During development of the survey plans, SWCA biologists review survey recommendations and guidelines published by CDFW, USFWS, and BLM, including resource-specific methods and location-specific recommendations in the DRECP (BLM 2016).

3.1 Definition of Sensitive Biological Resources

For the purposes of this study, sensitive biological resources were defined to include species, subspecies, varieties, and populations recognized by BLM, CDFW or USFWS, and which have been classified into one or more of the following categories:

- Listed, proposed for listing, or candidate for listing as threatened or endangered under the ESA;
- Listed, candidate, or proposed for listing as threatened or endangered under CESA;
- Protected under the federal BGEPA;
- Considered Species of Special Concern (SSC) by CDFW;
- Protected by the California FGC sections 460, 3511, 4700, 5050, or 5515;
- Designated as sensitive species by the BLM (BLM, 2010);

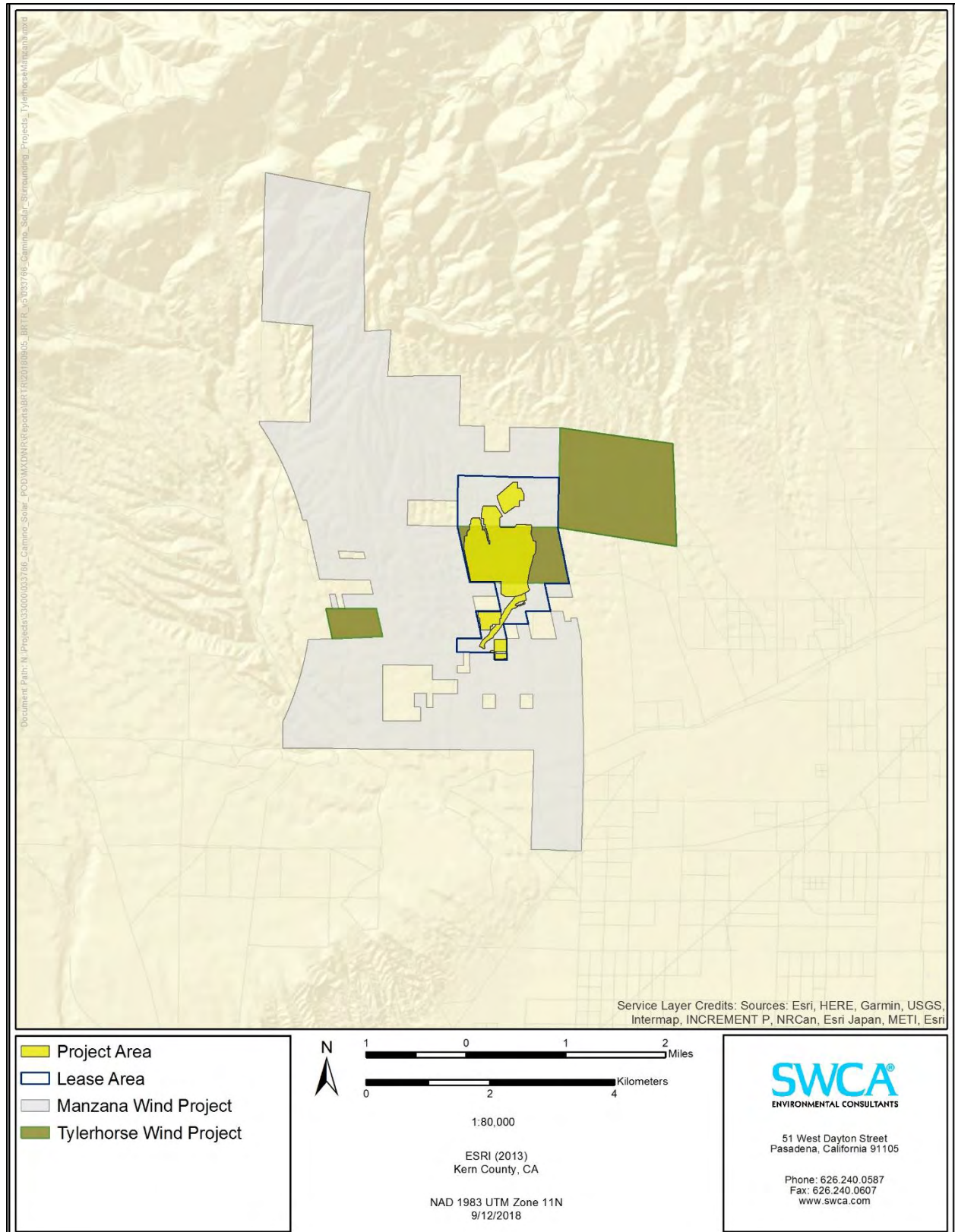


Figure 5. Location of the Operational Manzana and Previously Proposed Tylerhorse Wind Projects Relative to the Currently Proposed Project.

- Listed as rare under the California NPPA (FGC Sections 1900-1913);
- Meet the definitions of rare or endangered under CEQA;
 - Plants considered to be rare, threatened, or endangered in California by the California Native Plant Society (CNPS) (with California Rare Plant Rank [CRPR] of 1 or 2;
- Listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (CRPR 3 and 4 in CNPS) that may be included on the basis of local significance or recent biological information; or
- Of specific expressed concern to resource/regulatory agencies, or local jurisdictions (hereafter referred to as locally important).

The DRECP identifies 37 focus species and 2 planning species, all of which meet at least one of the criteria above. In addition to species, some other types of resources are considered sensitive for the purposes of this report, including:

- Streams, wetlands, riparian habitats, and other aquatic features subject to the jurisdiction of CDFW, RWQCB, or USACE;
- Natural communities recognized by the CDFW as being of special concern (ranked 1, 2, or 3 on the sensitive natural communities list); and
- Special vegetation features identified in the DRECP (saguaro cactus [*Carnegiea gigantea*], yucca [*Yucca* sp.] clones, and creosote [*Larrea tridentata*] rings)

Throughout this document, species, subspecies, varieties, and populations are broadly referred to as “species,” a term which is intended to encompass whichever pertinent taxonomic levels that are recognized by the state and federal authorities with jurisdiction over plants and animals. Resources that meet any of the above definitions are described as sensitive or special-status throughout this report.

The information obtained from the literature and database searches were reviewed to identify a list of sensitive biological resources with the potential to occur at the project property, due to its location within the species’ known range, previously recorded occurrences within or near the project property, and/or the presence of suitable habitat. The field surveys planned for the project were informed by the results of the habitat assessment for species potentially occurring at the project site.

3.2 Database and Literature Reviews

Information regarding the biological resources in the vicinity of the project study area was obtained by reviewing available data from a number of resources. The data review included a search of existing databases, inventories, lists, and collections that contain information regarding the occurrence of special-status species. Resources used in this review included the following:

Local records of plants and animals:

- California Natural Diversity Database (CNDDDB) records within the nine USGS 7.5-minute quadrangles that include and surround the project
- CNPS online inventory of rare and endangered plants of California
- Consortium of California Herbaria (CCH; CCH 2017)
- eBird, a real-time online birdwatching checklist for reporting and accessing information about birds
- USFWS critical habitat (2016a)

- EIR for the Manzanita (PdV) Wind Power Project (Kern County 2007)
- Draft EIS/EIR for the formerly proposed Tylerhorse Wind Project, which partly overlaps with the project (BLM 2014)

Background information about plants and animals:

- CDFW Special Vascular Plants, Bryophytes, and Lichens List (CNDDDB 2017).
- CDFW Special Animals List (CNDDDB 2017)
- *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California* (Shuford and Gardali 2008)
- Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986; Holland 1992).

Imagery, and information about soils and surface waters:

- Aerial photographs on Google Earth, Version 7.1.2.2041 (Google Earth, Inc. 2017)
- USFWS National Wetlands Inventory (NWI) database (USFWS 2016b)
- USGS 7.5-minute series topographic quadrangle map for Tylerhorse Canyon
- The National Hydrography Dataset (available at: <https://nhd.usgs.gov/>)
- The USACE *Wetlands Delineation Manual* (USACE 1987)
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region: Version 2.0* (USACE 2008)
- A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley 2008)
- *The National Wetland Plant List: 2016 wetland ratings* (Lichvar et al. 2016)

For databases with geographic search capabilities, specifically the CNDDDB, CNPS, and CCH, records from the nine USGS 7.5-minute quadrangles containing and surrounding the project were queried:

- Tylerhorse Canyon,
- Liebre Twins,
- Willow Springs,
- Cummings Mountain,
- Tehachapi South,
- Monolith,
- Neenach School,
- Fairmont Butte, and
- Little Buttes.

Species recorded within the nine-quadrangle search area were considered as potentially occurring at the project area on a preliminary basis, and evaluated for their potential to be present at the project based on an assessment of their habitat requirements and any records within the project area.

3.2.1 Previously Conducted Biological Resource Studies

Numerous biological studies have been conducted at and around the project site in support of the Manzanita Wind Project (operational since December 2012) and the previously planned Tylerhorse Wind Project, which surround and overlap the Camino Solar Project. Past surveys were adequate to support the certification of an Environmental Impact Report and other permitting requirements for Manzanita, and the publication of a Draft EIS for the Tylerhorse Wind Energy Project. Relevant information from the past studies are incorporated into this BRTR; specifically, referenced studies include the following biological reports:

- Manzanita (formerly PdV) EIR (Kern County 2007):
 - Appendix C to the EIR: Biological Resources Technical Report (Sapphos Environmental, Inc. [Sapphos] 2006)
- Tylerhorse Draft EIS (BLM 2014):
 - Appendix C-1 to the Draft EIS: The Biological Resources Technical Report (BRTR) for the Tylerhorse Wind Energy Project (Sapphos Environmental, Inc. 2011)
 - Appendix C-2 to the Draft EIS: Addendum to the Biological Resources Technical Report for the Tylerhorse Wind Energy Project (Sapphos Environmental, Inc. 2013)
 - Appendix C-3 to the Draft EIS: Addendum No. 2 to the Biological Resources Technical Report for the Tylerhorse Wind Energy Project (Sapphos Environmental, Inc. 2014)
- Post-construction avian surveys conducted for the Manzanita Wind project (SWCA 2017)

3.3 Potential to Support Special-status Species

The potential for each species to occur within the project area was determined based on an evaluation of the local records, field surveys conducted by SWCA and others, habitat available at the site, and consideration of the species' habitat requirements. The following definitions were used to classify the potential for occurrence of each special-status species.

Present: Taxon (species or subspecies) was observed within the project site during surveys or has been recently documented at the project site.

High: Both a documented record exists of the taxon within the project site or immediate vicinity (five [5] miles) and the environmental conditions (including soil type and vegetation communities) associated with taxon presence occur within the project site; however, this taxon was not detected during project site biological surveys.

Moderate: Either a documented record exists of the taxon within the immediate vicinity of the project site (five [5] miles) or the environmental conditions (including soil type and vegetation communities) associated with taxon presence occur within the project site and the project site is within the known distribution for this taxon.

Low: No records exist of the taxon occurring within the project site or immediate vicinity (five [5] miles), and/or the environmental conditions (including soil type, vegetation, and elevation factors) associated with taxon presence are marginal within the project site.

Not Likely to Occur: No known records exist and the project site lacks suitable habitat requirements (including soil, vegetation, and elevation factors).

3.4 Plant Community Mapping

Plant community mapping was conducted in April 2016 to characterize the plant communities and other cover types that occur at the project property. A supplemental survey was conducted in April and May of

2018 to extend the vegetation community map beyond the project footprint. The results of the plant community mapping were used to establish whether any state-designated natural communities of special concern were present, including riparian communities, and to inform the assessment of whether suitable habitat was present for sensitive plants or animals.

Plant communities and land cover types were mapped by SWCA botanists on April 20–22, 2016; and April 19, 20, 30, and May 1, 2018. The botanists traversed the entire project site on foot to evaluate the plant communities present at the site. Plant communities were mapped to a 0.25-acre minimum mapping unit and classified according to the vegetation alliances described by *A Manual of California Vegetation* (MCV; Sawyer et al. 2009). The MCV does not have classifications for areas mostly devoid of vegetation, or for vegetation communities dominated by non-native plants unless they have potential habitat value for native species. Such areas do not have any standard set of descriptors, and are described as “land cover” types in this report.

The vegetation mapping in both the DRECP and the MCV follow the National Vegetation Classification (NVC) system, which categorizes vegetation into an eight-level hierarchy (Federal Geographic Data Committee 2008). Alliance, the main unit used in the MCV, corresponds to NVC level 7, where level 1 (Formation Class) is the broadest hierarchical level and 8 (Association) is the finest (U.S. National Vegetation Classification [USNVC] 2016). Because of the large area analyzed in the DRECP, few areas have been field-verified, and classifications of alliance and higher are used. However, some parts of the plan area were categorized based on aerial imagery to the alliance level, including the western Mojave Desert where the project is located (Menke et al. 2013).

3.5 Jurisdictional Waters and Riparian Habitats

SWCA conducted a routine field delineation of the BLM parcel in December 2015 to provide a current description of conditions at the site. A field delineation of the BLM parcel had not been conducted in support of the Tylerhorse project; instead, biologists assumed that features shown as blue-line drainages portrayed on the USGS 7.5-minute topographic quadrangle were accurate and jurisdictional (Sapphos 2011). In October 2015 a severe storm described as a “1,000-year” event produced heavy rains, mud flows, and severe flooding on both the north- and south-facing slopes of the eastern Tehachapi Mountains. The flooding caused stream channel modifications in some areas of the Antelope Valley, including some of the drainages near the project.

The jurisdictional delineation of wetlands and waters on the BLM-administered parcel in the project was conducted by an SWCA biologist on December 30, 2015 to determine the structure and composition of on-site hydrology, vegetation, and soils within the BLM-administered parcel at the project. The delineation of the waters of the U.S., waters of the State, and the associated CDFW jurisdictional areas on the project site was completed by conducting a pre-survey literature review, followed by a field survey. The literature review was used to guide the field survey and to locate areas of potential jurisdictional waters.

Potential jurisdictional water features within the project area were mapped using a Trimble GeoXT handheld global positioning system (GPS) unit with ESRI ArcPad 10 software, then used ESRI ArcGIS 10 software to compile the data into a database for future analysis. Plants that could not be identified in the field were collected and later identified using *The Jepson Manual: Vascular Plants of California 2nd Edition* (Baldwin et al. 2012).

Subsequent to the delineation of the BLM parcel, SWCA conducted a desktop review of aerial imagery, literature, databases, and recent photographs of the project site to evaluate the potential jurisdictional resources in the project on the privately held lands. Based on this review, it was determined that a field delineation was not needed for those portions of the project site.

In the DRECP, certain riparian and wetland vegetation types are given special consideration, and trigger avoidance measures to the maximum extent practicable and setbacks of up to 0.25 mile, although minor incursions that preserve the functions and values can be permitted on a case-by-case basis (Table 2; BLM 2016). The riparian vegetation types that require setbacks are not listed as alliances, but rather higher levels in the NVC hierarchy; each includes multiple vegetation alliances.

Table 2. Riparian and Wetlands Avoidance and Setbacks in the DRECP Plan Area (from BLM 2016)

Riparian and Wetland Vegetation Types or Features	Setback
<i>Riparian Vegetation Types¹</i>	
Madrean Warm Semi-Desert Wash Woodland/Scrub	200 feet
Mojavean Semi-Desert Wash Scrub	200 feet
Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub	200 feet
Southwestern North American Riparian Evergreen and Deciduous Woodland	0.25 mile
Southwestern North American Riparian/Wash Scrub	0.25 mile
<i>Wetland Vegetation Types¹</i>	
Arid west freshwater emergent marsh	0.25 mile
Californian Warm Temperate Marsh/Seep	0.25 mile
<i>Other Riparian and Wetland Related Features</i>	
Managed Wetlands ²	0.25 mile
Mojave River ³	0.25 mile
Undifferentiated Riparian land cover ⁴	200 feet

¹ Setbacks are measured from the edge of the mapped riparian or wetland vegetation or water feature per DRECP Conservation and Management Action LUPA-BIO-3.

² Setback is from managed wetlands including USFWS Refuges, state managed wetlands, and duck clubs in Imperial Valley. See specifications for the Salton Sea below.

³ Setback is measured from the edge of mapped riparian or edge of FEMA 100-year floodplain of the Mojave River, whichever is further from the center line of the Mojave River channel.

⁴ Undifferentiated "Riparian" land cover includes portions of major river courses (Mojave River and Colorado River) within the main channels where riparian vegetation groups were not mapped.

3.6 Field Surveys for Plants and Wildlife

This section provides a detailed description of the field survey efforts planned to support the environmental permitting requirements of the project. SWCA biologists Alex Beakes (botanist), Michael Cady (senior biologist), Robert Fitch (botanist), Sunny Lee (wildlife biologist), Francesca Massarotto (wildlife biologist), and Rico Ramirez (botanist) conducted reconnaissance and directed surveys for sensitive plants, animals, and other biological resources at the project property in December 2015, spring and summer 2016, and spring 2018; some survey types were implemented more than once to cover the blooming periods for rare plants and to survey for special status animals during the appropriate species-specific periods. All plants and wildlife encountered were identified and, for sensitive species, the location was recorded on a

GPS unit. Pertinent notes were recorded in the field and later added to a geodatabase created specifically for the project. Field surveys described in this report were undertaken between December 2015 and May 2018. All of the biologists have extensive experience conducting biological surveys throughout Southern California, and specifically in the Antelope Valley; biologists' resumes were submitted to BLM in 2016 with the Biological Resources Work Plan (Appendix A). One additional biologist, Robert Fitch, participated in the botanical survey in 2018, his resume is also attached (Appendix B).

During some fieldwork, surveys were conducted simultaneously for rare plants, desert tortoise, and burrowing owl (*Athene cunicularia*). The surveys were conducted contemporaneously when the survey methods, including transect spacing and timing, were compatible among multiple resources. The chances of overlooking resources is low, because there is a solid foundation of biological information about the site. Field surveys have been conducted for biological resources across most of the project site more than once by SWCA and as a part of previous studies. Visibility, and therefore survey effectiveness, at the project site is very good, due to the short vegetation and lack of topographic relief, so the ability of observers to detect sensitive species was high. Moreover, the dominance of weeds and grazing across much of the project site means that relatively few native species remain. Concurrent surveys for fossorial species are particularly appropriate because the methodologies necessitate the inspection and recording of virtually all burrows present, regardless of their characteristics.

The field survey methods were reviewed and approved by BLM in the Biological Resources Work Plan (Appendix A). The field surveys covered the entire project area as defined at the time of each survey, as well as appropriate resource-specific buffers. The existing Manzana O&M facility was not surveyed for biological resources during studies for the Camino Solar Project, because it has been completely developed and lacks vegetation and habitat for wildlife. The potential battery storage area was identified and added to the project area in early 2017, so it was included only in the field surveys (plant community mapping and rare plant surveys) completed in 2018.

3.6.1 *Plants*

SWCA biologists completed surveys for sensitive plants using methods consistent with the survey guidelines of BLM, CDFW, and CNPS (BLM 2009, BLM 2010, CDFW 2009, CNPS 2001). Prior to conducting the field survey, local records of sensitive plants were reviewed to determine the species that may potentially occur at the site. The records were queried from the online databases of the CNDDDB, CNPS Rare Plant Inventory, and the CCH. The search area of the queries was the nine USGS 7.5-minute topographic quadrangles that include and surround the project. Information regarding the macro- and micro-habitat requirements of these species was considered, and sensitive species that might have suitable habitat at the site were the focus of the field survey.

Consistent with the methodology described in Sections 3.1 through 3.2, relevant botanical information for the site was compiled and reviewed by the surveying botanists. Four visits to conduct surveys were made, in spring of 2016 and 2018. The surveys were timed to maximize the chances of detecting the sensitive species that may be present. Specifically, the surveys were timed to overlap the bloom period of as many sensitive species as possible, especially plants with a CRPR of 1 or 2, except for perennials that can be identified at any time. Consistent with the CDFW rare plant survey protocol, the surveys were floristic in nature, identifying every plant taxon that occurs on-site to the level necessary to determine rarity and listing status.

On April 20, 2016, SWCA botanists Alex Beakes and Rico Ramirez visited a local population of Clokey's cryptantha (*Cryptantha clokeyi*), and confirmed that individuals of this species were blooming and identifiable. On April 20–22, the botanists conducted a pedestrian survey of the entire site (as it was defined at the time) over three days, using a combination of a transect-based and intuitive controlled survey methods

(Figure 6). At the time of the survey it was sunny, with minimal cloud cover, and mild winds with gusts under 10 miles per hour (mph). The botanists walked transects spaced at most 33 feet (10 meters) apart throughout the entire site, and also spent extra time intensively surveying areas of higher diversity (e.g. near the drainages, and in native-dominated plant communities) and where the sensitive plants were most likely to occur. The survey was floristic in nature; every plant taxon encountered was identified to the taxonomic level necessary to determine its rarity and listing status. The methods and results of the April 2016 botanical survey were included in a memorandum report (Appendix C).

A second botanical survey was conducted in 2016 on May 17–20 by Mr. Lee, Ms. Massarotto, and Mr. Ramirez. The survey was completed concurrent with the survey for desert tortoise and burrowing owl. Survey conditions varied during the three-day survey period with temperatures ranging from 52°F to 81°F, variable cloud cover, and winds between 5 and 25 mph. At this time, areas suitable for desert tortoise were surveyed using pedestrian transects spaced 33 feet (10 meters) apart, and other areas were surveyed using transects spaced approximately 66 feet (20 meters) apart, consistent with the guidelines for each survey type. Transects spaced farther apart were used in most areas for the second survey because the project area had already been covered once. The rare plant survey component of this field effort was led by botanical specialist Mr. Ramirez, who was responsible for plant identification during the survey.

During the 2016 surveys 100% visual coverage was achieved of the project site as it was identified at the time of the surveys, which did not include the potential battery storage area. The surveys overlapped the blooming period of all of the plants with a CRPR of 1 or 2 which were determined to have a potential to occur of Low, Moderate or High. The botanists recorded the locations of any plants covered under the CDNPA and/or described as Special Vegetation Features in the DRECP including species in the family Agavaceae (including Joshua trees and other yuccas), species in the family Cactaceae (cacti), and creosote ring clones.

Another complete botanical survey was conducted on April 19, 20, 30, and May 1, 2018, by Mr. Beakes, Mr. Fitch, and Mr. Ramirez. Survey conditions on April 19 were sunny with wind speeds between 60 and 80 mph, temperatures ranging from 40°F to 75°F, and cloud cover at approximately 0%. On the other survey dates the winds were between 15 and 25 mph. Conditions were generally clear and sunny, except on May 1, when cloud cover increased to 30% and a light drizzle in the early afternoon. Transects were spaced at 66 feet (20 meters) apart in grasslands and other vegetation communities with high visibility and at 33 feet (10 meters) or less in washes and areas with reduced visibility.

The 2018 survey covered the remainder of any parcels that intersect with the project including the potential battery storage area; during this survey, botanists did not document the locations of plants covered under the CDNPA and/or described as Special Vegetation Features in the DRECP.

3.6.2 Wildlife

Wildlife use of the project site was recorded based on a combination of directed surveys and incidental encounters. The methods used for directed wildlife surveys are described in this section.

3.6.2.1 DESERT TORTOISE

Desert tortoise is listed as threatened pursuant to both CESA and the federal ESA, and is known to occur in parts of Kern County. USFWS has published a survey protocol for desert tortoise which requires a pedestrian survey of all suitable habitat in areas that may be impacted (USFWS 2010). In the protocol, *Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise*, USFWS recommends that the survey be conducted in April, May, September, and/or October when desert tortoises are most likely to be active above ground due to temperatures being below 104°F.

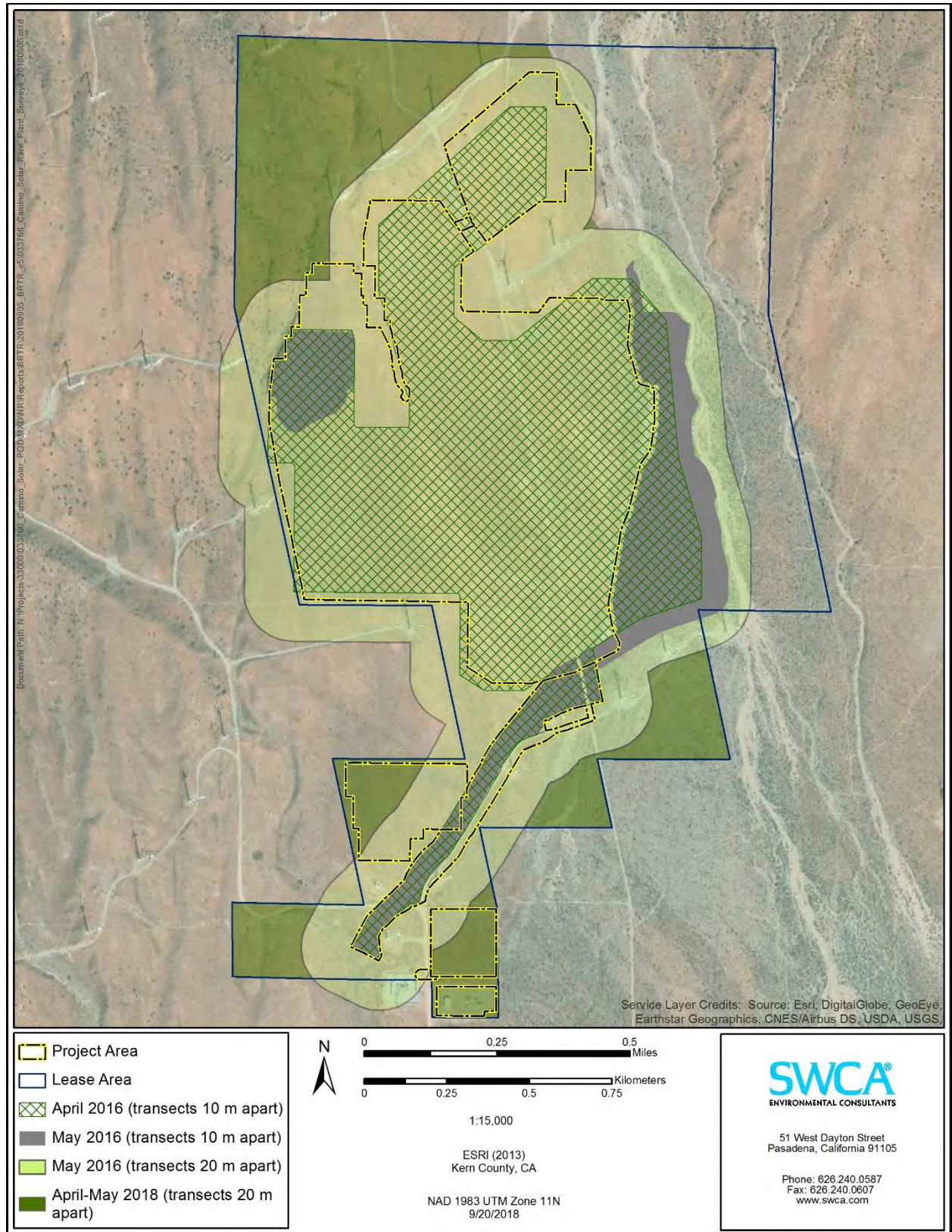


Figure 6. Survey Area for Sensitive Plants.

A team of three SWCA biologists—Ms. Massarotto, Mr. Ramirez, and Mr. Lee—surveyed the project areas using methods consistent with the USFWS protocol on May 17-20, 2016 (USFWS 2010). As recommended, the biologists walked along parallel transects spaced no more than 10 m (~30 feet) apart throughout suitable habitats in the project area (Figure 7). A 100% coverage survey was completed with 10-m-wide transects that were completed with the “simple systematic” methodology in all areas with suitable desert tortoise habitat. These transects were measured and executed by the field biologists during the survey. The first transect was completed along the border of the suitable habitat, and each subsequent transect was spaced 10 m (~30 feet) from the preceding transect. Repeatedly surveying 10 m (~30 feet) from the previously surveyed transect ensures consistent spacing through the survey area. Data sheets were to be filled out whenever desert tortoise, sign, or potential sign was observed. However, no desert tortoise or their sign was ever observed during the survey; because of this, only field notes were taken, and no USFWS protocol data sheets were filled out.

Survey conditions varied during the four-day survey period with temperatures ranging from 52°F to 81°F, variable levels of precipitation, cloud cover, and winds estimated between 5 and 25 mph. Surveys began between 8:00 AM and 11:00 AM, and concluded at approximately 6:30 PM. During the survey, the biologists searched for desert tortoises, carcasses, scat, burrows, or other signs of the species’ presence. Biologists were to describe any signs encountered in notes, record the location on a GPS unit, and photograph; however, no signs were observed.

Concurrent surveys for fossorial species are appropriate because the surveys necessitate the inspection and recording of virtually all burrows present, regardless of the characteristics. Each burrow was examined for evidence of occupation and its status (active or inactive) recorded. Using this technique eliminated redundancies in burrow observations that separate burrowing owl and desert tortoise surveys will have produced. The biologists searched for and were to record any desert tortoise and their sign, including burrows, carcasses, scat, pellets, and drinking sites. No desert tortoise or their sign were observed during the field surveys.

Due to the presence of potentially suitable habitat for desert tortoise, the project site has been surveyed for desert tortoise three times since 2004; surveys prior to 2016 were conducted in support of the Manzanita and Tylerhorse projects (Sapphos 2006, 2011, 2013).

3.6.2.2 BIRDS

Extensive avian surveys were conducted within the approved Manzanita wind project and the draft EIS for the Tylerhorse project.

Burrowing Owl

Burrowing owl is a subterranean nesting bird that occurs in open grasslands, deserts, and scrublands and may occur near the project based on past observations and suitable habitat near the project. In 2016, SWCA biologists conducted a burrowing owl survey at the project site based on the most current CDFW guidelines (CDFW 2012). These guidelines recommend conducting a survey in three phases: 1) habitat assessment, 2) transect surveys to record all potential burrowing owl burrows, and 3) follow-up visits to determine occupancy of burrows by burrowing owls. Minor variations in survey timing from the recommendations in the guidelines were necessitated by schedule constraints, and are not expected to materially affect the survey results: 1) the first survey was conducted on April 20, 21, and 22, one week after the recommended period of February 15 through April 15; and 2) the third and fourth follow-up surveys were conducted two weeks apart rather than the three weeks recommended.

The phase one habitat assessment was conducted concurrently with the vegetation community mapping and first rare plant survey on April 20, 21, and 22, 2016. The purpose of this initial visit was to map vegetation

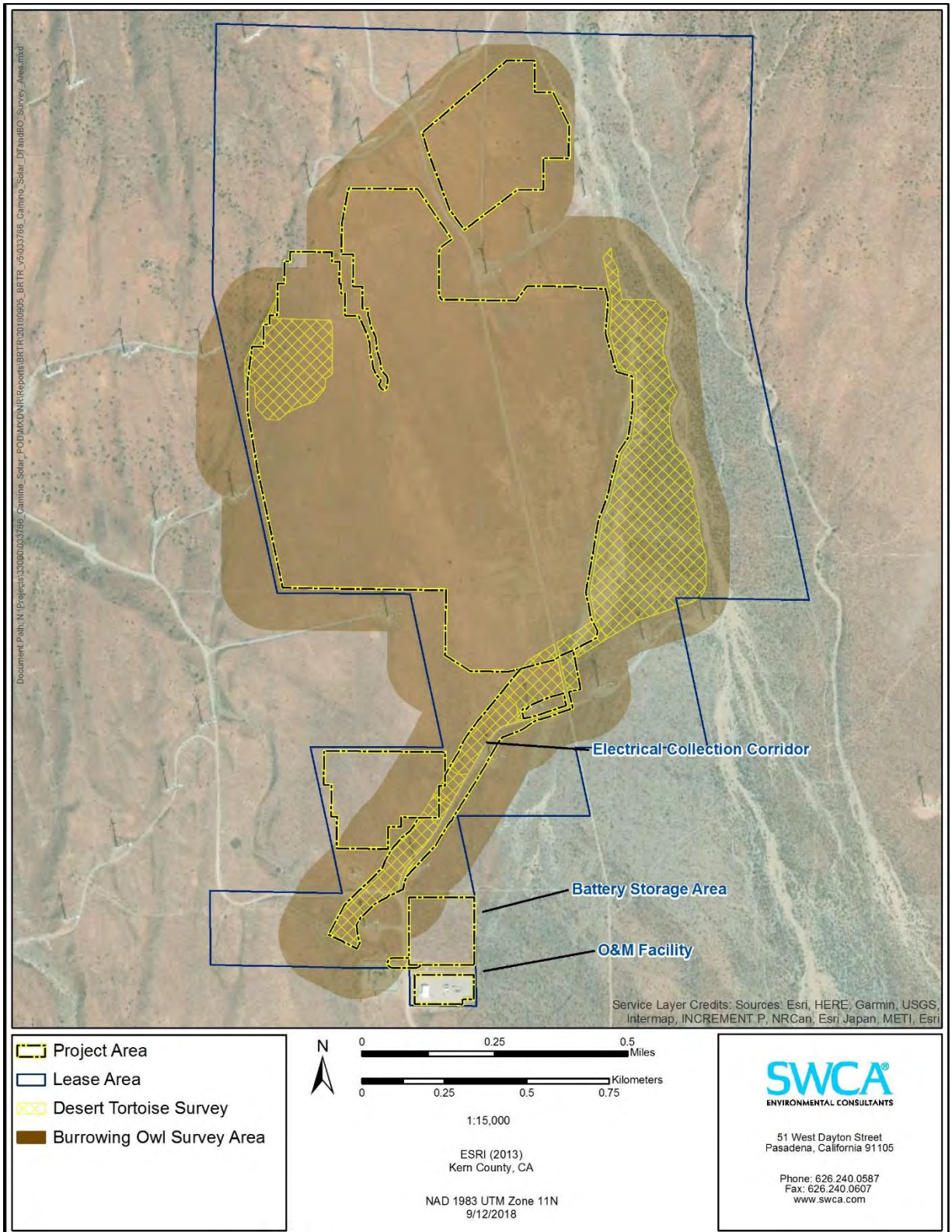


Figure 7. Desert Tortoise and Burrowing Owl Survey Areas

communities and assess habitat within the project area and areas within 150 meters (~492 feet) of the project area. Consistent with the methodology described in Sections 3.1 through 3.2 of CDFW guidelines (2012), relevant biological information for the site was compiled and reviewed by the surveying biologists.

The second phase, to observe burrowing owl individuals or pairs and identify suitable burrows for burrowing owls, was conducted on May 17, 18, 19, and 20, 2016 concurrently with the rare plant (second phase) and desert tortoise protocol-level surveys. SWCA biologists Ms. Massarotto, Mr. Ramirez, and Mr. Lee, walked parallel transects spaced approximately 10–20 m (~33–66 feet) apart as appropriate (10 m in suitable habitat for desert tortoise, 20 m otherwise). Consistent with the CDFW survey protocol, transect spacing up to 20 m apart is appropriate in areas with low vegetation height and good visibility, which is the case in all areas of the project outside of the desert tortoise survey areas. The survey extended outside the project area to include a 500-foot buffer around the project site as it was defined at the time (see Figure 7). A buffer around the fenced area was subsequently added to the project site, reducing the effective buffer in some areas to a minimum of 400 feet. Each potentially suitable burrow, burrowing owl, or sign of burrowing owl (feathers, pellets, prey remains, burrow decorations, etc.) was recorded on a GPS unit. Potentially suitable burrows are at least 11 cm (~4.3 inches) in diameter and at least 150 cm (~5 feet long; CDFW 2012). Weather conditions varied during the three-day survey period with temperatures ranging from 52°F to 81°F, variable wind speeds and cloud cover. This survey was conducted concurrently with the rare plant survey because the pedestrian transect spacing was the same.

The third phase, to complete follow-up visits to potential breeding burrows, was conducted in June and July 2016. Each potentially suitable burrow was revisited on June 8, June 30, and July 15, 2016, to determine the occupancy status of the burrows at the project site.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed as threatened under CESA and is known to nest in small numbers in the Antelope Valley. The California Energy Commission (CEC) and CDFG published a survey protocol for this species specific to the Antelope Valley (CEC and CDFG 2010). The protocol includes repeated visits to potential nest sites within 5 miles of a project throughout the nesting season, which is divided into four periods. In the Antelope Valley, trees used for nest sites include Joshua trees and dense non-native trees such as willow (*Salix* sp.), elm (*Ulmus* sp.), Aleppo pine (*Pinus halepensis*), tamarisk (*Tamarix* sp.), and an unspecified locust, most likely honey locust (*Robinia pseudoacacia*) (Bloom 1980). Occupied nests in the Antelope Valley occur in a wide range of contexts including wind rows along agricultural fields and road edges, at residences, and in isolated areas. Unlike the nests of most small birds, raptor nests are large and usually persist for multiple years; because of their persistence, surveys outside the nesting season can effectively locate nests, although identification of the species using the nest cannot always be made.

Prior to conducting the field survey, SWCA reviewed the CNDDDB for records of nesting Swainson's hawk in the project vicinity. SWCA biologists reviewed aerial imagery within the 5-mile buffer around the project and identified areas with potential nest sites (Joshua trees and other trees) for a focused survey (Figure 8). Juniper woodlands and forested areas in the Tehachapi foothills were not considered potential nesting habitat per the survey protocol (CEC and CDFG 2010). The only potential suitable nest sites within the project itself are Joshua trees.

On May 3, 2016, an SWCA biologist experienced at identifying raptors and raptor nests, including Swainson's hawks conducted a survey of potential nest sites, searching for nesting Swainson's hawks. Prior to starting the survey, the biologist visited several nest sites, previously recorded in the CNDDDB, within 10 miles of the proposed project, including a cluster near the intersection of 100th Street West and West Avenue A, and second cluster south of Champagne Road and 100th Street West, to review Swainson's hawk nest

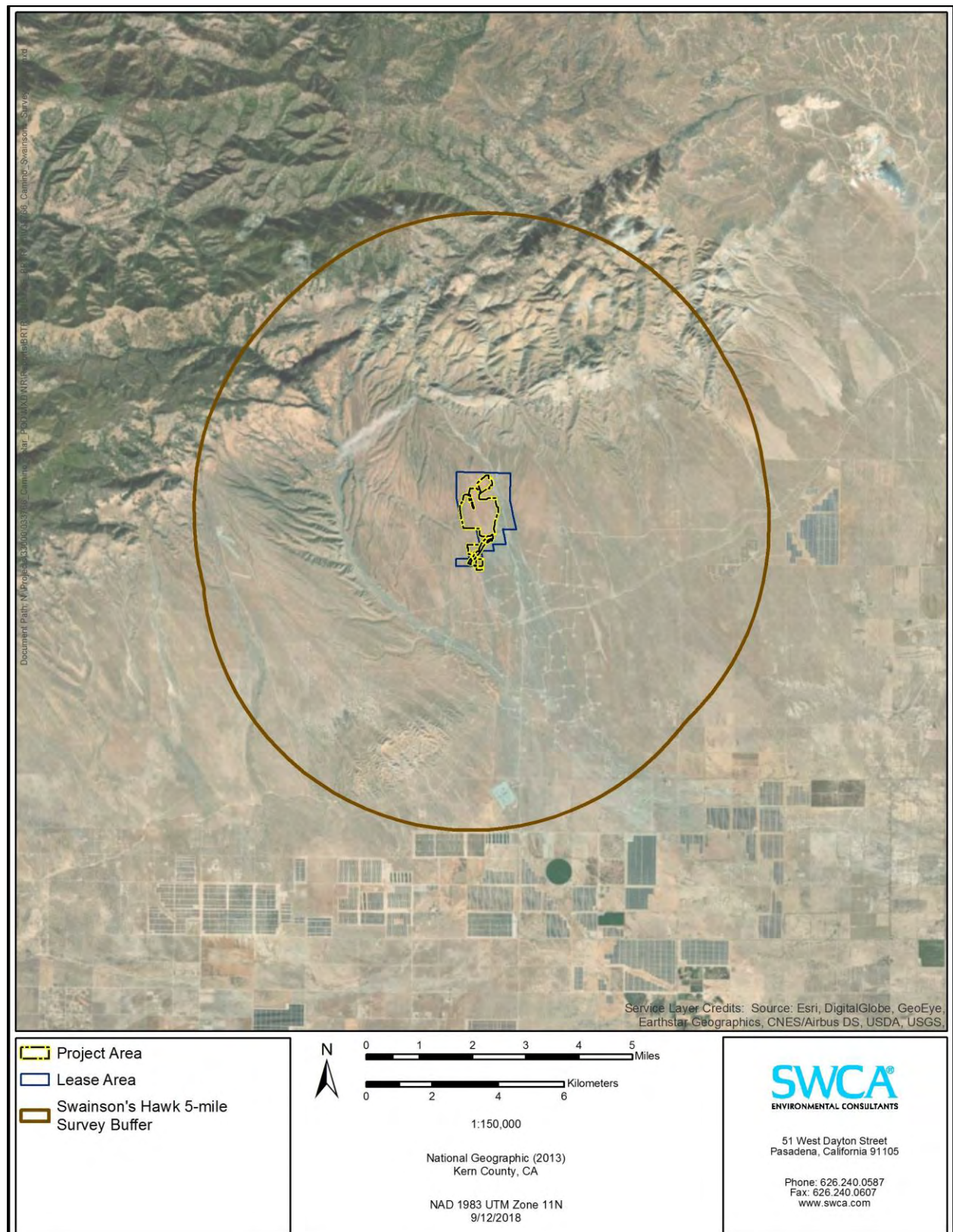


Figure 8. Swainson's Hawk Survey Area.

features and determine nest phenology. The biologist then conducted a windshield and pedestrian survey of potential nest sites within 5 miles of the proposed project. All large nests potentially occupied by common raven (*Corvus corax*) or raptors were watched until the occupancy status and species was determined.

Surveys conducted in support of the Manzana Wind Project that would be likely to identify nesting or migrating Swainson's hawks included ground-based surveys for nesting raptors in 2004, surveys of migrating birds in fall 2004, spring 2005, and fall 2005 (Sapphos 2006).

3.6.2.3 TERRESTRIAL MAMMALS

Field surveys focused specifically on small mammals were not conducted by SWCA. Sapphos conducted two trapping surveys for the Manzana Wind Project, which were focused within the project on the following habitat types; Non-native Grasslands, Joshua Tree Woodland, and Juniper Desert Scrub (Sapphos 2006). A total of 200 traps were set among two sites for four consecutive nights, separated by approximately 1.25 km (~0.78 mile). The first site was comprised of Non-native Grasslands (88 traps) and Joshua Tree Woodland (12 traps); the second site was comprised of entirely Mojavean Juniper Woodland and Scrub (100 traps). Data on age, sex, and species were documented for all captured small mammals. The special-status small mammal surveys were conducted according to the guidelines established by the American Society of Mammalogists (Gannon 2007).

Desert Kit Fox and American Badger

In May 2016, SWCA biologists Francesca Massarotto, Rico Ramirez, and Sunny Lee conducted surveys of the entire proposed project and recorded burrows and sign of desert kit fox (*Vulpes macrotis arsipus*). These surveys were conducted concurrently with the surveys for desert tortoise, and were conducted by biologists walking survey transects spaced 10–20 m (~33–66 feet) apart. The biologists recorded all potential kit fox and American badger (*Taxidea taxus*) dens, as well as sign such as scat, tracks, or prey remains. The entrances of kit fox dens are typically five to eight inches in diameter with one or more entrances. American badger dens often have scrapes along the sides of the entrance, and relatively large spoil piles in front of the entrance. Any potential dens were revisited on June 8, June 30, and July 15 to determine occupancy status. Detection of all potential desert kit fox and American badger dens is expected due to the relatively large size of desert kit fox and American badger dens in relation to both burrowing owl and desert tortoise. It is unlikely for the biologists to have missed the large dens of these two species.

3.6.2.4 INCIDENTAL OBSERVATIONS

Additional sensitive wildlife species, such as coast horned lizard (*Phrynosoma blainvillii*) may occur within the project, but do not have formal survey protocol requirements. Observations of these species made at any time by SWCA biologists were recorded as incidental observations. This includes both direct observations of individuals and signs such as dens, tracks, scat, fur, or carcasses.

4 RESULTS – EXISTING CONDITIONS

This section of the BRTR describes the baseline conditions for biological resources at the project site. Overall, the project site consists of grazed areas where non-native grasses are the predominant vegetation, and some plant communities native to the western Mojave Desert. An unimproved access road cuts through the site from north to south, and there are wind turbines and associated access roads on three sides of the project site. There are no residences or other structures on the site; other than grazing, use of the project site is limited. Representative site photos are included in Appendix D.

4.1 Regional Overview

The project area is located within the western Mojave Desert, a region that occurs between the southern, low elevation, hot Sonoran Desert and the northern, high elevation, relatively cool Great Basin. This approximately 25,000-square-mile region occurs in southeastern California and portions of Arizona, Nevada, and Utah. The Mojave Desert's western boundary is formed by the convergence of the Tehachapi and San Gabriel Mountains, and its southern boundary extends east of the San Bernardino Mountains to the Salton Sea, where it gradationally transitions into the Sonoran Desert. Most of the Mojave Desert lies at roughly 3,000 to 6,000 feet amsl, and it is therefore considered a high desert. However, the Mojave Desert encompasses a broad elevation range, including peaks that exceed 11,000 feet amsl and Death Valley, which has the lowest recorded elevation in North America, at 282 feet below mean sea level.

Much of the Mojave Desert consists of typical mountain and basin topography where basin-to-mountain transition zones support high levels of biodiversity and endemic species. Flatter portions of the desert floor are characterized by expansive playas, dry lakes and other ephemeral waters. These are interspersed with dunes, a geomorphology referred to as pan and dune complexes, that are covered with Joshua tree, saltbush species (*Atriplex* spp.), and Great Basin sagebrush (*Artemisia tridentata*). Fine wind-blown sand from dry lakebeds and river channels can create hummocks and dunes that support unique species of insects, plants, and reptiles. Slopes and bajadas in the region are covered with creosote bush, saltbush, bursage (*Ambrosia* spp.), and bladdersage (*Salazaria mexicana*). In years with sufficient rainfall, the desert floor vegetation communities will include an abundance of annual wildflowers. Most cactus species are found in areas with coarse, sandy soils, and higher elevations support blackbrush (*Coleogyne ramosissima*), Mojave yucca (*Y. schidigera*), and Spanish bayonet (*Y. baccata*).

4.2 Climate and Weather

The Mojave Desert; which includes more than 40,000 square miles in California, Arizona, and Nevada; is characterized by hot summer temperatures (average daily maxima above 100°F and low annual precipitation (approximately 5 inches). Daily temperature swings of 40°F can occur, with lows in the winter below or near freezing. Precipitation extremes are also common, with variations of 80% in annual precipitation and summer thunderstorms that can drop more precipitation on a site in one event than the mean yearly precipitation for that location. High winds can occur, with peak wind velocities above 50 mph not being uncommon and winds of 100 mph occurring yearly (BLM 2005b). The project's elevation at approximately 3,000 feet amsl means that its temperature regime is somewhat cooler and moister than most areas of the Mojave Desert, with summer high temperatures averaging approximately 95°F and average annual rainfall between 7 and 8 inches.

Deserts are defined by low rainfall, and the Mojave's latitude and location east and north of large mountains results in very low rainfall within the desert. The mountains on the western and southern boundaries of the desert result in a rain shadow on the desert side of the mountains where precipitation is far less than on the coastal side. Weather patterns and their resulting precipitation follow the seasonal patterns and variations. During the summer, the western edge of the Mojave Desert where the project is located is heavily influenced

by the dry southwest airflows resulting in the typically very dry weather. The influence of the southwest winds diminishes toward the eastern Mojave Desert, and this portion of the Mojave has a more continental influence and a weak to moderately monsoonal influence with considerable inter-annual variability, with the monsoon rains occurring in late summer (BLM 2005b).

4.3 Landforms and Geologic Features

The project area is situated on the gentle south-facing slopes below the Tehachapi Mountains, a relatively featureless portion in the northwestern Antelope Valley. This area is geographically defined by the intersection of the San Andreas and Garlock Faults and where the Tehachapi Mountains meet the Transverse Range. Geologically, the western Mojave Desert consists of predominantly Quaternary alluvial sediments deposited from source material in the granitic rocks of the surrounding Tehachapi Mountains, Coast Range, and San Gabriel Mountains. Isolated smaller hills of granite and volcanic material are scattered throughout the western Mojave Desert.

4.4 Watershed and Drainage Patterns

The Antelope Valley Watershed (HUC 18090206) is a closed basin in the western Mojave Desert, with the interconnected Rosamond, Buckhorn, and Rogers Dry Lakes as the central terminus of the watershed. The watershed is triangular, bordered on the southwest by the San Gabriel Mountains and the San Andreas Fault, on the northwest by the Tehachapi Mountains and the Garlock Fault, and on the east by hills and buttes generally following the eastern boundary line of Los Angeles and Kern Counties. Rosamond, Buckhorn, and Rogers Lakes and their tributaries (Antelope Valley Watershed) function as an isolated intrastate watershed system (USACE 2013).

4.5 Existing Uses in the Project Vicinity

The area surrounding the project has varying levels of human disturbance. There are several renewable energy projects within the project vicinity, including the Manzanita Wind Project to the north, west, and south; the Pacific Wind Energy Project to the southwest; and the approved Catalina Renewable Energy Project to the east (the solar energy element of the project is operational, the wind energy element has not been constructed). The lands north of the project are foothills of the Tehachapi Mountains, where vegetation communities are mostly natural, becoming forested at higher elevations. In the foothills are scattered unimproved roads, trails, residences, and a calcite mine. The lands south of the project consist of a mix of natural and semi-natural vegetation communities, with scattered residences and unpaved roads present. A number of utility-scale solar PV projects that are planned, under construction, or operational are located to the southwest, south, and east of the project, including the Rosamond Solar Array, Rosamond Solar Project, Antelope Valley Solar, and Recurrent Energy Astoria Solar.

The project site itself is mostly undeveloped, and has no residences on it. The only structure on the project site is the O&M facility for the Manzanita Wind Project. There is an unimproved road that runs generally north-south and bisects the project. This road accesses the mine to the north of the project, and is used as an access road within the operational Manzanita Wind Project. The private lands portion of the project is undeveloped. The BLM-administered portion of the project is used for livestock grazing approximately two to three weeks out of each year, and the habitats have been heavily influenced by this, as reflected in the predominance of non-native grasses. There is a poorly maintained barbed wire fence around the parcel.

4.6 Vegetation and Land Cover

4.6.1 Vegetation and Land Cover within the Project Site

SWCA biologists identified eight vegetation alliances within and bordering the project site, all of which are defined in the NVC and MCV, and are included in the California Natural Communities List (Sawyer et al. 2009; CDFW 2010; Table 3; Figure 9). The unimproved road that crosses through the project site was classified Disturbed/Developed, not as a vegetation community. Two of the plant communities, Joshua Tree Woodland and Scale Broom Scrub (*Lepidospartum squamatum* Shrubland Alliance), are considered sensitive natural communities by CDFW. The Scale Broom Scrub was located just outside the project boundary. The majority of the site was dominated by non-native grasses, which also provides some habitat for native species (see Figure 9). The Scale Broom Scrub bordering the eastern edge of the project site is a riparian plant community, and is one of the DRECP's Riparian and Wetland Vegetation Types or Features. The characteristics of each natural community and cover type are described in detail in this section.

Table 3. Vegetation alliances and cover types at the project

Plant Community or Cover Type	Global and State Rank ¹	Occurrence at the Project (Acres)
<i>Bromus rubens</i> – <i>Schismus</i> (<i>arabicus</i> , <i>barbatus</i>) Herbaceous Semi-Natural Alliance Red Brome or Mediterranean Grass Grasslands	-	277
<i>Juniperus californica</i> Woodland Alliance California Juniper Woodland	G4 S4	7
<i>Yucca brevifolia</i> Woodland Alliance Joshua Tree Woodland	G4 S3	2
<i>Larrea tridentata</i> Shrubland Alliance Creosote Bush Scrub	G5 S5	3
<i>Eriogonum fasciculatum</i> Shrubland Alliance California Buckwheat Scrub	G5 S5	10
<i>Ambrosia salsola</i> Shrubland Alliance Cheesebush Scrub	G5 S4	5
<i>Ephedra nevadensis</i> Shrubland Alliance Nevada Joint Fir Scrub	G4 S4	67
<i>Lepidospartum squamatum</i> Shrubland Alliance Scale Broom Scrub	G3 S3	-
Disturbed/Developed	-	12

Note: All values were calculated in GIS for accuracy and rounded to the nearest 1 acre mile for presentation. Subtotals may vary slightly from the GIS calculated totals.

¹ Global (G) and State (S) Ranks for plant communities are can have values from 1 through 6, with 1 as the rarest and 6 being the most common. CDFW defines sensitive natural communities as those with ranks of S1, S2, or S3.

Global ranks:

- G1: Fewer than 6 viable occurrences worldwide and/or 2,000 acres
- G2: 6 to 20 viable occurrences worldwide and/or 2,000–10,000 acres
- G3: 21 to 100 viable occurrences worldwide and/or 10,000–50,000 acres
- G4: Greater than 100 viable occurrences worldwide and/or greater than 50,000 acres
- G5: Community demonstrably secure due to worldwide abundance

State ranks:

- S1: Fewer than 6 viable occurrences statewide and/or fewer than 2,000 acres
- S2: 6 to 20 viable occurrences statewide and/or 2,000–10,000 acres
- S3: 21 to 100 viable occurrences statewide and/or 10,000–50,000 acres

S4: Greater than 100 viable occurrences statewide and/or greater than 50,000 acres

S5: Community demonstrably secure statewide

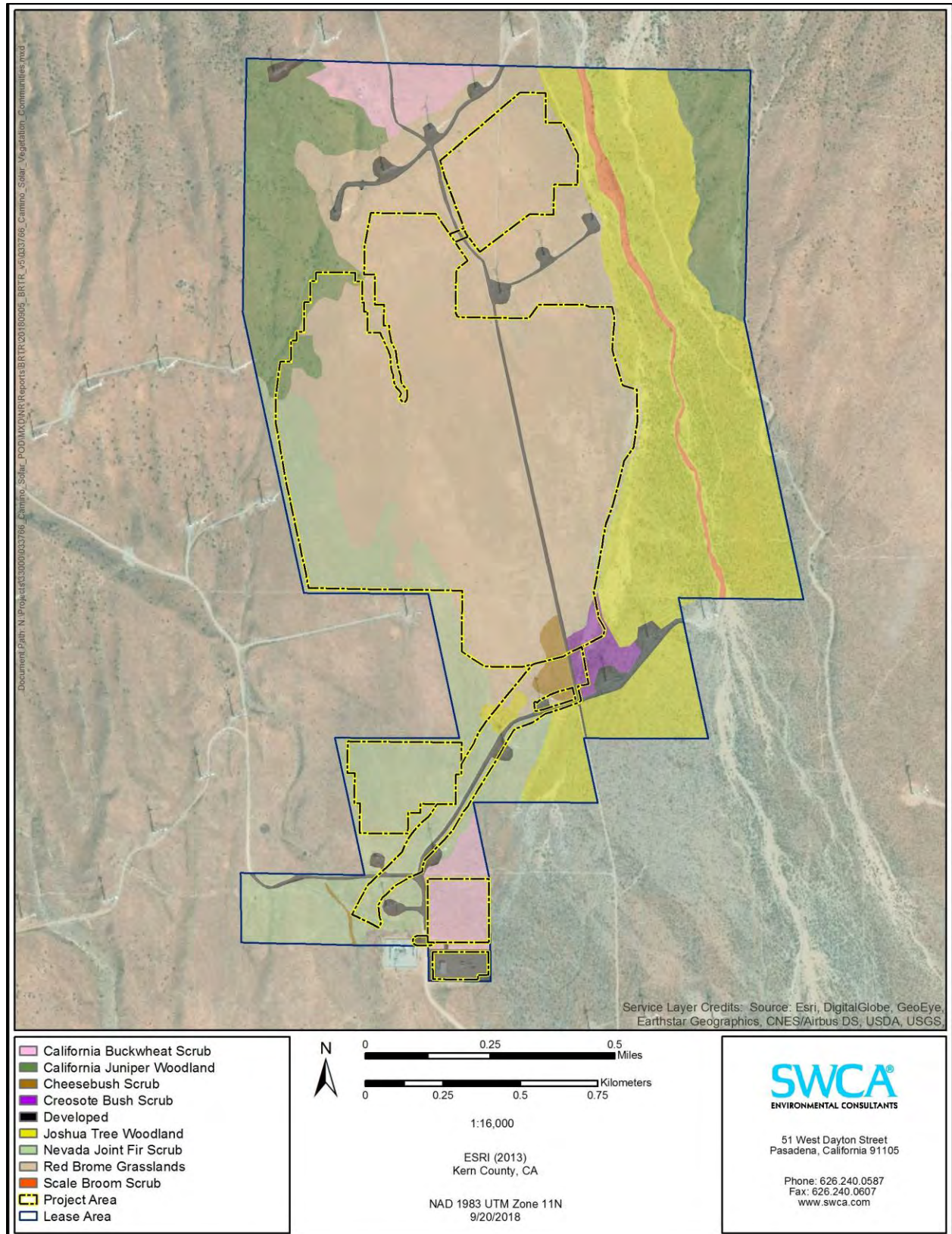


Figure 9. Vegetation Communities and Cover Types Mapped at the Project

4.6.1.1 RED BROME – MEDITERRANEAN GRASS GRASSLANDS

Red Brome–Mediterranean Grass Grasslands is a low biodiversity vegetation community dominated by non-native species. This plant community typically occurs from sea level to 7,200 feet amsl, where it can be found in a wide range of topographic settings and soil textures. It is defined by the presence of more than 80% relative ground cover of either red brome (*B. rubens*) or Mediterranean grass (*S. arabicus* or *S. barbatus*), none of which are native to California. Relative ground cover refers to the amount of cover compared to other plants, in contrast to absolute ground cover which also considers areas devoid of vegetation in the calculation. Red Brome–Mediterranean Grass Grasslands may contain small percentages of emergent shrubs. Both red brome and Mediterranean grass are present in this community, in addition to emergent shrubs such as boxthorn (*Lycium* sp.), matchweed (*Gutierrezia microcephala*), and California buckwheat (*Eriogonum fasciculatum*). Grazing, which occurs at the project site, tends to damage grasses less than other types of plants, and favors this plant community.

4.6.1.2 JOSHUA TREE WOODLAND

Joshua Tree Woodland is a diverse vegetation community that typically occurs on gentle alluvial fans, ridges, and gentle to moderate slopes with coarse sands, fine silts, gravel, or sandy loams. It occurs at elevations between 2,300 to 5,600 feet amsl, and it is defined as being at least 1% absolute ground cover of evenly distributed Joshua trees. The MCV and the DRECP use the same definition (at least 1% canopy cover of Joshua trees) for this alliance (Sawyer et al. 2009; Thomas et al. 2004). Other emergent shrubs or trees may be present; species observed in this community at the project site included California buckwheat, Nevada joint fir (*Ephedra nevadensis*), matchweed, winter fat (*Krascheninnikovia lanata*), and California juniper (*Juniperus californica*).

Joshua Tree Woodland is considered a sensitive natural community by CDFW (see Table 3), and in the DRECP, CMA LUPA-BIO-SVF-5 specifies that “impacts to Joshua Tree Woodlands will be avoided to the maximum extent practicable except for minor incursions.”

4.6.1.3 CALIFORNIA JUNIPER WOODLAND

California Juniper Woodland is a diverse vegetation community that typically occurs on ridges, slopes, valleys, alluvial fans, and valley bottoms, where soils are porous, rocky, coarse, sandy, or silty, and often very shallow. It generally occurs at elevations between 2,000 and 8,000 feet amsl, and it is defined by areas where California juniper is dominant or co-dominant with other shrubs, represents at least 1% of absolute cover, and represents more than 50% relative cover in the shrub layer. Some other emergent shrubs or trees may occur, such as Nevada joint fir, which was present at the project site.

4.6.1.4 CREOSOTE BUSH SCRUB

Creosote Bush Scrub is a diverse vegetation community that occurs throughout large portions of the Mojave Desert. It typically occurs on alluvial fans, bajadas, upland slopes, minor intermittent washes (areas where soils are well drained). It is usually found at elevations from 200 below mean sea level to 3,300 feet amsl, and it is defined as areas where there is a shrub canopy less 9 feet tall, in which creosote bush is dominant or co-dominant; other shrubs may be present.

4.6.1.5 CALIFORNIA BUCKWHEAT SCRUB

California Buckwheat Scrub is a variable vegetation community that occurs in a wide range of habitats and locations. Its distribution within the survey area is limited to north of the project site, the battery site, and surrounding land that appears to have been disturbed in the recent past; Google Earth imagery from 1989 appears to indicate that a wildfire may have occurred in the area. It is usually found at elevations from 0 to 3,950 feet amsl, and it is defined as areas with a shrub canopy under 6 feet tall in which California

buckwheat is dominant or co-dominant (greater than or equal to 50% relative cover); other shrubs may be present. As an early successional species, California buckwheat commonly colonizes disturbed land such as road cuts, and grazed and/or burned areas. Within the project area California buckwheat was often co-dominant, or nearly so, with Nevada joint fir; there are no vegetation communities in the MCV that describe the co-occurrence of these two species, but it is not unusual because they are both found in early successional stages.

4.6.1.6 CHEESEBUSH SCRUB

Cheesebush Scrub is a vegetation community that typically occurs in valleys, flats, and along low-gradient channels and washes, where soils are alluvial, sandy and gravelly, or on disturbed desert pavement. It is usually found at between sea level and 5,250 feet amsl. In this community type cheesebush (*Ambrosia salsola*) is the dominant shrub, and the shrub canopy is less than 6 feet high and relatively open; other shrubs may be present.

4.6.1.7 NEVADA JOINT FIR SCRUB

Nevada Joint Fir Scrub is a vegetation community that typically occurs on dry, open slopes, ridges, breaks with southern exposures, canyons, sides of arroyos, floodplains, and washes, where soils are well drained, gravelly, or rocky, and may be alkaline or saline. It is usually found at elevations from 3,300 to 5,900 feet amsl. This vegetation alliance is defined by the presence of Nevada joint fir representing at least 2% absolute ground cover, and it is usually two to three times more common than other shrubs. At the project site, other shrub species in this vegetation community included observed California buckwheat), spiny hopsage (*Grayia spinosa*), and Joshua tree.

4.6.1.8 SCALE BROOM SCRUB

Scale Broom Scrub is a vegetation community that typically occurs in alluvial environments that are intermittently or rarely flooded. It is usually found at elevations between 160 to 4,920 feet amsl, and it is defined as areas with a shrub canopy under 6 feet tall in which scale broom (*Lepidospartum squamatum*) is present at greater than 1% cover in alluvial environments; other shrubs may be present. Some areas within the survey area may currently have less than 1% cover due to the extreme flooding event in 2015 that scoured the stream channel.

Scale Broom Scrub has a state rarity rank of S3, making it a CDFW sensitive natural community. Scale Broom Scrub is considered a riparian vegetation type in the DRECP, within the macrogroup Madrean Warm Semi-Desert Wash Woodland/Scrub. CMA LUPA-BIO-RIPWET-1 specifies that these areas “will be avoided to the maximum extent practicable, except for allowable minor incursions,” and a 200-foot setback is specified. Scale Broom Scrub was not found within the project site; however, it is included in the descriptions of vegetation communities because the setback intersects with the project site.

4.6.1.9 DISTURBED/DEVELOPED

This land cover type is not a vegetation community, but rather a descriptor for areas mostly devoid of vegetation due to anthropogenic activities, and which have little to no potential to support native species. Disturbed/developed areas may include roads, buildings, and parking lots. At the project site, the unimproved road that runs along the eastern edge of the gen-tie corridor and through the BLM parcel was mapped as disturbed/developed.

4.7 Noxious Weeds

Noxious weeds are defined at the federal level pursuant to the Federal Noxious Weed Act of 1974, and are designated at the state level by the California Natural Resources Agency and the Department of Food and

Agriculture. The California Invasive Plant Council (Cal-IPC) lists plants as noxious by their capacity to negatively impact agriculture or environmental resources. Non-native plants are defined as invasive when their ability to spread allows them to out-compete native species; they can spread quickly in disturbed areas and are typically difficult to control or eradicate.

Cal-IPC rates noxious weeds according to their ecological impacts and abilities to disperse and become established. Weeds on the list are rated as High, Moderate, Limited, or Alert, with the following definitions (Cal-IPC 2006):

- **High** - These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate-to-high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** - These species have substantial and apparent, but generally not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate-to-high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** - These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low-to-moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
- **Alert** - An Alert is listed on species with High or Moderate impacts that have limited distribution in California, but may have the potential to spread much further.

At the project, seven species of weeds on the Cal-IPC list were identified as a result of SWCA surveys in 2016 (Table 4).

Table 4. Cal-IPC invasive plants at the project

Name	Cal-IPC Rating
Foxtail chess <i>Bromus madritensis</i> ssp. <i>rubens</i>	High
Cheatgrass <i>Bromus tectorum</i>	High
Mediterranean grass <i>Schismus arabicus</i>	Limited
Common Mediterranean grass <i>Schismus barbatus</i>	Limited
Short podded mustard <i>Hirschfeldia incana</i>	Moderate
Russian thistle <i>Salsola tragus</i>	Limited
Red-stemmed filaree <i>Erodium cicutarium</i>	Limited

Foxtail chess and cheatgrass are both highly invasive grasses that dominate the non-native grasslands that cover a large portion of the project. These annual grasses, like Mediterranean grass and common Mediterranean grass, are annual grasses that are widespread in disturbed areas and deserts. Dead and dry grasses become fuel for wildfires that kill perennial shrubs and other native desert species, enhancing conditions for more grass growth and promoting the conversion of desert shrublands to annual grasslands. Grazing tends to encourage grasses over other species, thereby increasing cover of non-native grasses and wildfire fuels.

Additional weeds and invasive plants were identified at the Manzana project, including tumble mustard (*Sisymbrium altissimum*), slender-keel fruit (*Tropidocarpum gracile*), lamb's quarters (*Chenopodium album*), horehound (*Marrubium vulgare*), rigput brome (*Bromus diandrus*), and Chilean chess (*Bromus trinitii*).

4.8 Special Vegetation Resources

Saguaro cactus, Mojave yucca clones (clonal rings of *Yucca schidigera*), and creosote rings are considered special vegetation resources in the DRECP. None of these resources were identified at the project as a result of field surveys conducted by SWCA, or during surveys for the Manzana or Tylerhorse projects.

4.9 Jurisdictional Waters and Wetlands

Four linear drainages potentially subject to the jurisdiction of CDFW and the RWQCB were delineated by SWCA at the BLM-administered parcel where the project is located; no potential wetlands or riparian habitats were identified (Figure 10, Appendix E). None of the vegetation alliances or features mapped at the project match the riparian or wetland habitats or features described in the DRECP (see Table 2).

The results of the delineation were taken into consideration for project design, and all of the potentially jurisdictional features were avoided. A desktop review confirmed that the portions of the project on privately owned lands also avoids potentially jurisdictional features. No potential wetlands were identified as a result of the delineation. The project has been designed to avoid these drainages, as well as their upstream and downstream portions.

No waters potentially subject to the jurisdiction of the USACE pursuant to Section 404 of the Clean Water Act were identified at the project property as a result of the jurisdictional delineation. USACE has issued a determination of non-jurisdiction for the entire Antelope Valley watershed, including the project site, on the basis that it is a closed basin that functions as an isolated intrastate watershed system which lacks the presence of a TNW (USACE 2013). The dry lakes that form the terminal basin of the watershed do not have surface waters that are used for industrial or other commercial purposes by interstate commerce industries, which are activities that could trigger USACE jurisdiction for isolated waters. Lake Palmdale and its tributaries, approximately 30 miles from the project site, are excluded from that determination.

4.10 Plants

SWCA biologists conducted botanical surveys in April and May 2016 and 2018. During both surveys, biologists completed 100% visual coverage of the project site as it was identified at the time. The surveys overlapped the blooming period of all of the plants with a CRPR of 1 or 2 that were determined to have a potential to occur of Low, Moderate, or High. Parts of the project area were also surveyed by Sapphos biologists in support of the Manzana and Tylerhorse projects in 2004, 2010, and 2011 (Kern County 2007, Appendix C in BLM 2014).

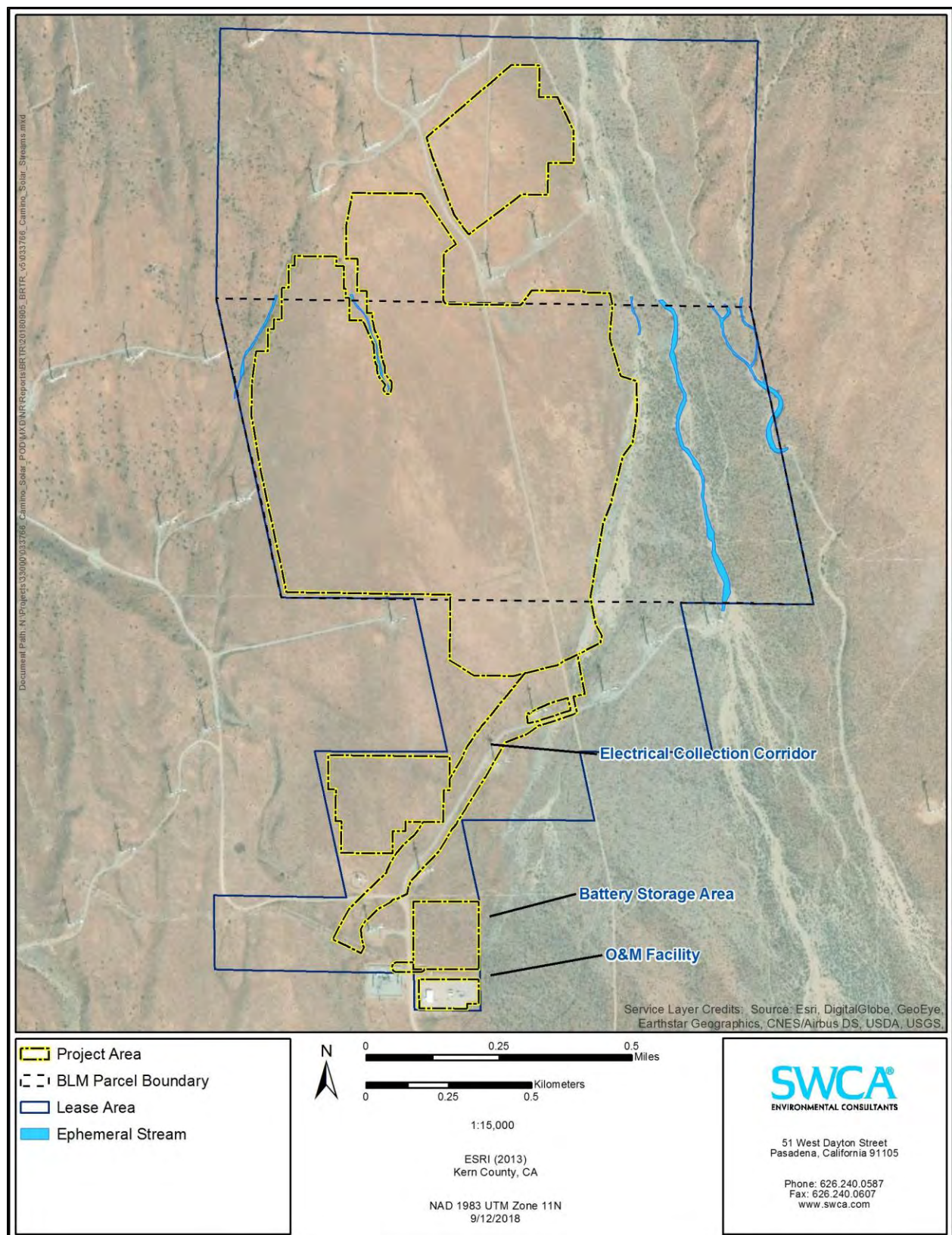


Figure 10. Delineated Hydrological Features in the Project Vicinity.

As a result of the botanical surveys conducted by SWCA, a total of 109 species, subspecies, and varieties of plants were determined to be present within the project area. All plants observed during the biological resources surveys are listed in the Floral Compendium (Appendix F). No sensitive plants have been found at the project area as a result of any of the surveys conducted to date.

4.10.1 Special-status Plants

As a result of the literature and database review, a total of 28 sensitive plants were identified as potentially present at the project property, based on previously recorded occurrences and other information (Table 5). Twenty-six of these species have recorded occurrences in the project vicinity, in the CNDDDB, CNPS Rare Plant Inventory, and/or CCH. The potential for each species to occur at the project site given the habitat, elevation, and conditions present was evaluated, and field surveys conducted. Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) does not have records in the project vicinity, but was considered for its potential to occur due to its rarity and previous uncertainty about its range. Of these 28 sensitive plants considered, 18 were determined to have no real likelihood of occurring at the project, due to the absence of suitable habitat at the project site and a lack of recorded occurrences within 5 miles. The remaining 10 plants were determined to have a likelihood of occurrence ranging from Low to High, depending on each plant's habitat requirements and geographic pattern of occurrences.

Table 5. Special-status plants considered for their potential to occur at the project

Species	Status	General Habitat	Blooming Period	Present/Absent
Mt. Pinos onion <i>Allium howellii</i> var. <i>clokeyi</i>	CRPR 1B.3	Great Basin scrub, meadow & seep, pinyon & juniper woodlands 4,500-6,300 feet.	Apr-Jun	Not Likely to Occur. No suitable habitat at the project. Nearest record is 11 miles to the north.
Horn's milk-vetch <i>Astragalus hornii</i> var. <i>hornii</i>	CRPR 1B.1 BLMS	Meadows and seeps, playas. Lake margins, alkaline sites. 200-2,790 feet.	May-Oct	Not Likely to Occur. No suitable habitat at the project. Nearest record is 7.5 miles to the southeast
Palmer's mariposa-lily <i>Calochortus palmeri</i> var. <i>palmeri</i>	CRPR 1B.2 BLMS	Chaparral, meadows, seeps, vernal mesic, 3,000-7,900 feet.	Apr-Jul	Not Likely to Occur. No suitable habitat. Closest record is 12 miles to the north
Alkali mariposa-lily <i>Calochortus striatus</i>	CRPR 1B.2 BLMS	Alkaline meadows, creosote bush scrub, and saltbush scrub. Alkaline meadows and ephemeral washes. 200-5,300 feet.	Apr-Jun	Not Likely to Occur. No suitable habitat at the project. Nearest record is 8 miles to the southeast
Peirson's morning-glory <i>Calystegia peirsonii</i>	CRPR 4.2	Chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Often in disturbed areas or along roadsides or in grassy, open areas. 100-5,000 feet.	Apr-Jun	Not Likely to Occur. Known only from the San Gabriel and Liebre Mountains. Closest record is 15 miles to the south.
Mojave spineflower <i>Chorizanthe spinosa</i>	CRPR 4.2	Chenopod scrub, Mojavean desert scrub, Joshua tree woodland, playas. Sometimes on alkaline soils. 0-4,300 feet.	Mar-Jul	Low. Habitat at the project is marginal, species not detected during surveys. Closest record is 12 miles to the southeast.
Short-bracted bird's-beak <i>Cordylanthus rigidus</i> ssp. <i>brevibracteatus</i>	CRPR 4.3	Chaparral, lower montane coniferous forest, pinyon-juniper woodland, upper montane coniferous forest. In openings, on granitic substrate. 3,000-7,000 feet.	Jul-Oct	Moderate. Habitat at the project is marginally suitable. Closest record is 4.5 miles to the north.

Species	Status	General Habitat	Blooming Period	Present/Absent
Clokey's cryptantha <i>Cryptantha clokeyi</i>	CRPR 1B.2 BLMS	Gravelly slopes, ridge crests, and in desert woodlands. 2,400-4,500 feet.	Apr	Low. Habitat at the project is suitable, but species not detected during surveys at the project. Nearest record is 12.5 miles to the south
Mt. Pinos larkspur <i>Delphinium parryi</i> ssp. <i>purpureum</i>	CRPR 4.3	Pinyon-juniper woodland, Mojavean desert scrub, chaparral. 3,000-8,000 feet.	May-Jun	Moderate. Suitable habitat is present, but species not detected during surveys at the project. Closest record is 6 miles to the north.
Calico monkeyflower <i>Diplacus (Mimulus) pictus</i>	CRPR 1B.2 BLMS	Upland forest and cismontane woodlands with granitic soils. 330-4,300 feet.	Mar-May	Not Likely to Occur. No suitable habitat at the project. Closest record is 7 miles to the northwest.
Tracy's eriastrum <i>Eriastrum tracyi</i>	CRPR 3.2 CDFW rare	Chaparral, cismontane woodland. Gravelly shale or clay, open areas. 1,000-3,200 feet.	May-Jul	Not Likely to Occur. No suitable habitat. Closest record is 10 miles to the north.
Sierra Nevada monkeyflower <i>Erythranthe sierrae</i>	CRPR 4.2	Cismontane woodland, lower montane coniferous forest, meadows and seeps. Primarily in decomposed granite in vernal wet depressions, swales, at the edges of streams, dry meadows, and in openings of pine forest and oak woodland. Sandy to gravelly soils. 600-7,500 feet.	Mar-Jul	Not Likely to Occur. No suitable habitat. Closest record is 7 miles to the west.
Tejon poppy <i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	CRPR 1B.1	Valley and foothill grassland, chenopod scrub. Little information available on microhabitat. 450-4,500 feet.	Feb-May	Low. Marginally suitable habitat is present, but not detected during surveys at the project. Closest record is 6 miles to the west.
Pine fritillary <i>Fritillaria pinetorum</i>	CRPR 4.3	Chaparral, lower montane coniferous forest, pinyon-juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Granite or metamorphics. 5,700-11,000 feet.	May-Sep	Not Likely to occur. No suitable habitat: project elevation too low. Closest record is 5 miles to the north.
Delicate bluecup <i>Githopsis tenella</i>	CRPR 1B.3	Chaparral, mesic sites, 3,000-6,200 feet.	Apr-Jun	Not Likely to Occur. This species occurs in habitats not present in the project. Nearest record is 11 miles to the west.
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	CRPR 1B.2 BLMS	Alkaline soils in playas, sinks, grasslands. 0-4,000 feet.	Feb-Jun	Not likely to Occur. No suitable habitat. Closest record is 12 miles to the north.
Pale-yellow layia <i>Layia heterotricha</i>	CRPR 1B.2 BLMS	Cismontane woodland, lower coniferous forest, alkaline or clay soils, open areas, 984-5,592 feet.	Mar-Jun	Not Likely to Occur. This species occurs in habitats not present in and at elevations greater than those present at the project. Closest record is 12 miles north.
Madera leptosiphon <i>Leptosiphon serrulatus</i>	CRPR 1B.2	Cismontane woodlands and lower montane coniferous forests. 1,000-4,300 feet.	Apr-May	Not Likely to Occur. No suitable habitat at the project. Closest record is 5 miles to the west.
Tehachapi monardella <i>Monardella linoides</i> ssp. <i>oblonga</i>	CRPR 1B.3	Lower and upper montane coniferous forests and pinyon-juniper woodland. 5,500-8,100 feet.	Jun-Aug	Not Likely to Occur. No suitable habitat; project elevation too low. Closest record is 2.8 miles north.

Species	Status	General Habitat	Blooming Period	Present/Absent
Baja navarretia <i>Navarretia peninsularis</i>	CRPR 1B.2	Lower montane coniferous forest and chaparral. 5,000-7,600 feet.	May-Aug	Not Likely to Occur. No suitable habitat; project elevation too low. Closest record is 7.5 miles north.
Piute Mountains navarretia <i>Navarretia setiloba</i>	CRPR 1B.1 BLMS	Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland. Red clay soils, or on gravelly loam. 1,150-6,900 feet.	Apr-Jul	Not Likely to Occur. No suitable soils, closest occurrence more than 10 miles to the west.
Robbins' nemacladus <i>Nemacladus secundiflorus</i> var. <i>robbinsii</i>	CRPR 1B.2	Chaparral, valley and foothill grassland. Dry, sandy or gravelly slopes. 1,100-5,500 feet.	Apr-Jun	High. Habitat at the project is suitable, but not detected during surveys. The closest record is 4 miles to the east.
Bakersfield cactus <i>Opuntia basilaris</i> <i>basilaris</i>	FE, SE, CRPR 1B.1	Chenopod scrub, valley and foothill grassland, cismontane woodland. Coarse or cobbly well-drained granitic sand on bluffs, low hills, and flats, within grassland. 250-1,700 feet.	Apr-Jun	Not Likely to Occur. Known only from occurrences in the San Joaquin Valley, more than 21 miles to the west. Records from the Mojave Desert removed following reevaluation of the subspecies' range.
Adobe yampah <i>Perideridia pringlei</i>	CRPR 4.3	Chaparral, cismontane woodland, pinyon-juniper woodland, coastal scrub. Serpentine, clay soils. Grassland hillsides; seasonally wet sites. 1,000-6,000 feet.	Apr-Jul	Not Likely to Occur. No suitable habitat at the project. Closest record is 7 miles to the north.
Latimer's woodland-gilia <i>Saltugilia latimeri</i>	CRPR 1B.2 BLMS	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Rocky or sandy substrate; sometimes in washes, sometimes limestone. 400-7200 feet.	Mar-Jun	Moderate. Habitat at the project site is suitable, but not detected during surveys. Nearest record is 6 miles to the northeast.
Lemmon's syntrichopappus <i>Syntrichopappus lemmonii</i>	CRPR 4.3	Chaparral, Joshua tree woodland, pinyon and juniper woodland. Decomposed granite; sandy or gravelly soils. 1,500-6,000 feet.	Apr-Jun	Moderate. Habitat at the project site is suitable, but not detected during surveys. Nearest record is 6 miles to the northeast.
Grey-leaved violet <i>Viola pinetorum</i> var. <i>grisea</i>	CRPR 1B.3	Subalpine coniferous forest, upper montane coniferous forest, meadows and seeps. Dry mountain peaks and slopes. 4,900-11,000 feet.	Apr-Jul	Not Likely to Occur. This species occurs in habitats not present in and at elevations greater than those present at the project. Closest record is 5.5 miles to the northwest.
Joshua tree <i>Yucca brevifolia</i>	Proposed for FT	Well-drained sandy and gravelly alluvial fans adjacent to desert mountain ranges. 1,600 to 7,200 feet	Apr-May	Present. Joshua trees are known to occur at the project site.

FE = Federally endangered, FT = Federally threatened, SE = State endangered, ST = State threatened, BLMS = Bureau of Land Management Sensitive

CRPR = California Rare Plant Rank. CRPR Rankings

1A: Presumed extinct in California

1B: Rare, threatened, or endangered in California and elsewhere. 0.1: Seriously threatened in California.

1B: Rare, threatened, or endangered in California and elsewhere. 0.2: Fairly threatened in California.

1B: Rare, threatened, or endangered in California and elsewhere. 0.3: Not very threatened in California.

2: Rare, threatened, or endangered in California, but more common elsewhere. 0.1: Seriously threatened in California.

2: Rare, threatened, or endangered in California, but more common elsewhere. 0.2: Fairly threatened in California.

Each of the sensitive plants that was determined to have a potential to occur between Low and High is discussed below; plants determined to be Not Likely to Occur are not discussed in detail. For species with CRPR of 1 or 2 (indicating that they are rare, threatened, or endangered in part or all of their range), the CNDDDB was used to identify the closest record. Plants with a rank of 3 (meaning that there is insufficient information available to determine whether they are rare or not) or 4 (plants with a limited distribution or that are infrequent over a broader area in California) are not tracked by the CNDDDB. For these plants,

records with location information from the CCH were used. The CCH does not always include precise location information for records, so the distance from the project may not reflect the exact location where the plant was collected.

As a result of the surveys in April and May 2016, 92 species, subspecies, and varieties of plants were identified at the project site, of which 9 were non-native and 83 were native (Appendix F). No sensitive plants were identified during the surveys, or have been identified in any previous surveys for the Tylerhorse or Manzana projects. The 2016 field surveys were conducted consistent with BLM, CDFW, and CNPS survey recommendations, with 100% visual coverage of the project site obtained via pedestrian transects spaced 10 to 20 meters apart throughout the entire site. Surveys were conducted in April and May of 2016, allowing for positive identification of ephemeral annuals that bloom at that time, as well as perennials. Virtually all of the plants identified in the records search can be identified in one or both of those periods. The surveys did not encompass the blooming period of two species, short-bracted bird's-beak (*Cordylanthus rigidus* ssp. *brevibracteatus*) and Tehachapi monardella (*Monardella linoides* ssp. *oblonga*), which bloom later in the summer or fall (see Table 5). Short-bracted bird's-beak is not included in the CNDDDB because of its relatively low rarity ranking of CRPR 4.3. Tehachapi monardella was determined to be Not Likely to Occur because all of the known records are at substantially higher elevations than the project site (CNDDDB 2017; CCH 2017)

4.10.1.1 JOSHUA TREE

The Joshua tree (*Yucca brevifolia*) is a large and widely recognized member of the Agave family that occurs in California, southwestern Utah, western Arizona, and southern Nevada at elevations from 1,600 to 7,200 feet amsl. In California it occurs in six counties: Mono, Inyo, Kern, Los Angeles, San Bernardino, and Riverside. The Joshua tree is under consideration for listing as federally threatened, based on a listing petition filed in 2015 (WildEarth Guardians 2015). As of May 2018, USFWS has completed the 90-day review concluding that information in the petition indicates that listing may be warranted, and the subsequent 12-month review is in process. In practice, the 12-month review often takes well over 12 months. During the 12-month review USFWS gathers and evaluates the best scientific and commercial data available to determine whether listing is in fact warranted. If warranted, USFWS will either propose a listing rule or defer listing; if listing is deferred then the species gains candidate status. Individual Joshua trees do not have any sensitive status according to CNPS or CDFW, but Joshua tree woodland is considered a sensitive natural community (see Section 4.6.1.2). In 2011, the Joshua tree was evaluated for inclusion in the California Rare Plant Inventory by CNPS, but was rejected because it is too common (CNPS 2017). The Joshua tree is not a Focus species under the DRECP, is not designated as a BLM sensitive species, and does not meet the criterion to be a Special Status species as defined by the DRECP, and therefore does not require any project setback (BLM 2016).¹

Joshua trees are conspicuous in the landscape, reaching heights of up to 50 feet, and bloom in April and May. The Joshua tree occurs primarily in shrub-dominated plant communities, and are most numerous in Joshua tree woodlands, where it must comprise at least 1% of canopy cover (Sawyer et al. 2009).

¹ The glossary of terms in the DRECP LUPA defines BLM special-status species as follows: "Includes those plant and animal species that are (1) species listed as threatened or endangered, or proposed for listing under the Endangered Species Act of 1973, and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act, which are designated as sensitive by the BLM California State Director. All federal Endangered Species Act candidate species, and delisted species in the 5 years following delisting, are considered and will be conserved as species sensitive. The BLM California State Director has also conferred sensitive status on California State endangered, threatened, and candidate species, and rare plant species, on species with a California Rare Plant Rank of 1B on the Special Vascular Plants, Bryophytes, and Lichens List maintained by the California Department of Fish and Wildlife that are on BLM lands or affected by BLM actions and that are not already special-status plants by virtue of being federally listed or proposed (unless specifically excluded by the BLM California State Director on a case-by-case basis), and on certain other plants the BLM California State Director believes meet the definition of sensitive. See BLM Manual 6840, Special Status Species Policy, for more detail." (BLM 2016)

Occurrences of Joshua trees and Joshua Tree Woodland are not tracked in the CNDDDB or by CNPS, however records are available from the CCH which is not restricted to sensitive species.

Joshua trees are present at the project site; approximately 750 individuals and clones were mapped during the botanical surveys. Joshua trees are most numerous in the eastern portion of the project site, near the large drainage outside the project boundary (Figure 11). Joshua trees are present in lower densities and generally as smaller individuals in other plant communities at the project.

4.10.1.2 MOJAVE SPINEFLOWER

Mojave spineflower (*Chorizanthe spinosa*) is a small annual herb known to occur in San Bernardino, Kern, Los Angeles, and San Bernardino Counties. This species has a CRPR of 4.3, meaning that it has a limited distribution or is infrequent over a broad area of California, and that it is moderately threatened in California. Habitats where it typically occurs include chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and playas. It is sometimes found in areas with alkaline soils, and records of its occurrence range from 0 to 4,300 feet amsl. The closest record of Mojave spineflower is 12 miles to the southeast of the project site. This species was not detected during surveys conducted during this species' typical blooming period, which is from March to July.

4.10.1.3 SHORT-BRACTED BIRD'S-BEAK

Short-bracted bird's-beak (*Cordylanthus rigidus* ssp. *brevibracteatus*) is an annual herb that is known from Kern and Tulare counties; the project is at the southern end of its range. It has a CRPR of 4.3, meaning that it has a limited distribution or is infrequent over a broad area of California, and that it is not very threatened in California. This species is usually found in granitic openings in Jeffrey pine and pinyon-juniper forest, as well as in sagebrush scrub. It is known from elevations between 3,000 and 7,000 feet amsl, and blooms between July and October. The nearest record of this species in the CCH database is 4.5 miles to the north, in the Tehachapi Mountains. Short-bracted bird's-beak was not detected during SWCA botanical surveys. Habitat at the project site is nominally suitable, but this species is not likely to occur due to the low elevation of the project in the southern part of the range.

4.10.1.4 CLOKEY'S CRYPTANTHA

Clokey's cryptantha (*Cryptantha clokeyi*) is a small annual herb that grows in Inyo, Kern, Los Angeles, and San Bernardino Counties (CNPS 2017). It occurs on rocky to gravelly slopes, ridge crests, and in desert woodlands from 2,400 to 4,500 feet amsl. This white-flowered species blooms from April through May. Clokey's cryptantha has a CRPR of 1B.2, indicating that it is rare throughout its range and moderately threatened in California. CNDDDB records indicate the presence of Clokey's cryptantha approximately 12.5 miles south of the project area. This population was visited at the start of SWCA's April 2016 survey; the plants were observed to be in the late phase of blooming. Suitable habitat is present at the project, but this species was not detected during surveys conducted during the appropriate blooming period.

4.10.1.5 MT. PINOS LARKSPUR

Mt. Pinos larkspur (*Delphinium parryi* ssp. *purpureum*) is a small herbaceous perennial native to Southern California that occurs in Santa Barbara, Ventura, and Kern Counties. This species has a CRPR of 4.3, indicating that it has a limited distribution, but is not very endangered in California (fewer than 20% of occurrences are threatened and/or there is a low degree and immediacy of threat, or no current threats known). Mt. Pinos larkspur occurs between 3,000 and 8,000 feet amsl, in chaparral, Mojavean desert scrub, and pinyon and juniper woodlands. The nearest record of this species is 6 miles north of the project site. Potentially suitable habitat at the project site includes the Creosote Bush Scrub and the California Juniper Woodland. This species was not detected during SWCA surveys during the appropriate blooming period.

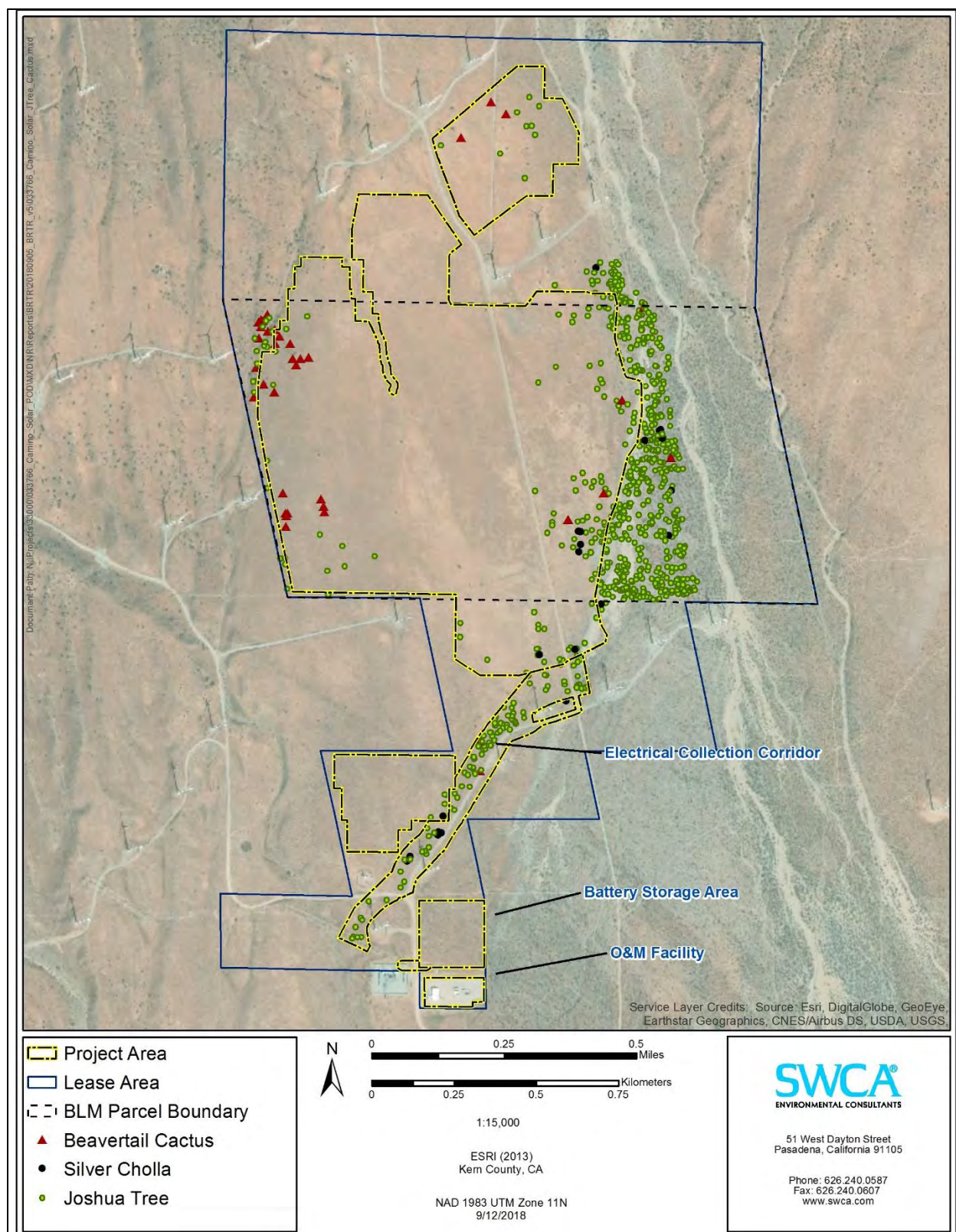


Figure 11. Cactus and Joshua Trees Mapped at the Project.

4.10.1.6 TEJON POPPY

Tejon poppy (*Eschscholzia lemmonii* ssp. *kernensis*) is an annual herb that occurs only in Kern and San Luis Obispo Counties, California, primarily in the southern San Joaquin Valley. This species has a CRPR of 1B.1, meaning that it is rare throughout its range, and is seriously threatened in California. The showy orange flowers bloom between March and May, with occasional blooming in February depending on local conditions and annual rainfall patterns. It can be found in valley and foothill grasslands and chenopod scrub. There is one occurrence of this species in the Antelope Valley, in the foothills of the Tehachapi Mountains 6 miles to the west of the project. The project site is drier and hotter than the known range of this species, but may be marginally suitable. This species was not detected during SWCA botanical surveys conducted during this species' flowering period. The potential for occurrence of Tejon poppy is considered Low.

4.10.1.7 TEHACHAPI MONARDELLA

Tehachapi monardella (*Monardella linoides* ssp. *oblonga*) grows in lower and upper montane coniferous forests and pinyon-juniper woodland. This species has a CRPR of 1B.3, meaning that it is rare throughout its range, but not very threatened in its range in California. Tehachapi monardella is an annual herb that blooms between June and October. It prefers dry slopes with yellow pine forest on decomposed granitic soils and disturbed roadsides from 5,600 to 8,100 feet amsl. None of the specimens of Tehachapi monardella collected in California and archived in herbaria are from below 4,100 feet amsl or outside of montane coniferous forests and pinyon-juniper woodlands. The elevations of the 54 records in the CNDDDB with elevation information range 4,100 and 8,500 feet amsl, averaging 6,250 feet amsl. The 133 CCH records average 6,832 feet amsl, and all but one are between 4,498 and 9,202 feet amsl. The outlier is a record in Ventura County that was listed as observed at 2,362 feet amsl, however the elevation at the reported coordinates is approximately 7,650 feet amsl. In contrast, the maximum elevation at the project is approximately 3,820 feet amsl.

The project site is substantially lower than this species' known elevation range, and there is no suitable habitat at the project site. Tehachapi monardella was not detected during botanical surveys, however surveys were not conducted during its blooming period. The survey was not originally planned to accommodate this species due to the lack of suitable habitat. However, it is evaluated here because of the proximity of the nearest record to the project. The nearest CNDDDB occurrence for Tehachapi monardella, from 2011, is approximately 2.3 miles northeast of the project site, at an elevation of nearly 6,000 feet.

Habitats at the project site are not suitable for Tehachapi monardella, and it was determined to be Not Likely to Occur.

4.10.1.8 ROBBINS' NEMAACLADUS

Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsii*) is a small annual herb that typically blooms between April and June. It has a CRPR of 1B.2, indicating that it is rare throughout its range, and is moderately threatened in California. Robbins' nemacladus typically occurs in chaparral and grassland habitats, on dry sandy or gravelly slopes between 1,100 and 5,500 feet amsl. The closest CNDDDB record of this species is 25 miles east of the project. However, the CCH includes several records of Robbins' nemacladus in the Antelope Valley from 2010, along the Tehachapi Renewable Transmission Project route; these are the only records of the species in the Mojave Desert. The closest of these locations is 4 miles east of the project.

Habitats at the project site are apparently suitable for this species, and it was determined to have a High potential to occur. However, it was not detected in surveys conducted during the appropriate blooming period.

4.10.1.9 BAKERSFIELD CACTUS

Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) was originally described as occurring in the southern San Joaquin Valley near Bakersfield in the southern San Joaquin Valley, at elevations ranging from 460 to 1,800 feet amsl; it is listed as endangered pursuant to both the federal ESA and CESA (USFWS 1998). It has a CRPR of 1B.1, meaning that it is rare throughout its range and seriously threatened in California.

In the Mojave Desert, including the Antelope Valley, beavertail cactus (*O. basilaris* var. *basilaris*) is widespread and common. The taxonomy and distinctions between Bakersfield and beavertail cactus have long been uncertain, but the overall distribution differs between them. Both are perennial species that do not require flower or fruit for identification. In the Antelope Valley it has been commonly understood that the more common and very similar beavertail cactus is present. However, due to the identification of Bakersfield cactus at the northeastern edge of the Antelope Valley, there has been some uncertainty regarding the range of Bakersfield cactus. Bakersfield cactus was identified at the Alta–Oak Creek Mojave Project, approximately 9 miles northeast of the Camino Solar project (BLM 2013). Subsequent genetic analysis indicates that 6 of the records in the CNDDDB from the eastern edge of the Tehachapi Mountains (in the vicinity of the Alta-Oak Creek Mojave Project) are the more common beavertail cactus, not Bakersfield cactus (Cypher et al. 2014). These records have been removed from the CNDDDB, and there are no longer any CNDDDB records of Bakersfield cactus in the Antelope Valley; all are more than 20 miles away in the southern San Joaquin Valley (CNDDDB 2017).

Considering the geographic distribution of Bakersfield cactus and conditions at the project site, this species was determined Not Likely to Occur at the project. During SWCA's botanical surveys in 2016, all cactus were mapped (see Figure 11) and identified, including 31 individuals of *O. basilaris*. All were identified as beavertail cactus: none of the plants exhibited characteristics of Bakersfield cactus such as sunken eyespots or pubescent pads or fruits.

4.10.1.10 LATIMER'S WOODLAND-GILIA

Latimer's woodland-gilia (*Saltugilia latimeri*) has only recently been recognized as a full species, and was described in 2001 (Weese and Johnson 2001). Latimer's woodland-gilia has a CRPR of 1B.2, meaning that it is rare throughout its range, and is moderately threatened in California. This species is a small plant, up to 12 inches tall, that is endemic to dry slopes with soils varying from rocky to sandy. Habitats include chaparral, Mojavean desert scrub, and pinyon and juniper woodland. This species is an herbaceous annual, blooming between March and June.

The nearest CNDDDB record of Latimer's woodland-gilia is 6 miles to the northeast of the project. The desert scrub habitats at the project site may be suitable, and so this species is considered to have a Moderate potential to occur; however, it was not detected during the two focused surveys conducted during its blooming period.

4.10.1.11 LEMMON'S SYNTRICHOPAPPUS

Lemmon's syntrichopappus (*Syntrichopappus lemmonii*) is a member of the sunflower family (Asteraceae) that is found in Southern California, primarily in the hills and mountains that bound the Antelope Valley. This species has a CRPR of 4.3, meaning that it has a limited distribution, but is not very endangered in California (fewer than 20% of occurrences are threatened and/or there is a low degree and immediacy of threat or no current threats known). It occurs in open sandy and gravelly soils in habitats ranging from chaparral to Joshua tree woodland and pinyon-juniper woodlands.

The closest record in the CNDDDB is 6 miles to the northeast. Considering the conditions at the project site, the potential for Lemmon's syntrichopappus to occur at the project was determined to be Moderate.

However, it was not detected during surveys conducted by SWCA during the appropriate blooming period for this species (April to June).

4.10.2 Plants Covered by the California Desert Native Plants Act

Plants afforded protections under the CDNPA were mapped as they were encountered during the May 2016 rare plant survey at the project site. Approximately 750 individual Joshua trees were identified, along with 31 beavertail cactus and 23 silver cholla (*Opuntia echinocarpa*). The density of Joshua trees was highest in the Joshua tree woodland (see Figure 11), but they were also present in the other vegetation communities at the site, particularly those vegetation alliances dominated by native plants.

4.11 Wildlife

Most wildlife species within the region are adapted to extreme drought conditions, sparse vegetative cover and limited sources of permanent water. As the project property is located at the transition between the Tehachapi Mountains and the western Mojave Desert, a broad diversity of wildlife is expected to occur in the vicinity; however, the preponderance of non-native vegetation throughout most of the project site limits the species that may occur at the project site. The following sections present a sampling of some of the common wildlife species observed during surveys conducted by SWCA at the project site, and by Sapphos for the Manzana and Tylerhorse projects.

Wildlife species that are expected to be regularly encountered include a variety of invertebrates, reptiles, birds, and mammals. Fish and amphibians are generally not expected to occur at the project site due to the lack of surface waters. Bats may forage at the project, but there are few potential roost sites in the vicinity of the project. There are no structures, caves, rock outcrops, or large hollow trees suitable for colonial bats. Moreover, the project lacks water resources to attract insect prey.

Some lizards commonly occurring the general vicinity include the side-blotched lizard (*Uta stansburiana*), western whiptail (*Cnemidophorus tigris*), western sagebrush lizard (*Sceloporus graciosus gracilis*), desert iguana (*Dipsosaurus dorsalis*), long-nosed leopard lizard (*Gambelia wislizenii*), desert spiny lizard (*Sceloporus magister*), and western skink (*Eumeces skiltonianus*). Species of snakes that may be encountered in the area include the coachwhip (*Masticophis flagellum*), California whipsnake (*M. lateralis*), western long-nosed snake (*Rhinocheilus lecontei*), gopher snake (*Pituophis melanoleucus*), glossy snake (*Arizona elegans*), king snake (*Lampropeltis getulus*), night snake (*Hypsiglena torquata*), lyre snake (*Trimorphodon biscutatus*), sidewinder (*Crotalus cerastes*), Mojave rattlesnake (*C. scutulatus*), and western rattlesnake (*C. viridis*).

At least 59 bird species have been observed at the adjacent Manzana Wind Project area either as residents or as migrants/transients. The lack of available water or areas of dense brush or trees within the project area precludes many of the bird species that otherwise occur in this region from breeding and nesting in this area. Most bird species that occur in the project area and surrounding region are associated with the Mojavean juniper woodland and scrub vegetation community. Some of the common resident species identified include common raven, horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), barn swallow (*Hirundo rustica*), house finch (*Haemorhous mexicanus*), dark-eyed junco (*Junco hyemalis*), California quail (*Callipepla californica*), and loggerhead shrike (*Lanius ludovicianus*). Other bird species occur as spring and fall migrants or winter residents. Some species that commonly occur outside the breeding season include the mountain bluebird (*Sialis currucoides*), yellow-rumped warbler (*Setophaga coronata*), and white-crowned sparrow (*Zonotrichia leucophrys*). Common raptor species that were observed during surveys include red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and turkey vulture (*Cathartes aura*).

Common species of plants and wildlife observed during the surveys were typical of the western Mojave. Flora and fauna observed during SWCA surveys are listed in Appendix F.

4.11.1 Wildlife Movement and Migratory Corridors

The habitat types in the project area are dominated by low vegetation, grasslands, and widely spaced shrubs, which do not pose a physical barrier to the movements of most wildlife species. The BLM parcel is surrounded by a barbed wire fence to contain grazing livestock, which would limit the movements of large ungulates such as pronghorn (*Antilocapra americana*), should they be present. Pronghorn were historically present by the thousands seasonally, but were mostly extirpated by the late 1880s and were locally extinct by the 1940s. Pronghorn have been reintroduced to the Central Valley, and as that population has expanded the species has become a rare visitor to the northern foothills of the Tehachapi Mountains. Pronghorn is the only migratory terrestrial species in the project vicinity.

There is little topographic relief within the project site that would serve to funnel or direct wildlife movement into any particular areas or in specific directions. The entire project site slopes gently southward with a 5-10% gradient. There are very small drainages that flow toward the project site, but they flatten out and become indistinct; they do not pass through the project site, and so do not form a potential corridor. The large wash that runs north-south to the east of the project is the nearest feature that is likely to support wildlife movement and dispersal. Around the project, scattered washes run generally northwest to southeast, but there is no riparian vegetation to support concentrations of wildlife; all habitats within the project property are xeric and similar to those in the surrounding areas. The washes are landscape features that are the most likely to represent wildlife movement corridors locally, however there is no evidence that they provide avenues for concentrations of wildlife. No known or identified wildlife corridors exist within the project property, nor has any part of the project property been identified as a wildlife connectivity area as mapped by the California Essential Habitat Connectivity Project (Spencer et al. 2010).

In the larger context, the project lies near the center of the Antelope Valley, which is relatively flat and has few deep drainages or other well-defined corridor-like topographic features that will channel wildlife movements into specific corridors. Instead, movement of terrestrial animals is likely diffuse and spread throughout the entire area. While migratory birds do overfly the Antelope Valley, there are no significant stopover sites in the vicinity of the project, as there are no riparian habitats or water bodies with abundant resources to attract concentrations of birds. The wind energy projects in the area of the project, as well as the areas to the south which are mainly native plant communities with scattered unpaved roads and residences, provide for largely unrestricted wildlife movements through natural or semi-natural habitats.

4.11.2 Special-status Wildlife

In all, 28 wildlife species were considered for their potential to occur at the project (Table 6). The literature and database review resulted in the identification of 21 species based on recorded occurrences in the records search area. Seven species that lacked records in the CNDDDB were also considered for a variety of reasons. Five of these were ESA-listed birds which were included due to their identification by USFWS as potentially traveling through the project area, and the consequent potential for project impacts. The sixth additional species, desert kit fox, is not tracked by the CNDDDB, but it was also considered because it is known to occur in the project vicinity. And finally, southern grasshopper mouse (*Onychomys torridus ramona*) was considered due to the proximity of described captures that are not included in the CNDDDB, and the difficulty of identifying this species. Based on the results of field surveys and desktop reviews of each species' ecological requirements, the presence, absence, and potential for occurrence of each was evaluated. Once the habitat conditions at the project site were taken into account, 11 species were determined Not Likely to Occur, and 17 were determined to have a likelihood of occurring that ranged from Low to High. Detailed descriptions of selected species are provided below.

Table 6. Special-status wildlife considered for their potential to occur at the project

Species	Status ¹	Habitat	Potential to Occur at the Project
Invertebrates			
Crotch bumble bee <i>Bombus crotchii</i>	SA	Coastal California to Sierra-Cascade crest, and to Mexico. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Moderate. Potential food plants are present. The nearest record is 10 miles away.
Comstock's blue butterfly <i>Euphilotes battoides comstocki</i>	SA	Valley and foothill grasslands, requires host <i>Eriogonum</i> sp. (buckwheats).	Moderate. Potential food plants are present. Closest record is 11 miles north of the project.
Whitefir shoulderband <i>Helminthoglypta concolor</i>	SA	Forest and woodlands. Found only at elevations of 7,000 to 8,400 feet in the Tehachapi and Piute Mountains in Kern County.	Not Likely to Occur. There is no suitable habitat at the project. The closest record is just over miles to the north.
Tehachapi Mountain silverspot butterfly <i>Speyeria egleis tehachapina</i>	SA	Montane meadows, forest openings. Known only from the Tehachapi Mountains. <i>Viola purpurea</i> is the presumed larval food plant.	Not Likely to Occur. There is no suitable habitat at the project. The closest record is 6 miles to the north.
Amphibians			
Tehachapi slender salamander <i>Batrachoseps stebbinsi</i>	ST, BLMS	Uncommon in suitable habitat in a small number of isolated localities in the Piute and Tehachapi Mountains of Kern County and perhaps in Los Angeles and Ventura Counties. Sierra Nevada and Tehachapi Mountains, oak and mixed woodlands, arid to semiarid areas. Preferred habitats include valley foothill hardwood conifer and valley foothill riparian. 2,000 to 4,600 feet.	Not Likely to Occur. No suitable habitat at project. Closest record is 9 miles to the west.
Yellow-blotched salamander <i>Ensatina eschscholtzii croceator</i>	SSC, BLMS	Evergreen and deciduous forests, riparian areas. Needs surface objects, such as logs, boards, rocks, old rodent burrows, or other underground retreat.	Not Likely to Occur. No suitable habitat at the project. Closest record is 7 miles to the northwest.
Reptiles			
California legless lizard <i>Anniella</i> sp.	SSC	Contra Costa County south to San Diego, within a variety of open habitats. This element represents California records of <i>Anniella</i> not yet assigned to new species within the <i>Anniella pulchra</i> complex. Variety of habitats; generally in moist, loose soil. Prefers soils with a high moisture content.	High. Described as common in Joshua/Juniper woodland by Papenfuss and Parham 2013.
Desert tortoise <i>Gopherus agassizii</i>	FT, ST	Most desert habitats, especially desert scrub, desert wash, and Joshua tree habitats; from 1,000–5,000 feet.	Not Likely to Occur. Desert tortoise has not been recorded at the site after multiple years of protocol-level surveys, or during protocol surveys at adjacent projects.
Coast horned lizard <i>Phrynosoma blainvillii</i>	SSC, BLMS	Valley-foothill hardwood, conifer, and riparian habitats; pine-cypress, juniper and annual grasslands.	High. This species occurs in foothills around the Antelope Valley, and was found during surveys at MWP. ²

Species	Status ¹	Habitat	Potential to Occur at the Project
Two striped gartersnake <i>Thamnophis hammondi</i>	BLMS, SSC	Marsh, swamp, riparian scrub, riparian woodlands, wetlands	Not Likely to Occur. There is no suitable habitat at the project.
Birds			
Tricolored Blackbird <i>Agelaius tricolor</i>	BLMS, SSC, candidate for SE	Freshwater marshes, agricultural areas, willow and cottonwood woodland, grasslands	Not Likely to Occur. No suitable habitat is present at the project, and the closest record is 11 miles to the southwest.
Golden eagle <i>Aquila chrysaetos</i>	BLMS, CDFW FP, BGEPA	Most open habitats in California, such as rolling hills, mountains, sage-juniper flats, and desert.	Present (foraging). Not Likely to Occur (nesting). No nesting habitat is present. Observed at the site during migration surveys.
Burrowing owl <i>Athene cunicularia</i>	BLMS, SSC	Grasslands, deserts, shrub-steppe, agricultural fields. Requires open areas with low vegetation and generally less than 30% shrub cover.	Present. Habitat at the project is suitable, and observed at the eastern edge of the project site in fall 2011.
Swainson's hawk <i>Buteo swainsoni</i>	ST, BLMS	Open grassland, shrublands, croplands.	Present (migration) Unlikely to Occur (nesting). Observed at the MWP during migration. No nests identified within 5 miles of the project.
Mountain plover <i>Charadrius montanus</i>	BLMS, SSC	Agricultural fields, playas, low grasslands, burned areas.	Not Likely to Occur. There is no suitable habitat for this species at the project, and the nearest record is 7 miles to the south.
Yellow-billed cuckoo <i>Coccyzus americanus</i>	FT, SE	Riparian forest, requires dense riparian vegetation for nesting sites, often in willow or cottonwoods.	Not Likely to Occur. Habitat at the project is not suitable, but could migrate through the area. No records of this species in the records search area.
(Southwestern) willow flycatcher <i>Empidonax traillii extimus</i>	FE, SE ³	Meadows, riparian scrub, riparian woodlands, wetlands. Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2,000-8,000 feet elevation.	Not Likely to Occur. Habitat at the project is not suitable, but could migrate through the area. No records of this species in the records search area.
California condor <i>Gymnogyps californianus</i>	FE, SE, FP	Chaparral, valley and foothill grassland. Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate elevation.	Low (foraging), Not Likely to Occur (nesting). Locally, this species occurs in the nearby mountains and hills. There is no prey base at the project site and no topography to provide lift. However, this species has the ability to fly great distances while foraging, and occurs in the in Tehachapi Mountains. No records of this species in the CNDDDB records search area.
Loggerhead shrike <i>Lanius ludovicianus</i>	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, riparian woodlands, desert oases, scrub and washes.	Present. Observed on site.
Yuma Ridgway's rail <i>Rallus obsoletus yumanensis</i>	FE, ST	Freshwater marsh, swamps, wetlands. Nests in fresh-water marshes along the Colorado River and along the south and east ends of the Salton Sea.	Not Likely to Occur. Habitat at the project is not suitable, but could migrate through the area. No records of this species in the records search area.
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE, SE	Riparian forest, riparian scrub, riparian woodland. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 ft.	Not Likely to Occur. Habitat at the project is not suitable, but could migrate through the area. No records of this species in the records search area.

Species	Status ¹	Habitat	Potential to Occur at the Project
Mammals			
Tulare grasshopper mouse <i>Onychomys torridus tularensis</i>	BLMS, SSC	Hot, arid valleys and scrub deserts in the southern San Joaquin Valley; chenopod scrub.	High. Suitable habitat is present. Cannot be distinguished in the field from southern grasshopper mouse; see description in text.
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Chenopod scrub.	Moderate. Suitable habitat is present. Project site is north of recognized range. Cannot be distinguished in the field from Tulare grasshopper mouse. Closest CNDDDB record is 29 miles south of the project. See description in text.
Tehachapi pocket mouse <i>Perognathus alticolus inexpectatus</i>	SSC	Habitat is not well defined; generally found in grasslands, desert scrub, pine woodlands, fallow fields.	High. Habitat at the project site may be suitable. The closest record is 2.6 miles to the east.
San Joaquin pocket mouse <i>Perognathus inornatus</i>	BLMS	Grassland, oak savanna and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert. Cismontane woodland, Mojavean desert scrub, valley and foothill grassland.	High. Habitat at the project is suitable. The closest record is 2 miles to the south.
American badger <i>Taxidea taxus</i>	SSC	Grasslands, savannas, mountain meadows, Joshua tree woodlands, and desert scrub. Requires friable soils.	High. Vegetation communities within the project are suitable habitat, and one individual was observed during the MWP surveys.
Desert kit fox <i>Vulpes macrotis arsipus</i>	FGC 460	Desert scrub, washes, and arid grasslands	Present. Habitat at the project site is suitable, and an active den was observed at the edge of the MWP substation in 2016. Species not tracked in the CNDDDB.
Mohave ground squirrel <i>Xerospermophilus mohavensis</i>	ST, BLMS	Open desert scrub, alkali scrub & Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave Desert.	Not Likely to Occur. Generally considered extirpated in the Antelope Valley. No records within 5 miles of the project.

¹ BGEPA = Bald and Golden Eagle Protection Act, CRPR = California Rare Plant Rank, FE = Federally endangered, FGS 460 = take prohibited under FGC 460, FP = Fully protected, FT = Federally threatened, SA = Special Animal, SE = State endangered, SSC = Species of Special Concern, ST = State threatened, WL = Watch List.

² MWP = Manzanita Wind Project.

³ All subspecies of willow flycatcher are CESA-listed; only the southwestern subspecies is ESA listed.

4.11.2.1 INVERTEBRATES

Crotch Bumble Bee

The crotch bumble bee (*Bombus crotchii*) occurs primarily in Southern California, and was historically common in the Central Valley. It is included on the CDFW list of Special Animals (2017), but does not have any formal state or federal protections. This species has been extirpated from most of its known range, because of intensification of agriculture and urbanization, among other factors. Known food plants include members of the following genera: *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia* (poppies), and *Eriogonum* (buckwheats).

The project site includes *Phacelia*, *Eschscholzia*, and *Eriogonum*, which may support this species, although it was not recorded during surveys. The closest CNDDDB record of this species is 10 miles from the project. The potential for crotch bumble bee to occur at the project is Moderate.

Comstock's Blue Butterfly

Comstock's blue butterfly (*Euphilotes battoides comstocki*) is a small butterfly with a wing span of approximately three-quarters of an inch. It is included on the CDFW list of Special Animals (2017), but does not have any formal state or federal protections. Buckwheats (*Eriogonum* sp.) are the main food plant for Comstock's blue butterfly. There is one generation per year, and adults may be found in late spring and summer when host plants are in bloom. During the flight season, males constantly patrol host plants in search of receptive females; eggs are laid singly on the flowers of host plants. Between September and March only the less conspicuous caterpillars and chrysalises are present.

There is some buckwheat at the project site which may support this species, although it was not observed incidentally during surveys conducted by SWCA or previous surveys for the Manzana or Tylerhorse projects. The closest record of Comstock's blue butterfly is 11 miles north of the project site. The potential for Comstock's blue butterfly to occur at the project is Moderate.

4.11.2.2 AMPHIBIANS

There are no special-status amphibians that are likely to occur at the project site. The project's desert location, combined with the lack of drainages and riparian habitat renders it unsuitable for moisture-dependent amphibians.

4.11.2.3 REPTILES

The project is located in an area that provides potentially suitable habitat for four special-status reptile species: California legless lizard (*Anniella* sp.), desert tortoise, coast horned lizard, and two-striped gartersnake (*Thamnophis hammondi*).

California Legless Lizard

The California legless lizard (*Anniella* sp.), a CDFW species of special concern, occurs in coastal dunes, valley-foothill areas, chaparral, coastal scrub, desert scrub, sandy washes, and sometimes anthropogenically modified habitats. It requires the presence of some soil moisture or moist refuges. All legless lizards spend the majority of their time underground, and are therefore difficult to detect. Recent genetic data indicates that the California legless lizard is comprised of five different lineages that warrant full species status (Papenfuss and Parham 2013). The State of California recognizes California legless lizard as multiple taxonomic units; however, it has not been determined which species occur in the Antelope Valley.

California legless lizard was not detected during reconnaissance surveys conducted at the project, and the project contains generally dry soils that will provide few moist refuges for this species. The closest CNDDDB record is 2 miles to the east of the project. California legless lizard has a High potential to occur at the project property.

Desert Tortoise

SWCA biologists identified suitable habitat for desert tortoise (*Gopherus agassizii*) at the project site in April 2016. Non-native grasslands are not considered suitable; all other habitat types at the site are considered suitable habitat for the desert tortoise (see Figure 9). In May 2016, a team of SWCA biologists conducted a protocol-level survey of all suitable habitat at the project site, concurrently with the survey for burrowing owl burrows and the botanical survey in May 2016 (see Figure 7). No desert tortoise, burrows, or sign of desert tortoise were detected at the project as a result of the protocol survey conducted in 2016. This result is consistent with the previous protocol surveys for desert tortoise conducted within the BLM parcel in summer 2004 and fall 2011 in support of the Tylerhorse project, and for the Manzana project in 2005.

Since 2004, protocol-level surveys for desert tortoise have been conducted over tens of thousands of acres in the Antelope Valley, which is located at the westernmost edge of the species' range. Very few signs of desert tortoise have been recorded as a result of these surveys. There are two CNDDDB records desert tortoise within the records search area; one record is a set of burrows approximately 3 miles south of the project, recorded in 2010. The second record is an observation of a live tortoise which was observed in 2006 approximately 8 miles east of the project.

Based on the local CNDDDB records and the presence of suitable habitat at the project, the potential for desert tortoise to occur would be considered High. However, the project site has been surveyed for desert tortoise three times since 2004 in support of the Manzana, Tylerhorse, and Camino Solar projects, and all survey results have been negative (Sapphos 2006; Sapphos 2011, Sapphos 2013, this report). Based on the repeated negative survey results at the project site and the infrequency of recorded occurrences in the Antelope Valley, desert tortoise has been determined to be Absent from the project site, with USFWS concurrence (Bransfield 2016, Appendix G).

Coast Horned Lizard

The coast horned lizard (*Phrynosoma blainvillii*), a CDFW species of special concern and BLM sensitive species, occurs in a wide range of habitats in California, including valley-foothill hardwood, conifer, and riparian habitats, pine-cypress, juniper, and annual grasslands. In the Antelope Valley the coast horned lizard may be found near the foothills and margins, whereas the desert horned lizard (*P. platyrhinos*) is more typical of the hotter and drier valley floor. Coast horned lizard was identified at the Manzana Wind Project, but it is unknown whether it was identified within the Camino Solar project site. The project provides suitable habitat for this species, and the nearest CNDDDB record is approximately 6 miles to the west. The potential for coast horned lizard to occur is High.

4.11.2.4 BIRDS

In addition to the species with recorded occurrences near the project in the CNDDDB, five species with protections afforded by the federal ESA are also considered here because they were identified by USFWS as potentially moving through the vicinity of the project during migration. These species are yellow-billed cuckoo (*Coccyzus americanus*), willow flycatcher (*Empidonax traillii*), California condor (*Gymnogyps californianus*), Yuma Ridgway's rail (*Rallus obsoletus yumanensis*, formerly known as *R. longirostris yumanensis*), and least Bell's vireo (*Vireo bellii pusillus*).

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is a CDFW fully protected species, a BLM sensitive species, and a USFWS bird of conservation concern; it is also protected pursuant to the federal BGEPA. This species has an extremely large global range that includes much of North America, Eurasia, and parts of northern Africa. The golden eagle is an uncommon but widespread resident in California, and is known to nest in the Tehachapi Mountains and occasionally on its southern foothills. Territories regularly span five to ten miles across depending on the availability of prey, nest sites, and wind resources. Breeding adults in desert settings may range ten to twenty miles from the nest while foraging. Golden eagles nest on cliffs, rock outcrops, or in large trees, none of which are present at the project property. Foraging golden eagles require large amounts of open space for hunting, such as grasslands, deserts, and savannahs. The entire project property provides suitable habitat and may support a suitable prey base. Mid-sized mammals such as rabbits and marmots are preferred as prey, but prey may be as small as ground squirrels, or as large as deer (rarely), and golden eagles will consume carrion when it is available. The project property supports some small to moderate-sized mammalian prey species, including black-tailed jackrabbits (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and California ground squirrel (*Spermophilus beecheyi*).

No golden eagles were observed incidentally by SWCA biologists at the project property, and there is no suitable habitat for nesting. Multiple years of aerial surveys for nesting golden eagles have been conducted in the region, which have identified golden eagle nests in the Tehachapi and Piute Mountains. The closest active nest to the project site is approximately 5 miles to the northeast (SWCA 2017). The closest record in the CNDDB is approximately 7.5 miles north of the project. Golden eagles are regularly observed wintering in the Antelope Valley (eBird 2018). This species was observed at the Manzana Wind Project during raptor migration surveys. Golden eagle is considered Present at the project when foraging, but would not nest there because the project lacks potential nest sites.

Burrowing Owl

Burrowing owl (*Athene cunicularia*), a CDFW SSC and BLM sensitive species, occurs in a wide range of mostly open habitats in California, including grasslands, shrub-steppe, deserts, pastures, and agricultural areas. The migratory movements of this species are not well understood. Breeding populations from the northern range of the species are apparently migratory, though southern California populations are probably year-round residents (Thomsen 1971). Seasonal movements also occur in some parts of the southern range. Increases in winter population sizes within southern California are probably the result of immigration of owls from more northerly areas (Coulombe 1971). Male burrowing owls that reside year-round in southern California may overwinter in burrows within nesting areas, which allows them to retain possession of their burrows and territories, and to maintain the burrows (Johnsgard 2002).

Suitable habitat for burrowing owl includes short vegetation and, in the breeding season, the presence of small mammal burrows. The California range of this species extends from Redding south to San Diego, east through the Mojave Desert and west to San Francisco and Monterey. The key characteristics of suitable habitat are moderately low and sparse vegetation, a prey base of small mammals during nesting, and burrows or similar sites for shelter. This species occurs at low densities in the Antelope Valley, where it is present in both the breeding and non-breeding seasons, as recorded in the CNDDB. CDFW considers burrows occupied within the last three years to be occupied for the purposes of documenting burrowing owls at a project and evaluating potential impacts (CDFW 2012).

A complete three-phase burrowing owl survey was completed by SWCA biologists between spring 2016 and summer 2016 throughout the entire project site. The first survey for burrows was conducted in May 2016, and follow-up visits to determine the burrows' occupancy status were conducted in June and July 2016.

As a result of the survey for burrows, six burrows of suitable size were identified, only one of which was inside the project area (Figure 12). Two of the potential burrows were dens occupied by coyote (*Canis latrans*) or desert kit fox, which is not compatible with concurrent use by burrowing owls. One burrow, at the interior edge of the project, had signs of use, including whitewash (feces), and beetle carcasses. No burrowing owls were observed at it or at any part of the project during the follow-up visits in June and July, or during any survey conducted by SWCA in 2016. The burrows were therefore determined to be unoccupied in the 2016 breeding season. However, CDFW defines a burrow as occupied if it has been occupied in the past three years. The presence of sign at one burrow means that it is considered occupied by that definition. A burrowing owl survey was also conducted in 2011 in support of the Tylerhorse project. As a result of that survey, a single occupied burrowing owl burrow was observed approximately 0.2 miles to the east of the project site near a large ephemeral drainage. The location was revisited in May 2016 by SWCA biologists specifically to search for burrowing owls; no burrows were found in the area.

Burrowing owl is considered Present at the project, although survey results indicate that densities are very low, and they may not be present on a permanent basis.

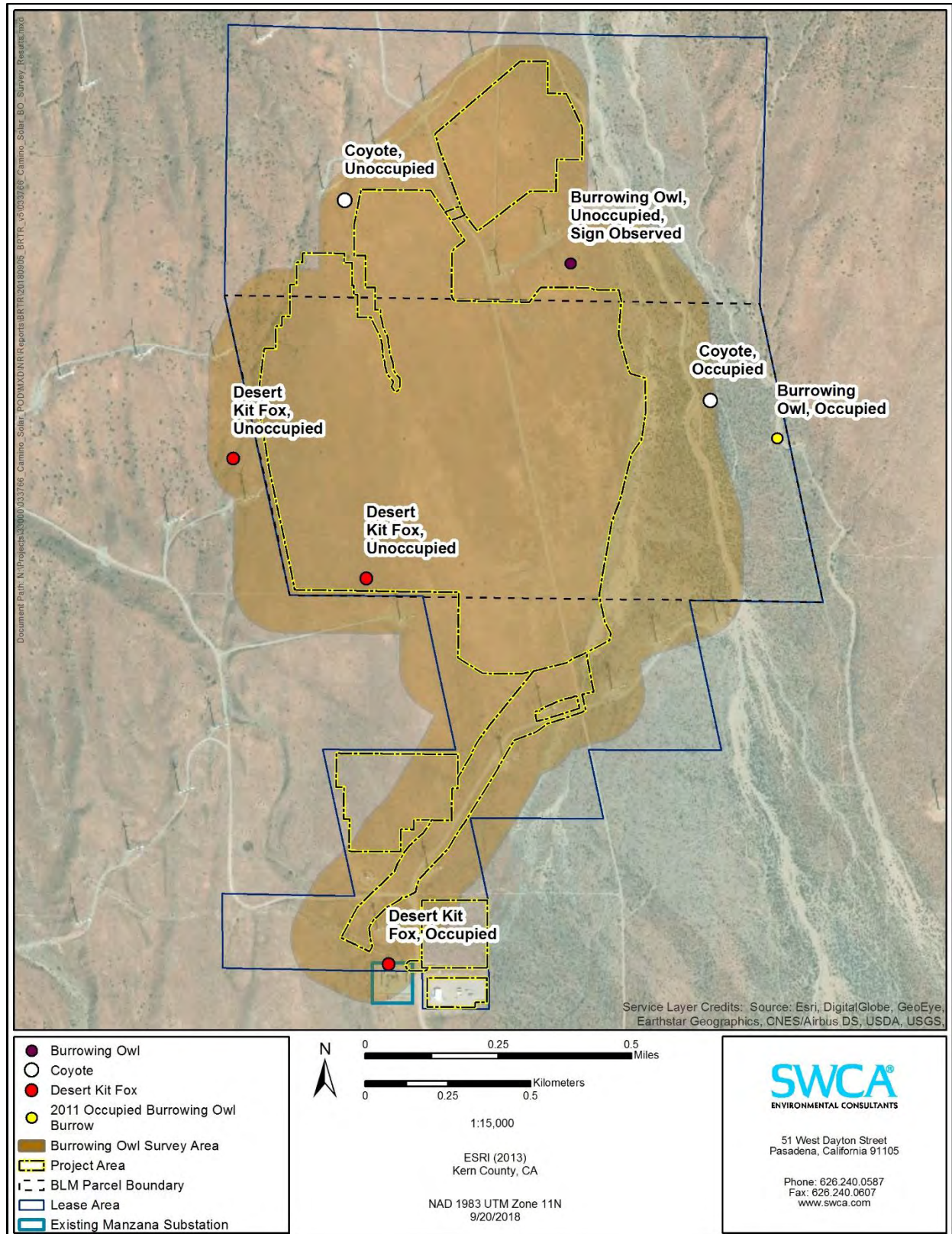


Figure 12. Burrowing Owl, Coyote, and Desert Kit Fox Dens and Potential Burrows

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed as threatened under CESA and is known to nest in small numbers in the Antelope Valley. The local population in the Antelope Valley has been well-studied, and most nest sites are known and used repeated over several years (Bloom 1980). This species forages in open habitats with little topographic relief, and in California is generally found in association with agricultural fields, where prey (small mammals such as gophers and mice) are numerous.

The CNDDDB includes several records of Swainson's hawk nests within 10 miles of the project, but none within the 5-mile radius search area stipulated in the CDFW survey protocol. All of the CNDDDB records are within 1.5 miles from agricultural fields. In contrast, the project site is approximately 5.25 miles from the closest agricultural field (see Figure 2).

On May 3, 2016, SWCA biologist Mike Cady conducted a windshield and pedestrian survey of potential nest sites within 5 miles of the project. First, the biologist visited Swainson's hawk nest sites within 10 miles of the project site that are recorded in the CNDDDB. The nearest known nest site in the CNDDDB is approximately 7 miles from the project. None of the previously recorded Swainson's hawk nests visited were active, and several were in disrepair. Some of the nest sites recorded in the CNDDDB could not be located, although there were stumps at the sites where the likely trees had been removed.

Next, the biologist surveyed potential nest sites within a 5-mile-radius around the project site. In this area, all large nests potentially occupied by raptors or common raven were observed with binoculars or a spotting scope until the occupancy status and species was determined. One area near the intersection of Irone Avenue and 140th Street West included several residences; the biologist was not able to comprehensively search every tree in the area due to potential privacy concerns, but did identify two active common raven nests, suggesting that nesting Swainson's hawks were unlikely to be present. No other potential Swainson's hawk nest sites were identified during the survey. Due to the lack of potential or active Swainson's hawk nests identified during the survey, conducting multiple surveys of active nest specified in the CDFW survey protocol are not required.

Migratory bird surveys conducted for the Manzana Wind Project recorded Swainson's hawk migrating though the project and surrounding area. No active Swainson's hawk nests were identified as a result of the nesting raptor survey throughout the Manzana project area. The potential for Swainson's hawk to forage at the project is High, but its potential to nest at the site is Low.

Western Yellow-billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*) is a medium-sized songbird that is closely associated with open deciduous woodlands. In the western U.S. it is restricted to riparian areas. The taxonomic treatment of this species by the state of California differs from that of USFWS and the generally accepted taxonomic authority of birds of the U.S., the American Ornithological Society (AOS). USFWS and AOS recognize yellow-billed cuckoo in western states as a population, but not subspecies, whereas the State of California recognizes it as a subspecies (*Coccyzus americanus occidentalis*).

The western yellow-billed cuckoo is listed under CESA as endangered, which includes the entirety of the California population. The western distinct population segment (DPS) is listed as threatened under the federal ESA; this designation also includes all occurrences of the species in California. Yellow-billed cuckoo is also a BLM sensitive species. In California, habitat criteria for this species includes: large blocks of riparian woodlands (particularly those composed of cottonwoods and willows), sufficient patch size (10-acre average in California), and presence of low woody vegetation (Halterman et al. 2015).

There is no suitable habitat for this species at the project site, but it is discussed here because USFWS identified the potential for it to pass through the project area during migration. There is no known migratory flyway to concentrate this species toward or away from the project site. The closest CNDDDB record of yellow-billed cuckoo is approximately 40 miles to the south of the project. Yellow-billed cuckoo is Unlikely to Occur at the project.

(Southwestern) Willow Flycatcher

The willow flycatcher (*Empidonax traillii*) is a small songbird that breeds in riparian habitats across much of the continental U.S. There are four subspecies, three of which occur in California: *Empidonax traillii brewsteri*, *E. traillii adastus*, and *E. traillii extimus*. The entire species is listed as endangered under CESA, and the southwestern subspecies (*E. traillii extimus*) is listed as endangered under the federal ESA. The willow flycatcher species requires riparian woodland habitats for all or portions of its life cycle, and during the breeding season is a riparian obligate (Sogge et al. 2010). Southwestern willow flycatcher breeding habitat generally has vegetation that includes dense tree or shrub cover, dense twig structure, and high levels of live green foliage (Sogge et al. 2010). The breeding range of the southwestern willow flycatcher includes southern California, Arizona, New Mexico, southwestern Colorado, and extreme southern portions of Nevada and Utah.

There is no suitable habitat for this species at the project site, but it was included here because USFWS identified the potential for it to pass through the project area during migration. There is no known migratory flyway to concentrate this species toward or away from the project site. The closest CNDDDB records of willow flycatcher are approximately 50 miles to the north and south of the project. Willow flycatcher is Unlikely to Occur at the project.

California Condor

The California condor (*Gymnogyps californianus*) is listed as endangered pursuant to the federal ESA and CESA. This species, which is the largest bird in North America, has a wingspan of up to 10 feet. It depends on strong updrafts and consistent winds to support its soaring flights, which can cover hundreds of miles in a single day. After being extirpated in the wild, a reintroduction effort led by USFWS has resulted in a population of 166 free-flying individuals in the Southern and Central California flocks at the end of 2016 (USFWS 2016c). Additional flocks have been established based on releases along the Big Sur coast in Monterey County, California; in Pinnacles National Park in San Benito and Monterey Counties, California; at Vermilion Cliffs National Monument, Arizona; and in Baja California, Mexico.

California condors consume carrion, usually carcasses of large mammals such as deer, cattle, sheep, and marine mammals. These carcasses can originate from a variety of sources, including natural mortalities, hunter kills and gut piles, roadkill, and deaths at livestock facilities. They are opportunistic feeders, and occasionally consume smaller prey such as rodents or rabbits. For nesting, California condors require cliffs, or hollows in very large trees.

California condors in the vicinity of the project fly throughout the Tehachapi Mountains to the north of the project, and to a lesser extent, the San Gabriel/Liebre Mountains to the south. Location data from the individuals with GPS transmitters indicate that flights across the flat areas of the Antelope Valley where the project is located are extremely rare. The Antelope Valley lacks slopes that will provide consistent winds and lift for soaring flight, and carcasses of large mammals are generally not available. Although California condors could overfly the project very occasionally, they are very unlikely to land at the project, as the large animals that typically make up their prey base are absent most of the year. No carcasses have been discovered during any of the numerous comprehensive biological surveys completed to date. On private lands within the adjacent Manzanita Wind Power Project, Aurora's parent company, Avangrid Renewables, immediately covers and/or removes livestock carcasses as part of best management practices

for the Manzanita Wind Power Project. On BLM land, grazing is managed according to terms and conditions of the grazing permits, which conform to BLM land use plan requirements. In this case, the BLM parcel overlapping the project is part of the Antelope Valley sheep allotment managed under the West Mojave Plan, which allows for seasonal sheep grazing in the spring. This land use plan requires that grazing permits contain terms and conditions consistent with the *1994 Biological Opinion for Ephemeral Sheep Grazing in the California Desert District*, which includes carcass removal measures. The BLM has notified the grazing permit holder for the Camino Solar BLM parcel that their grazing rights will be terminated when the solar project is constructed.

There is no nesting habitat for California condors at or near the project property. This species was considered unlikely to occur, as habitat at the project does not contain suitable resources. Due to the extremely unlikely event that a California condor will land at the project even if it were to overfly the area, this species is considered Unlikely to Occur.

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is listed as a CDFW species of special concern and a USFWS bird of conservation concern. This species occurs in areas with widely-spaced shrubs or low trees, such as scrub lands, steppes, deserts, savannahs, prairies, agricultural lands, and sometimes suburban areas. Loggerhead shrike is a permanent resident in the Antelope Valley. The loggerhead shrike preys on large insects, lizards, small mammals, birds, and carrion. It requires open areas for hunting, shrubs or low trees for perches and nest sites. The project site includes suitable habitat for this species, and it was observed at the project site by SWCA biologists in 2016. Loggerhead shrike is considered Present.

Yuma Ridgway's Rail

Yuma Ridgway's rail (*Rallus longirostris* [formerly *obsoletus*] *yumanensis*) is listed as endangered under the ESA and threatened under CESA; light-footed Ridgway's rail (*R. obsoletus levipes*) is listed as endangered under both ESA and CESA. Like rails in general, Yuma Ridgway's rail is closely associated with water bodies, specifically salt and freshwater marshes. Although sometimes abundant in suitable habitat, this species is rarely observed because it rarely leaves dense marshes. Dispersal is erratic and may occur either before or after nesting. The migratory status of this species is not entirely clear; some evidence suggests that populations along the Colorado River and in the Imperial Valley are migratory, but this has not been confirmed by radio telemetry. There is no suitable habitat at the project area, and no water bodies within several miles.

However, in 2013 one individual Yuma Ridgway's rail was found dead at the Desert Sunlight solar PV facility in the Mojave Desert, raising concerns that this species may be susceptible to collision at facilities like the project. The cause of death of the individual could not be determined because decomposition was too far advanced. Compared to the project, Desert Sunlight is much closer to populations of Yuma Ridgway's rail; it is approximately 35 miles from the Salton Sea and 50 miles from the Colorado River. In contrast, the project is 160 miles from the Salton Sea and over 200 miles from the Colorado River. Therefore, Yuma Ridgway's rail is categorized as Not Likely to Occur at the project site.

Least Bell's Vireo

Least Bell's vireo (*Vireo bellii pusillus*) is a small songbird associated with riparian habitats including forest, scrub, and woodlands. It is listed as endangered under both CESA and the federal ESA. A migratory species, the least Bell's vireo breeds in Southern California near water or dry river bottoms at elevations below 2,000 feet amsl. Least Bell's vireo is a riparian obligate during the breeding season and is typically associated with early successional riparian habitat that is structurally diverse (Kus 2002). The least Bell's

vireo can occupy a range of riparian vegetation types (e.g., cottonwood willow and oak woodland) and vegetation age classes, but is most often associated with a dense understory (Franzreb 1989).

There is no suitable habitat for this species at the project site, but it is discussed here because USFWS identified the potential for it to pass through the project area during migration. There is no known migratory flyway to concentrate this species toward or away from the project site. The closest CNDDDB record of least Bell's vireo is 27 miles to the northwest of the project. Least Bell's vireo is Not Likely to Occur at the project.

4.11.2.5 MAMMALS

In addition to the mammals with recorded occurrences near the project, southern grasshopper mouse (*Onychomys torridus ramona*) is considered for its potential occurrence at the site; see below for details.

Tulare Grasshopper Mouse and Southern Grasshopper mouse

The project site lies approximately at the junction of the ranges of these two closely related mice, which cannot be distinguished in the field. The range of the Tulare grasshopper mouse (*Onychomys torridus tularensis*) extends north from the project, and this subspecies is generally considered to occur only in the southern San Joaquin Valley, although there are a few recorded occurrences along the eastern edge of the Tehachapi and Southern Sierra Mountains. The southern grasshopper mouse occurs south of the project to at least the California-Mexico border. Both are CDFW SSC, and the Tulare grasshopper mouse is a BLM sensitive species. Both species are highly active carnivores and depend on high densities of insect prey.

The Tulare grasshopper mouse occurs in low open scrub and semi-scrub habitats such as alkali desert scrub and desert scrub, and has also been recorded in blue oak savannah. Small mammal trapping conducted in support of the Tylerhorse project resulted in the identification of southern grasshopper mouse at the project site, but these captures were recorded in the CNDDDB as Tulare grasshopper mouse, possibly due to the presumed range of the species and the fact that it would not have been possible to identify the captured individuals as Tulare versus southern grasshopper mice in the field setting. These records are 1.2 miles to the east of the project site, and represent the southernmost known occurrences of this species. The next closest CNDDDB record of Tulare grasshopper mouse is 12 miles northeast of the project.

The southern grasshopper mouse occurs in desert areas, especially scrub habitats with friable soils for digging, and prefers low to moderate shrub cover. It consumes soft-bodied insects including cutworms and grasshoppers, and does not require open water. The closest record in the CNDDDB is 29 miles south of the project site, which is one of the two northernmost records of this species.

The location of the project at the edge of these species' ranges means that both were considered to have the potential to occur, although the proximity of records of Tulare grasshopper mouse suggest that this species is more likely to be present than the southern grasshopper mouse. The potential of Tulare grasshopper mouse to occur at the project is High; the potential for southern grasshopper mouse to occur is Moderate.

Tehachapi Pocket Mouse

The Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*) is a CDFW SSC. This species occurs in native and non-native grasslands, Joshua tree woodland, pinyon-juniper woodland, yellow pine woodland, oak savannah, chaparral, coastal sage communities, rangeland, and fallow grain fields. Tehachapi pocket mouse constructs burrows in loose sandy soil. Its ecology is poorly known, but it is most likely a granivore like other pocket mice. It is known from relatively few locations, but these occurrences span a wide array of habitat types. The Tehachapi pocket mouse has been recorded at elevations between 3,500 and 6,000 feet amsl. The closest record of this species in the CNDDDB is 2.7 miles west of the project site. The potential for Tehachapi pocket mouse to occur at the project is High.

San Joaquin Pocket Mouse

The San Joaquin pocket mouse (*Perognathus inornatus*), a BLM sensitive species, ranges from the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert. It is associated with fine-textured, sandy, friable soils, and is known to occur in grassland, oak savanna, and arid scrublands at elevations from 1,100 to 2,000 feet amsl. The closest CNDDDB record of this species is 1 mile to the south of the project, which represents a capture made during studies conducted in support of the Tylerhorse project. The potential for San Joaquin pocket mouse to occur at the project is High.

American Badger

American badger (*Taxidea taxus*), a CDFW SSC, is generally found in open areas, including open woodlands, desert scrub, and grasslands. Agricultural fields are also suitable if there is a small mammal prey base. The entirety of the project site constitutes potential habitat for this species, which is widespread but uncommon throughout North America. Badger dens are distinctive, due to their size and the presence of claw marks on the sides created when the den was dug. No potential dens were observed at the project site during the surveys conducted in 2016 by SWCA, however one American badger was observed at the Manzana project site during biological surveys conducted between 2004 and 2006. The potential for American badger to occur at the project is High.

Desert Kit Fox

Desert kit fox (*Vulpes macrotis arsipus*) is afforded protection from take under FGC sections 460 and 4000-4003. Much of the Mojave Desert provides habitat for this species, although its population status and trends are unclear. The CNDDDB does not maintain records for this species, so no location records are available for reference, although it is regularly encountered in the Antelope Valley. Desert kit fox can be found in a wide range of habitat types, including desert scrub, washes, and arid grasslands. At least in the western Mojave, desert kit fox dens are frequently located on west- and northwest-facing slopes on friable soils with an absence of stones, caliche, or hardpan (O'Farrell and Gilbertson 1986). Kit foxes use multiple dens, and switch dens frequently throughout the year (Tannerfeldt et al. 2003). Breeding typically occurs in December and January, and pups have usually left the natal den by May.

The entirety of the project site is suitable habitat for desert kit fox. Sign of this species at a potential den were recorded during the transect surveys conducted in May 2016 by SWCA biologists, concurrent with the survey for desert tortoise and burrowing owl. Three potential dens were identified within and adjacent to the project area; all were visited multiple times during the follow-up visits to potential burrowing owl burrows because burrowing owls often use burrows abandoned by other species (see Figure 12). The follow-up visits were conducted on June 8, June 30, and July 15, 2016. Two of the three dens were unoccupied, and there were no signs of recent use. The third den, located at the northern edge of the Manzana Wind Project substation, had signs of active use, including tracks and copious fresh scat when it was first encountered by SWCA biologists. There was less sign present on June 8, and none on June 30 and July 15. As of June 30, on-site staff for the Manzana project reported that fox activity had shifted to the east of the O&M facility; no den site was known. This is consistent with use of the first den for breeding. The active den is less than 500 feet from the Manzana O&M facility and project roads which are used on a daily basis by Manzana project staff. Kit fox is considered Present at the project site.

Mohave Ground Squirrel

The Mohave ground squirrel (*Xerospermophilus mohavensis*) is listed as threatened pursuant to CESA. It is a small (approximately 9 inches long), reclusive ground squirrel distinguishable from the sympatric antelope ground squirrel (*Ammospermophilus leucurus*) by its absence of stripes or spots. It

aestivates/hibernates from August to March, when food is scarce and retreats to its den earlier in the summer during low rainfall seasons. Mohave ground squirrels prefer deep sandy to sandy-gravelly soils on flat to moderately sloping terrain, typically avoiding rocky areas and unvegetated lakebeds (Best 1995, Mohave Ground Squirrel Working Group [MGSWG] 2006, MGSWG 2011). It occurs in a variety of desert scrub habitats, most often in Mojave Creosote Bush Scrub, but also in Joshua Tree Woodland, Desert Saltbush Scrub, Desert Sink Scrub, Shadscale Scrub and, occasionally, agricultural fields (Best 1995, Laabs 2006, Leitner 2008).

The species' range encompasses portions of Inyo, Kern, Los Angeles and San Bernardino Counties from near Palmdale on the southwest, to Lucerne Valley on the southeast, Olancho on the northwest and the Avawatz Mountains on the northeast (Laabs 2006, Gustafson 1993). Technical studies by the MGSWG indicate that the species occupies a fraction of its historic range, which may have once included the western Antelope Valley, areas south of Victorville, and areas southeast of Lucerne Valley (MGSWG 2011). Widespread conversion of native habitats by agriculture, military operations, and land development are implicated in disappearance of the species in portions of its historic range including, perhaps, those areas west of California State Route 14 and south of California State Route 58.

The project is in an area of the DRECP that does not require any surveys for Mohave ground squirrel (Appendix D of BLM 2016). According to the CNDDDB, this species has not been detected near the project area. The nearest records, collected 11 miles east of the project area, are from 1973. The most recent record, from 12 miles northeast of the project area, constitutes a 1998 observation that has not been confirmed by trapping. No Mohave ground squirrels were captured during the numerous protocol-level surveys conducted in support of the Manzana Wind Project or local approved renewable energy projects (Table 7).

Table 7. Mohave ground squirrel trapping effort at selected renewable energy projects in the Antelope Valley

Project Name	Year	Acres (project area or suitable habitat)	No. of trapping grids	Acres sampled within grids	Results
Alta-Oak Creek	2007	8,640	9	960	Negative
	2008	2,560	4	640	Negative
Avalon Wind Project	2009	6,259	10	626	Negative
	2010	Expansion area	7	Unknown	Negative
Catalina Renewable Energy Project	"pre-2010"	Unknown	5	1,348	Negative
	2010	Unknown	3	Unknown	Negative
	2011	6,739	5	1,348	Negative
Catalina Addendum (Cat. Solar 2)	2010	761	2	381	Negative
	2012	120	1.5	80	Negative
Manzana Wind Power Project	2006	921	3	307	Negative
Pacific Wind Project	2008	6,164	9	684	Negative
Rising Tree Wind Farm	2011	3,472	15	231	Negative
Valentine Solar Project	2015	1,300	3	74	Negative
		<i>Approximate Total:</i>	76.5	42,438 (66 square miles)	Negative

Based on published and unpublished study results, the proposed project is outside and to the west of the known occupied habitat for Mohave ground squirrel, although perhaps within its historical range. While the proposed project site encompasses suitable habitat for this species, recent surveys and trapping efforts on similar habitats on and near the project site conducted between 2006 and 2012 suggest that Mohave ground squirrels do not occur west of California State Route 14 and south of California State Route 58.

5 DISCUSSION

This section describes the anticipated direct and indirect impacts to biological resources at the project property that may result from implementation of the project and includes recommended measures to avoid, minimize, and mitigate for project impacts to biological resources. This analysis was based on the results of the biological resources surveys conducted at the site, information from literature and database resources, and the project design and layout. An adverse impact to biological resources would be considered to occur if construction and/or operation of the proposed facilities would cause substantial (adverse) changes to the existing abundance, diversity, distribution, or habitat value of existing plant or animal populations.

5.1 Direct and Indirect Impacts of the Proposed Action

5.1.1 Vegetation

The construction and operations of the project would result in direct and indirect impacts to natural vegetation communities within the project area. Direct impacts to plant communities were calculated based on a quantitative Geographic Information Systems (GIS) comparison of the project design against the mapped plant communities (Table 8). Permanent direct impacts are those that would result from the clearing and grading of vegetated areas to accommodate the operation and maintenance of the project, including solar panel arrays, permanent fencing, roads, portions of the electrical collection system, transformers, and the project switchgear. Temporary direct impacts to vegetation would result from construction of the project, including excavation of trenches for the underground electrical collection; and work areas for vehicles, equipment, and machinery associated with construction outside the permanent impact footprint. Temporary impact areas will be located outside the fencing around the solar arrays, along the electrical collection routes, and along the access road.

To ensure that all potential impacts are evaluated here, a worst-case scenario was analyzed: work areas where temporary impacts are planned have been grouped with permanent impacts in this analysis, and no-impact areas within the areas under consideration have been classified as temporary impacts. Actual project impacts are likely to be slightly lower than described here. Indirect impacts include those that will result from fugitive dust generated during clearing, grading, and construction activities; exposure of natural areas to contaminants due to equipment maintenance; and the introduction of invasive vegetation.

Table 8. Estimated acres of impacts of the by plant community and cover type

Plant Community or Cover Type	Permanent (acres)	Temporary (acres)
<i>Bromus rubens</i> – <i>Schismus (arabicus, barbatus)</i> Herbaceous Semi-Natural Alliance Red Brome or Mediterranean Grass Grasslands	275	2
<i>Juniperus californica</i> Woodland Alliance California Juniper Woodland	7	-
<i>Yucca brevifolia</i> Woodland Alliance Joshua Tree Woodland	<1	2
<i>Larrea tridentata</i> Shrubland Alliance Creosote Bush Scrub	3	1
<i>Eriogonum fasciculatum</i> Shrubland Alliance California Buckwheat Scrub	10	<1

Plant Community or Cover Type	Permanent (acres)	Temporary (acres)
<i>Ambrosia salsola</i> Shrubland Alliance Cheesebush Scrub	3	2
<i>Ephedra nevadensis</i> Shrubland Alliance Nevada Joint Fir Scrub	58	8
<i>Lepidospartum squamatum</i> Shrubland Alliance Scale Broom Scrub	-	-
Disturbed/Developed	10	1
<i>Total:</i>	366	16

The construction, operation, and maintenance of the project is anticipated to result in temporary impacts to up to 16 acres, 1 acre of which is already disturbed and/or developed (existing roads and the O&M facility). Following construction, the trenches for the underground electrical collection system would be filled and revegetated. Temporary work areas and temporarily widened access roads would also be reclaimed and revegetated. Excluding the 10 acres that are already permanently disturbed and/or developed, permanent impacts to vegetation resulting from implementation of the project may total up to 356 acres.

Most of the permanent impacts would occur in the Red Brome or Mediterranean Grass Grasslands, which is strongly dominated by non-native grasses and has been impacted by years of grazing. Of the vegetation communities dominated by native species, Joshua Tree Woodland is designated as a sensitive natural community by CDFW, and impacts to this community type may require mitigation through translocation of viable individual Joshua trees to an undeveloped area, which would be part of a restoration and revegetation plan developed for the project. Permanent impacts to other vegetation communities may not require mitigation.

A Habitat Restoration and Revegetation Plan (see Mitigation Measure (MM) Bio-2) will be developed to guide the implementation and monitoring of restoration in temporary impact areas.

The duration of impacts to vegetation would depend in part on the success of mitigation and revegetation efforts and the time needed for natural succession to return revegetated areas to pre-disturbance conditions. Because recovery in arid environments is extremely slow, this is likely to be on the order of 10 to 20 years for Joshua Tree Woodland, Mojave Desert Wash Scrub, and Mojavean Juniper Woodland and Scrub.

Effective reclamation of project-related disturbances would begin after the completion of site cleanup and would be accomplished following the measures identified in the restoration and revegetation plan for the project. The recommendations presented in the plan will be developed based on the physical and biological characteristics of the project area as well as on observations of successful reclamation efforts on similar energy development projects. Therefore, assuming these measures are effectively applied, significant impacts that relate to reclamation success are not likely to occur.

Implementation of the proposed action also would increase the potential for the occurrence of indirect effects. Disturbances from construction would increase the potential for the establishment and spread of invasive and noxious weed species. Noxious weeds tend to be aggressive colonizers of disturbed areas where the native vegetation has been removed. Therefore, disturbances associated with construction of the solar arrays, access roads, and electrical collection system would provide opportunities for invasive and noxious weeds to become established. If they become established, weeds would increase fuel levels and the potential for increased intensity and numbers of wildfires. Wildfire within the project area, where native

vegetation is generally intolerant of fire, could potentially lead to mortality of native plants and further transform the vegetation community from native vegetation to non-native grasslands. To minimize the potential for adverse effects from invasive and noxious weed establishment, monitoring for invasive and noxious weeds would be necessary. If invasive and noxious weeds are found, control and eradication measures would be implemented as outlined in a Weed Control Plan (see MM Bio-4).

Additional indirect construction-related impacts could include soil compaction, disruption of microphytic crusts, and an increased potential for wind and water erosion of disturbed surfaces prior to reclamation. However, indirect disturbance effects from construction would be reduced to non-significant levels with the implementation of recommended and required MMs, specifically MMs Bio-1, Bio-2, Bio-3, and Bio-4.

One riparian or wetland area was mapped outside the project site by Sapphos in 2004, 2005, and 2011, within the Tylerhorse and/or Manzana Wind Power Project sites. Specifically, the Scale Broom Scrub mapped to the east of the project site is a subset of the NVC macrogroup Madrean Warm Semi-Desert Wash Woodland/Scrub, which has a 200-foot setback specified in the DRECP, in CMA LUPA-BIO-RIPWET-1. This CMA stipulates that:

The riparian and wetland DRECP vegetation types and other features listed in Table 17 will be avoided to the maximum extent practicable, except for allowable minor incursions (see Glossary of Terms for "avoidance to the maximum extent practicable" and "minor incursion") with the specified setbacks...

... For minor incursion (see "minor incursion" in the Glossary of Terms) to the DRECP riparian vegetation types, wetland vegetation types, or encroachments on the setbacks listed in Table 17, the hydrologic function of the avoided riparian or wetland communities will be maintained.

- Minor incursions in the riparian and wetland vegetation types or other features including the setbacks listed in Table 17 will occur outside of the avian nesting season, February 1 through August 31 or otherwise determined by BLM, USFWS, and CDFW if the minor incursion(s) is likely to result in impacts to nesting birds.

The setback is measured from the edge of the mapped riparian or wetland vegetation. A "minor incursion" is defined in the DRECP Glossary of Terms as follows:

Minor incursion: Small-scale allowable impacts to sensitive resources, as per specific CMAs, that do not individually or cumulatively compromise the conservation objectives of that resource or rise to a level of significance that warrants development and application of more rigorous CMAs or a DRECP LUPA amendment. Minor incursions may be allowed to prevent or minimize greater resource impacts from an alternative approach to the activity. Not all minor incursions are considered unavoidable impacts.

The Camino Solar project footprint has been designed to avoid direct impacts to the Scale Broom Scrub, however, it does encroach within 160 feet of this community. Implementation of MM Bio-5 addresses avoidance and minimization of impacts to this resource type.

5.1.1.1 MITIGATION FOR IMPACTS TO VEGETATION

MM Bio-1: Minimize Work Areas

The project design shall limit the size of temporary construction work areas and minimize the impacts to sensitive vegetation communities to the greatest extent feasible. Limits of disturbance shall be clearly shown on construction plans, and staking or fencing will field-delineate sensitive vegetation communities

to be avoided. Exclusionary fencing, staking or other marking shall be installed prior to grading activities and remain in place for the duration of construction.

MM Bio-2: Revegetation of Temporary Impact Areas

A Habitat Restoration and Revegetation Plan (HRRP) shall be prepared for restoring temporarily disturbed areas to their previous condition. The HRRP shall identify success criteria for each habitat type and develop a monitoring plan to measure progress toward success criteria.

Revegetated areas will be seeded with a seed blend that includes native grass, forb, and shrub species characteristic of the plant community receiving the temporary impact. Revegetation activities shall be undertaken as soon as construction activities have been completed to minimize colonization by non-native weedy species. The use of herbicides shall be limited to non-persistent, immobile pesticides and shall only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications. Temporary impacts to areas designated as disturbed will be revegetated with a blend of native grass, forb, and shrub species characteristic of the area prior to receiving the disturbance.

MM Bio-3: Implementation of Best Management Practices

The plans and specifications for the project shall require the construction contractor to reduce the transport of fugitive dust particles related to construction activities through the use of soil stabilization, watering, or implementation of comparable measures. In addition, to the extent feasible, construction materials and stockpiled soils shall be covered or treated to ensure that do not become a source of fugitive dust. Fugitive dust management areas, including stockpiled soils, shall be inspected weekly by the on-site biologist to ensure that they are adequately managed to prevent the generation of fugitive dust.

Erosion controls that comply with county, state, and federal standards shall be applied, including the implementation of best management practices. Practices such as installation of silt fences, and check dams shall be applied near disturbed areas to minimize and control erosion. Erosion management areas shall be inspected and maintained regularly.

To minimize potential impacts to existing plant communities from accidental fuel spills, the plans and specifications for the project shall require the contract to specify that all refueling shall occur in a designated fueling area that includes a temporary berm to limit the spread of any spill; drip pans shall be used during refueling to contain accidental releases, and drip pans shall be used under the fuel pump and valve mechanisms of any bulk fueling vehicles parked at the construction site; spills shall be immediately addressed per the appropriate spill management plan, and soil cleanup and soil removal initiated if needed.

MM Bio-4: Prevention of Invasive Weed Introduction

A Weed Control Plan shall be prepared to address the control of invasive weeds including those considered noxious by BLM. The plan shall include a risk assessment of the invasive weed species currently known within the project area, procedures to control their spread on-site and to adjacent off-site areas, and procedures to help minimize the introduction of new weed species. The Weed Control Plan shall include preventive measures to be implemented to minimize the potential establishment of invasive weed species during project implementation: tires and surfaces of all trucks and construction equipment shall be cleaned with water or high-pressure air prior to commencing work in off-road areas, and/or use rocks/grates at the project entry points to physically dislodge seeds, to minimize the transport of seeds from weedy species from one site to the next; certified weed-free mulch shall be used when stabilizing areas of disturbed soil; and on-site soil shall be used to the maximum extent practicable for fill.

MM Bio-5: Setbacks

The project shall avoid and minimize impacts to Scale Broom Scrub, and any other DRECP Riparian vegetation types that are members of the Madrean Warm Semi-Desert Wash Scrub/Woodland (MWSWS) NVC macrogroup, to the maximum extent practicable.

Impacts within 200 feet of MWSWS will not be permitted unless approved by BLM as a minor incursion. If the impacts would not meet the definition of a minor incursion, the applicant shall redesign the project to meet the 200-foot setback requirement. If any other resources are present that have a setback specified in the DRECP, then impacts within the setback distance will not be permitted without BLM approval.

5.1.2 Jurisdictional Waters and Wetlands

The project layout has been designed to avoid all of the drainages, wetlands, and riparian habitats in immediate vicinity. Ephemeral washes outside the project area were identified in a field delineation conducted by SWCA in late 2015. These were determined to be potentially subject to CDFW and RWQCB jurisdiction; no potential wetlands or waters of the U.S. were identified as a result of the delineation. Therefore, there would be no direct impacts to jurisdictional waters or riparian habitats as a result of the implementation of the project. To ensure that impacts to jurisdictional features are avoided in the event of project design refinement or changed environmental conditions, Aurora will conduct a new field delineation prior to construction (MM Bio-6). If impacts to jurisdictional waters would occur, the project design will be refined to avoid impacts.

Indirect impacts to drainages can result from erosion and stormwater flows from the project site into drainages below the project elevation. A Stormwater Pollution Prevention Plan (SWPPP) will be developed to prevent indirect impacts to drainages (see MM Bio-7). Along with MMs Bio-1, Bio-2, Bio-3, Bio-4, Bio-5, and Bio-6, the following measures will ensure that impacts to jurisdictional waters, wetlands, and riparian areas are below the level of significance.

MM Bio-6: Pre-construction Jurisdictional Delineation

A field delineation of drainages, wetlands, and riparian habitats potentially subject to CDFW or RWQCB jurisdiction will be conducted within two (2) years before the start of ground disturbance and construction of the project. If required to avoid impacts to jurisdictional resources, the project design will be refined prior to the start of construction.

MM Bio-7: Protection of Aquatic Resources

Best Management Practices shall be employed to prevent erosion in accordance with the project's site specific Stormwater Pollution Prevention Plan (SWPPP). Erosion problems shall be remedied within two days of discovery or as described in the SWPPP.

Spoils from project activities shall be located away from jurisdictional areas or sensitive habitat and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and/or straw wattle barriers, as appropriate.

To minimize the risk of accidental spill in watercourses, all refueling of construction equipment, storage of hazardous materials, and equipment maintenance activities shall occur at least 100 feet away from jurisdictional areas.

The project applicant will prepare a Hazardous Materials Business Plan in accordance with the California Health and Safety Code, and Kern County regulations. This plan should provide for hazardous material and hazardous waste storage areas; describe proper handling, storage, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for

handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies.

Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed.

MM Bio-8: Implementation of a SWPPP

To ensure that stormwater quality is protected during the construction and decommissioning phases, the applicant shall complete and implement a SWPPP for the project that shall be in effect during all construction activities for the area and associated facilities. The SWPPP shall identify pollutant sources that may affect the quality of stormwater discharge and shall require the implementation of BMPs to reduce pollutants in storm water discharges.

BMPs may include, but would not be limited to:

1. If grading occurs during the rainy season (October 15 to April 15), storm runoff from the construction area shall be regulated through a stormwater management/erosion control plan that shall include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow would be controlled, such as temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of off-site sediment transport. Any trapped sediment shall be removed from the basin or trap and placed in suitable location on-site, away from concentrated flows, or removed to an approved disposal site.
2. To minimize discharge of sediment during storm events, temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, check dams, geofabric, sandbag dikes, erosion control blankets, matting, and other fabrics or other ground cover as available) shall be implemented and remain in place until surface sediments can be stabilized.
3. Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.
4. No disturbed surfaces may be left without erosion control measures in place during the rainy season (October 15 to April 15).
5. Erosion protection shall be provided on all cut-and-fill slopes and shall be initiated as soon as possible after completion of grading and prior to the onset of rainy season (October 15 to April 15).

5.1.3 Wildlife

Construction and operation of the project would result in direct and indirect impacts to wildlife and wildlife habitats. The magnitude of impacts to wildlife and wildlife habitats would depend on a number of factors including the type and duration of disturbance, the species of wildlife present, time of year, and implementation of recommended and required mitigation measures.

5.1.3.1 CONSTRUCTION-RELATED IMPACTS

Direct impacts to wildlife during construction would be most likely to result from interactions with on-site vehicles and equipment as they move through the project area. Examples include vehicle collisions, entrapment in trenches, crushing by equipment or stockpiled materials, and burial in collapsed burrows. Direct mortality and injury can be avoided and minimized, and by conducting surveys and monitoring

before and during construction, and then relocating individual animals out of harm's way. Wildlife can be prevented from entering the site during construction by installation of temporary or permanent fencing.

Indirect impacts to wildlife are expected to result mainly from the modification of the existing habitats at the project. Project implementation would result in the direct disturbance of approximately 383 acres of wildlife habitat (see Table 8). The 383 acres includes the solar arrays, roads, inverters, and other infrastructure internal to the project and the surrounding fence. It also includes the re-routed access road, underground electrical collection, battery storage area, and the operations and maintenance yard. Activities causing direct disturbance to wildlife habitats may include ground surface grading and excavation, tree and shrub removal, and/or scraping of road surfaces and subsurface soils. Each of these activities could effectively remove and/or degrade existing habitat, thereby reducing its availability to local wildlife populations.

Following construction, areas of temporary disturbance would be reclaimed. These areas would be revegetated with approved seed mixes. Restoration of areas currently dominated by non-native plants has the potential to improve wildlife habitat quality over the existing conditions, by increasing percent cover and diversity of native plants. The duration of impacts to vegetation would depend, in part, on the success of mitigation and reclamation efforts and the time needed for natural succession to return revegetated areas to pre-disturbance conditions. Grasses and forbs are expected to become established within the first several years following reclamation; however, an estimated 10 to 20 years would be required for shrub establishment and production of useable forage. Thus, under the proposed action, total permanent vegetation disturbance would be approximately 366 acres.

Permanent and temporary loss of habitat as a result of construction activities could affect some invertebrate, small mammal, and reptile species that have very limited home ranges and mobility. Although there is no way to accurately quantify these effects, the impact is likely to be moderate in the short term and to be reduced over time as reclaimed areas produce suitable habitats. Most of these wildlife species would be common and widely distributed throughout the project area, and the loss of some individuals as a result of habitat removal would have a negligible impact on populations of these species throughout the region.

Indirect effects due to displacement of wildlife also would occur as a result of construction activities associated with the project. In response to the increase in human activity (e.g., equipment operation, vehicular traffic, and noise), wildlife may avoid or move away from the sources of disturbance to other habitats. This avoidance or displacement could result in underutilization of the physically unaltered habitats adjoining the disturbances. Wildlife habitats adjoining the project may also be directly affected by fugitive dust produced by vehicles and during grading; wildlife in these areas may avoid or move away.

The net result would be that the value of habitats near the disturbances would be decreased and previous distributional patterns would be altered. The habitats would not support the same level of use by wildlife as before the onset of the disturbance. Additionally, some wildlife would be displaced to other habitats leading to some degree of overuse and degradation to those habitats. Implementation of measures to reduce impacts to habitat (MMs Bio-1, Bio-2, Bio-3, Bio-4, Bio-5, and Bio-6), as well as wildlife-specific measures (MMs Bio-9, Bio-10, Bio-11, Bio-12, Bio-13, Bio-14, Bio-17, and Bio-18; see below) will minimize direct impacts to common and special-status wildlife.

MM Bio-9: Worker Environmental Awareness

Prior to construction and for the duration of construction activities that could affect natural habitat, all new personnel shall attend a Worker Environmental Awareness Training and Education Program. The program shall be developed by a qualified biologist. Any employee responsible for the operation and maintenance of the completed facilities shall also attend the Worker Environmental Awareness Training and Education Program.

- a) The program shall include information on the life history of the burrowing owl, raptors, American badger, desert kit fox, as well as other wildlife and plant species that may be encountered during construction, and operations and maintenance activities.
- b) The program shall provide guidance on responding to the discovery of injured wildlife on the project site, and documenting of animal encounters and incidents.
- c) An acknowledgement form signed by each worker indicating that environmental training has been completed will be kept on record.
- d) A sticker shall be placed on construction worker hard hats upon the worker's successful environmental training completion.

MM Bio-10: Vehicle Speeds

Vehicle speed limits shall not exceed 25 mph within the project area during construction of the project. A speed limit sign shall be posted at all project site entry locations.

MM Bio-11: Nesting Birds

To avoid impacts to nesting birds in the project area, a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitat within the project site for project activities that are initiated during the breeding season (February 1 to August 31). If construction is scheduled to commence during the non-nesting season (September 1 to January 31), no preconstruction surveys or additional measures with regard to nesting birds and other raptors are required. The survey for special-status raptors shall focus on potential nest sites (e.g. Joshua trees and shrubs) on-site and within a 500-foot buffer around the construction activities. Surveys shall be conducted no more than 14 days prior to construction activities. Surveys need not be conducted for the entire project site at one time; surveys may be phased to cover portions of the site as they are disturbed. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. Active raptor nests will be avoided and monitored, and the qualified biologists will have stop-work authority to nearby construction activities should it be determined that a nest is being impacted by project activity.

If active nests of other birds or common raptors are found, a suitable buffer (e.g. 200 to 300 feet for common raptors; 0.5 mile for Swainson's hawk; 100 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g. the nestlings have fledged and are no longer reliant on the nest). Based on observation of the individual birds' tolerance to human activity, this buffer may be reduced by a qualified biologist. Encroachment into the buffer may occur at the discretion of a qualified biologist.

MM Bio-12: General Wildlife Protection

During construction, sensitive biological resources in the project shall be delineated with stakes, flagging and/or signage prior to construction to avoid disturbance.

MM Bio-13: Trenches and Excavations

Open trenches or other excavations shall be inspected for wildlife prior to backfilling. Excavations left overnight shall be covered to prevent wildlife from falling in and becoming trapped, and/or sloped at a 2:1 (height:length) ratio at both ends to allow wildlife to escape.

5.1.3.2 OPERATIONAL IMPACTS

The direct impacts from operation and maintenance of the project on wildlife are expected to be minimal and insignificant. Vehicles used by operations and maintenance staff pose a collision risk to wildlife; observance of the 25-mph speed limit would minimize this hazard.

All artificial structures pose some risk to birds in flight; this has been best established for nocturnal migrants, which includes most small birds (Loss et al. 2014). Large birds are more likely to be diurnal migrants, especially raptors; both day and night migration occurs in waterfowl. Collision with buildings, radio towers, and other structures is a significant source of mortality to small migrating birds; all structures, especially those with lighting, pose some collision hazard (Loss et al. 2014, Longcore et al. 2012). Collision with wires, including both transmission lines and guy wires on radio towers, is a hazard for birds in flight.

Avian mortalities have been recorded at solar PV facilities, with impact trauma being the most frequently recorded identifiable cause of death; mortalities at solar facilities using heliostat and solar power tower technology have also been documented (Kagan et al. 2014, McCrary et al. 1986). It has been hypothesized that solar PV facilities may attract birds mistaking the reflective solar panels for a body of water and suffer collision trauma when attempting to land, which has been called the “lake effect.” However, there is no clear evidence for this phenomenon to date, and mortalities at solar PV facilities have included both landbird and waterbird species (Kagan et al. 2014). Evidence that birds collide with PV panels more often than non-reflective stationary infrastructure is also lacking, as is evidence that collisions with PV panels at solar facilities are a biologically significant source of avian mortality. There is evidence that PV solar panels attract insects that normally are attracted to water: some species of flying insects with aquatic larval stages have been shown to lay their eggs on solar panels more often than on water in field experiments (Horvath et al. 2009).

The development of utility-scale solar energy facilities is a recent phenomenon, and the biological relevance of avian mortality at solar PV facilities is not well understood. Preliminary information suggests that the levels of avian mortality at solar facilities of all technology types is much lower than mortality from other known anthropogenic sources such as fossil fuel plants, communication towers, vehicle collisions, and buildings (Walston et al. 2016). Nevertheless, many species of North American birds are protected under the MBTA, BGEPA, and/or ESA, and California has several comparable state regulations, as summarized in Section 2.

The project site is located in an area of relatively low use by avian species, is not within known migratory routes, and does not experience certain inclement weather patterns that, when combined with certain types of lighting regimes, have been theorized to confuse or disorient avian species. Injuries and mortalities of birds due to collision with project infrastructure including solar panels are expected to be low, given that the project is relatively small for a utility-scale project and there are no nearby water bodies that may contribute to confusion between solar panels and water. Moreover, the desert setting of the project lacks features that attract concentrations of birds such as water bodies, agricultural fields, or riparian habitats.

The extent of operational impacts to birds will be monitored by the project operator per MM Bio-14.

MM Bio-14: Bird and Bat Conservation Strategy

The applicant shall develop a BBCS to address project impacts to birds and bats. The applicant shall submit the BBCS to the Kern County Planning and Natural Resources Department, BLM, and USFWS for review and approval prior to initiation of project operation. The BBCS shall be based on BLM-approved BBCSes for other solar projects. The BBCS shall describe project design features to be used to minimize the risk of collision pre-construction, during construction, and during operation and maintenance. The BBCS shall include monitoring, adaptive management, and reporting procedures.

The BBCS shall incorporate a one year post-construction monitoring study to monitor the death and injury of birds from collisions with solar modules. Monitoring will begin within 6 months of commercial operation. The monitoring study shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The study shall also include trials to evaluate searcher efficiency and carcass persistence times. Trial data will be used to support

statistical analysis of the data and estimation of the actual levels of mortality and injury, including both the observed levels and that missed by observers due to limitations in searcher efficiency and removal of carcasses by scavengers and natural processes.

5.1.3.3 SPECIAL-STATUS SPECIES

In general, the impacts of construction and operations of the project on special-status plant and wildlife species and their habitats would be similar to those discussed in the preceding sections for vegetation communities, general wildlife, and avian species. However, these impacts can be more severe for special status plant and wildlife species, if present, because the distribution and abundance of many of these species are limited in the project area and surrounding region.

Special-status Plants

No CRPR special-status plant species were identified as occurring within or near the project area. However, Joshua trees and two species of cactus are present within the project area, which are protected species under the CDNPA. There are high density areas of Joshua trees, particularly at the eastern edge of the project. Altogether, approximately 750 Joshua trees were identified, along with 54 cacti. Avoiding some of these plants may be possible through project design refinements and careful planning of temporary work areas. Individual plants that may be viable for translocation may be translocated from the site and replanted elsewhere. Harvest permits and associated fees for removal of Joshua trees and cacti will be required prior to construction. Impacts to Joshua trees will be minimized through translocation of viable individuals per MM Bio-15.

No plants that meet the criteria to be considered special status under the DRECP were identified at the project, nor was any suitable habitat for such species identified. While Joshua is under review by the USFWS for possible ESA listing, it does not meet the criteria of a special status species per the glossary of terms in the DRECP as of September 2018. Should any BLM sensitive species or DRECP focus species, or their habitat, be found to occur at the project, either through identification in the field or change in status, the impacts will be minimized through the implementation of MM Bio-16.

MM Bio-15: Joshua Tree Translocation Plan

A Joshua Tree Translocation Plan shall be prepared and implemented for the project. The plan shall identify every Joshua tree that may be impacted by construction, providing information about its size, health, location coordinates, and assess its likely viability after translocation, as determined by a qualified botanist. Unhealthy, very large, and very small Joshua trees are less likely to survive translocation. The Plan shall identify a receiving translocation site, specifications for the translocation process, watering guidelines, monitoring requirements, and criteria for evaluating post-translocation survival for not less than two years.

MM Bio-16: BLM Special Status Plants or DRECP Focus Species

If any plants which are either listed as DRECP focus species or BLM special status species as defined in the DRECP; are found at the project, a setback of 0.25 mile from project infrastructure will be implemented. With BLM approval, a lesser setback may be implemented.

If any suitable habitat is found at the project for any plants which are either listed as DRECP focus species or BLM special status species as defined in the DRECP, the project will avoid the habitat to extent feasible, and directly impact no more than 1% of their habitat within the DRECP LUPA decision area.

Special-status Wildlife

Invertebrates

Two species of special-status invertebrates were determined to have a moderate potential to occur at the project: crotch bumble bee and Comstock's blue butterfly. Both of these species are mobile, and individual adults can move away from the project site during construction. Eggs, larvae, and pupal stages may be directly and indirectly impacted during construction by the mechanisms described above. Implementation of the project is not expected to have a substantial adverse effect on either of these species.

Reptiles and Amphibians

Two species of special-status reptiles were determined to have a high potential to occur at the project: California legless lizard and coast horned lizard; both are CDFW SSC. Coast horned lizard was identified in the adjacent Manzana Project study area as a result of detailed field surveys. California legless lizard is a subterranean species, and therefore rarely observed directly. Direct impacts to these species, if present, could include being hit by vehicles on access roads; mechanical crushing during site preparation, grading of new access roads, and preparation of staging locations; and general disturbance due to increased human activity. Furthermore, project implementation may result in permanent loss of habitat due to permanent structures and/or roads, and temporary loss of habitat from construction activities. Both of these species have relatively large ranges and are not considered highly imperiled, although recent genetic studies indicate that California legless lizard is likely at least four different species, the conservation status of which are unknown at this time. Implementation of the project is not expected to have a substantial adverse effect on these species. Implementation of MMs Bio-1, Bio-2, Bio-9, Bio-10, Bio-12, Bio-13, Bio-17, and Bio-18 will minimize impacts to these species.

Desert tortoise has not been recorded within several miles of the project despite multiple years of protocol-level surveys at the project site and surrounding areas; it is considered absent from the project site.

There is no suitable habitat for special-status amphibians at the project site.

Birds

Two species of special-status birds have a potential to nest at the project site: burrowing owl and loggerhead shrike. Both are CDFW SSC and have been confirmed as present in the project area. Very small numbers of burrowing owls have been observed at the project site, and this species is known to both nest and winter in the Antelope Valley. Burrowing owls generally occur at low densities in desert habitats, except adjacent to irrigated agricultural fields; this is consistent with the low frequency of observations at the project. Loggerhead shrike has also been observed at the project site. In the Mojave Desert, this species usually nests in large dense shrubs.

Burrowing owl and loggerhead shrike may be impacted directly by collision with vehicles; other sources of direct mortality are unlikely to occur because of adults' ability to fly away from the area. Eggs, nestlings, and incubating adults could be at risk of direct impacts during vegetation removal or grading; pre-construction surveys and work buffers would allow these impacts to be avoided. Both of these species can forage in all of the undeveloped portions of the project site, and both may nest in the native-dominated vegetation communities at the site. Burrowing owls may also occupy burrows in the non-native grasslands at the site during either the breeding or non-breeding season. Implementation of the project would reduce habitat for nesting and foraging for these species. Both have large ranges and are not present at the project at high densities. Therefore, implementation of the project is not expected to have a substantial adverse effect on either species.

Golden eagle and California condor are both resident in the project vicinity, but there is no suitable nesting habitat for them at the project site. Both typically fly at altitudes much higher than project infrastructure

while foraging or traveling, and collision with the project is therefore extremely unlikely. California condors mostly occur in hills and low mountains in California, where updrafts allow mostly soaring flight with flapping used only rarely. The project site provides little opportunity for steady and reliable updrafts, and out of hundreds of thousands of GPS position locations from condors fitted with transmitters, fewer than 20 positions over the Antelope Valley have been recorded. Condors are expected to overfly the project extremely rarely. Golden eagles are known to nest within approximately five miles of the project, which is within the potential foraging range for breeding adults. Golden eagles are also known to winter in the Antelope Valley.

Implementation of the project would result in loss of some foraging habitat for golden eagle and potential foraging habitat for California condor. The project area represents only a fraction of the home range of either species. The project area represents less than 1% of a five-mile-radius circle, which is the distance to the closest known golden eagle nest site. California condors range even larger distances, up to 150 miles per day. Impacts to these species are expected to be negligible, although direct impacts to even one individual would be significant.

For special-status migratory birds, project implementation could result in the loss of some non-breeding habitat, and project infrastructure may pose a collision hazard, as discussed above. There is no habitat at the project or within several miles that is likely to provide important stopover habitat for migrants, and no special-status migrants that are expected to occur at the project. The mechanisms by which the project may impact special-status migratory birds are the same as those by which non-special-status migrants may be impacted. Impacts overall are expected to be low.

As described in MM Bio-14, Aurora will prepare a BBCS that thoroughly reviews potential project impacts to birds protected under the MBTA, ESA, and other regulations, and identifies measures to avoid and minimize those impacts.

USFWS has identified that ESA-listed birds, including the western yellow-billed cuckoo, southwestern willow flycatcher, and Yuma Ridgway's rail may occur at the project on a short-term basis during seasonal migration or dispersal events. However, BLM and USFWS have determined that the likelihood of these species occurring and being impacted by the project is very small, and therefore interagency ESA Section 7 consultation is not required. For all birds, and burrowing owls in particular, the implementation of MMs Bio-1, Bio-2, Bio-9, Bio-10, Bio-11, Bio-12, Bio-15, Bio-17, and Bio-18 will minimize project impacts.

Mammals

The Mohave ground squirrel has been determined to be absent from the project area based on trapping efforts and current range information; therefore, no impacts to this species would occur from implementation of the project.

Four species of special-status mice have the potential to occur at the project: Tulare or southern grasshopper mouse, Tehachapi pocket mouse, and San Joaquin pocket mouse. All are CDFW SSC and/or BLM sensitive species. Two sensitive species of mesocarnivores—American badger and desert kit fox—are considered present at the project.

The permanent and temporary loss of habitat as a result of construction activities could affect habitat for all of these mammals. Although there is no way to accurately quantify these effects, the impact is likely to be moderate in the short term and to be reduced over time as reclaimed areas produce suitable habitats. All of these species are locally scarce but widely distributed throughout the project area and surrounding region, and the loss of some habitat for these individuals would have a negligible impact on populations of these species throughout the region. Indirect effects due to displacement of these species could also occur as a result of construction activities associated with the project. These effects would be similar to those

previously described for general wildlife. Implementation of MMs Bio-1, Bio-2, Bio-9, Bio-10, Bio-12, Bio-13, Bio-16, and Bio-17 will minimize impacts to these species.

MM Bio-17: Pre-construction Survey and Wildlife Relocation

No more than 30 days prior initial vegetation clearance, grubbing, or ground-disturbing activities, a qualified wildlife biologist (i.e., a wildlife biologist with previous survey experience for burrowing owls, desert kit fox, and American badger) shall conduct a pre-construction survey to identify whether any special-status terrestrial wildlife are present at the project site. As part of the survey, the biologist will confirm the existing or new locations of burrowing owl burrows, and dens of desert kit fox or American badger. During these surveys, the biologist will ensure that potential habitats become inaccessible to wildlife (e.g., unoccupied burrows are collapsed that could otherwise provide temporary refuge).

In the event of the discovery of special-status terrestrial wildlife or burrowing owls, the qualified biologist shall recover and relocate the animal(s) to adjacent suitable habitat within the project site at least 200 feet from the limits of grading. Measures specific to burrowing owl, desert kit fox, and American badger shall be followed as described below:

A. Desert Kit Fox and American Badger

If present, dens occupied by desert kit fox or American badger shall be flagged and ground-disturbing activities avoided within 50 feet of the occupied den. Active maternity dens shall be avoided during pup-rearing season (desert kit fox: February 1 through August 1, American badger: February 15 through July 1) and a minimum 200-foot buffer established. Maternity dens shall be flagged for avoidance, identified on construction maps, and a biological monitor shall be present during construction.

If avoidance of a non-maternity den is not feasible, foxes or badgers shall be passively relocated by slowly excavating the burrow (either by hand or mechanized equipment under the direct supervision of a biologist, removing no more than 4 inches at a time) before or after the rearing season. A written report documenting the badger removal shall be provided to the Kern County Planning and Natural Resources Department, and BLM within 30 days of relocation. Dens that are determined to be inactive shall be collapsed by a biologist to prevent occupation of the den between the time of the survey and construction activities.

B. Burrowing Owl

No less than 14 days prior to the start of construction, a pre-construction survey for burrowing owls, in conformance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012), shall be completed within suitable habitat at every work area and within a 150-meter buffer zone of each work area. The project proponent shall submit the results of the pre-construction survey to the Kern County Planning and Natural Resources Department, BLM, and CDFW. The project proponent shall also submit evidence of conformance with federal and State regulations regarding the protection of the burrowing owl by demonstrating compliance with the following:

1. Unless otherwise authorized by the Kern County Planning and Natural Resources Department, BLM, and CDFW, no disturbance shall occur within 160 feet (50 meters) of occupied burrows during the non-breeding season (September 1 through January 31) or within 650 feet (200 meters) during the breeding season (February 1 through August 31).
2. Occupied burrows shall not be disturbed during the nesting season (February 1 through August 31). In the event that an occupied burrow absolutely cannot be avoided (e.g., due to physical or safety constraints), passive relocation of owls may be implemented prior to construction activities only if a qualified biologist approved by BLM verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging

independently and are capable of independent survival. Eviction outside the nesting season may be permitted pending evaluation of eviction plans (developed in accordance with BLM protocol for burrowing owls) by CDFW and receipt of formal written approval from BLM authorizing the eviction. A Burrowing Owl Mitigation and Monitoring Plan shall be submitted to the Kern County Planning and Natural Resources Department, BLM, and CDFW for review and approval prior to passive relocation.

3. Unless otherwise authorized by the Kern County Planning and Natural Resources Department, BLM, and CDFW, a 650-foot buffer, within which no activity will be permissible, will be maintained between Project activities and nesting burrowing owls during the nesting season. This protected area will remain in effect until August 31 or at BLM's discretion and based upon monitoring evidence, until the young owls are foraging independently.

MM Bio-18: Injured Wildlife

If an injured or dead special-status species is encountered during construction, the applicant shall stop work within the immediate vicinity. The applicant shall notify the Kern County Planning Department, BLM, and the appropriate resources agency (e.g., USFWS or CDFW) before construction is allowed to proceed.

6 LITERATURE CITED

- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds). 2012. *The Jepson Manual: Vascular Plants of California, second edition*. University of California Press, Berkeley, CA.
- Best, T.L. 1995. *Spermophilus mohavensis Mammalian Species* 509: 1–7.
- Bloom, P.H. 1980. The status of the Swainson's Hawk in California, 1979. Nongame Wildlife Investigations, Job II-8.0. Sacramento: Wildlife Management Branch, California Department of Fish and Game.
- Bransfield, R. 2016. RE: Camino Solar bi-monthly call Nov 22, 2016. Email correspondence from U.S. Fish and Wildlife Service (Ventura, California) to SWCA Environmental Consultants (Pasadena, California) and Bureau of Land Management (Ridgecrest Field Office, Ridgecrest, California).
- Bureau of Land Management (BLM). 1980. *Final Environmental Impact Report and Statement for the West Mojave Plan*. Moreno Valley: California Desert District. Available at: http://www.blm.gov/ca/pdfs/cdd_pdfs/wemo_pdfs/plan/wemo/Vol-1-Chapter1_Bookmarks.pdf.
- . 2005a. *Land Use Planning Handbook H-1601-1*. U. S. Department of the Interior, Bureau of Land Management.
- . 2005b. *West Mojave Plan—A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment Final Environmental Impact Report and Statement*. Moreno Valley, California. Available at: https://www.blm.gov/ca/pdfs/cdd_pdfs/wemo_pdfs/plan/wemo/Vol-1-Chapter1_Bookmarks.pdf. Accessed July 2018.
- . 2009. *Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species*. CA IM 2009-026. Sacramento, California. Available at: <http://www.blm.gov/ca/dir/pdfs/2009/im/CAIM2009-026ATT1.pdf>. Accessed July 2018.
- . 2010. *Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species*. CA IB 2010-012. Sacramento, California. Available at: <http://www.blm.gov/ca/dir/pdfs/2010/ib/CAIB2010-012.pdf>. Accessed July 2018.
- . 2013. *Alta East Wind Project Proposed Plan Amendment and Final Environmental Impact Statement*. February 2013. Ridgecrest Field Office. Publication Index No. BLM/CA/ES-2013-011+1793.
- . 2014. *Draft Plan Amendment and Draft Environmental Impact Statement for the Tylerhorse Wind Project*. April 2014. Ridgecrest Field Office Ridgecrest, California Publication No. BLM/CA/PL-2014/014+1793.
- . 2016. *Desert Renewable Energy Conservation Plan Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan*. September 2016. Available at: <http://www.drecp.org/finaldrecp/>. Accessed July 2018.
- California Department of Fish and Wildlife (CDFW). 2009. *Protocol for surveying and evaluating impacts to special status native plant populations and natural communities*. Sacramento, CA.

- Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>. Accessed July 2018.
- _____. 2010. *List of Vegetation Alliances and Associations*. Vegetation Classification and Mapping Program. Sacramento: California Department of Fish and Game.
- _____. 2012. *Staff Report on Burrowing Owl Mitigation*. Sacramento: California Department of Fish and Game.
- _____. 2017. *Special Animals*. Periodic publication. Sacramento: California Department of Fish and Wildlife, Natural Diversity Database.
- California Energy Commission (CEC) and California Department of Fish and Game (CDFG). 2010. *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California*. Sacramento: California Energy Commission and California Department of Fish and Game.
- California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. Updated database available at: <http://cal-ipc.org/paf/>. Accessed July 2018.
- California Native Plant Society (CNPS). 2001. CNPS Botanical Survey Guidelines. Available at: https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf. Accessed July 2018.
- _____. 2017. Inventory of Rare and Endangered Plants, version 8-02 [web application]. Sacramento: California Native Plant Society. Available at: <http://www.rareplants.cnps.org/>. Accessed February 2016 through March 2017.
- California Natural Diversity Data Base (CNDDDB). 2017. Data retrieved using Rarefind 5 [web application]. Sacramento: California Department of Fish and Game. Available at: <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>. Accessed January 2016 through March 2017.
- Consortium of California Herbaria (CCH). Accession results for various species. Available at: <http://ucjeps.berkeley.edu/consortium/>. Accessed October 2017.
- Coulombe, H.N. 1971. Behavior and population ecology of the Burrowing Owl, *Speotyto cunicularia*, in the Imperial Valley of California. *Condor* 73:162–176.
- Cypher, Brian L., Erin N. Tennant, Ellen A. Cypher, Christine L. Van Horn Job, Scott E Phillips. 2014. Status survey for endangered Bakersfield cactus. *California Fish and Game* 100(1):34-47.
- eBird. 2018. eBird: An online database of bird distribution and abundance (web application). eBird, Ithaca, New York. Available: <http://www.ebird.org>. Accessed: July 2018.
- Federal Geographic Data Committee. 2008. National Vegetation Classification Standard, Version 2. FGDC-STD-005-2008. Reston, Virginia: U.S. Geological Survey. Available at: https://www.fgdc.gov/standards/projects/vegetation/NVCS_V2_FINAL_2008-02.pdf. Accessed June 2018.
- Franzreb, K.E. 1989. Ecology and conservation of the endangered Least Bell's Vireo.. Washington, D.C: U.S. Fish and Wildlife Service *Biological Report* 89(1).

- Gannon, W.L., R.S. Sikes, and the Animal Care and Use Committee of the American Society of Mammalogists. 2007. Guidelines of the American Society of Mammalogists for the Use of Wild Mammals in Research. *Journal of Mammalogy* 88: 809–823.
- Google Earth, 2017. Aerial imagery from September 1989 through April 2017 centered near 34.930029, -118.443051. Accessed October 2017.
- Gustafson, J.R. 1993. *A Status Review of the Mohave Ground Squirrel (Spermophilus mohavensis)*. Nongame Bird and Mammal Report 93-9. Sacramento: California Department of Fish and Game.
- Halterman, M., M.J. Johnson, J. A. Holmes, and S.A. Laymon, 2015. A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo: U.S. Fish and Wildlife Techniques and Methods, 45 p.
- Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Sacramento: California Department of Fish and Game.
- . 1992. Update: Preliminary Descriptions of the Terrestrial Natural Communities of California. Sacramento California Department of Fish and Game.
- Horvath, G., G. Kriska, P. Malik, and B. Robertson. 2009. Polarized light pollution: a new kind of ecological photopollution. *Frontiers in Ecology and the Environment* 7:317-325.
- Johnsgard, P.L. 2002. *North American Owls: Biology and Natural History*. 2nd ed. Washington, D.C.: Smithsonian Institution Press.
- Kagan, R.A., T.C. Viner, P.W. Trail, and E.O. Espinoza. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. Ashland, Oregon: National Fish and Wildlife Forensics Laboratory.
- Kern County. 2007. Environmental Impact Report for the PdV Wind Energy Project. Bakersfield, California: Kern County Planning and Community Development Department. Available at: <https://kernplanning.com/environmental-doc/pdv-wind-energy-project/>. Accessed June 2018.
- Kus, B.E. 2002. Fitness consequences of nest desertion in an endangered host, the Least Bells Vireo. *Condor* 104 (4):795-802.
- Laabs, D. 2006. Mohave ground squirrel. West Mojave Plan Species Accounts. U.S. Department of the Interior, Bureau of Land Management. Available at: http://www.blm.gov/ca/pdfs/cdd_pdfs/Mgs1.pdf. Accessed June 2018.
- Leitner, P. 2008. Current status of the Mohave ground squirrel. *Transactions of the Western Section of the Wildlife Society* 44:11-29.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30:1-17.
- Lichvar, R.W., and S.M. McColley. 2008. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. U.S. Army Corps of Engineers, Engineer Research and Development Center. ERDC/CRREL TR-08-12.

- Longcore, Travis, Catherine Rich, Pierre Mineau, Beau MacDonald, Daniel G. Bert, Lauren M. Sullivan, Erin Mutrie, Signey A. Gauthreaux Jr., Michael L. Avery, Roberts L. Crawford, Albert M. Manville II, Emilie R. Travis, David Drake. 2012. An Estimate of Avian Mortality at Communication Towers in the United States and Canada. *PLoS ONE* 7(4): e34025. doi:10.1371/journal.pone.0034025
- Loss, Scott R., Tom Will, and Peter P. Marra. 2014. Refining Estimates of Bird Collision and Electrocution Mortality at Power Lines in the United States. *PLoS ONE* 9(7): e101565. doi:10.1371/journal.pone.0101565
- McCrary, M D., R. L. McKernan, R. W. Schreiber, W. D. Wagner, and T. C. Sciarrotta. 1986. Avian Mortality at a Solar Energy Power Plant. *Journal of Field Ornithology* 57(2):135–141.
- Menke, J., E. Reyes, A. Glass, D. Johnson, and J. Reyes. 2013. 2013 California Vegetation Map in Support of the Desert Renewable Energy Conservation Plan. Final Report. Prepared for the California Department of Fish and Wildlife Renewable Energy Program and the California Energy Commission. Redlands, California: Aerial Information Systems, Inc.
- Mohave Ground Squirrel Working Group (MGSWG). 2006. Draft conservation strategy for the Mohave ground squirrel. 27pp.
- . 2011. Draft Mohave Ground Squirrel Conservation Strategy. Available at: http://www.dmg.gov/documents/DFT_MGS_Consv_Strategy_DMG_082906.pdf. Accessed March 2, 2011.
- O'Farrell, T.P and L. Gilbertson. 1986. Ecology of the Desert Kit Fox in the Mojave Desert. *Bulletin of the Southern California Academy of the Sciences* 85:1-15.
- Papenfuss, T.J. and J.F. Parham. 2013. Four New Species of California Legless Lizards (*Anniella*). *Breviora* 536:1-17.
- Sapphos Environmental, Inc. (Sapphos). 2006. *PdV Wind Energy Project Biological Resources Technical Report*. Prepared for: enXco Development Corporation. Pasadena, California.
- . 2011. *Biological Resources Technical Report for the Tylerhorse Wind Energy Project*. Pasadena, California.
- . 2013. *Addendum to the Biological Resources Technical Report for the Tylerhorse Wind Energy Project in Kern County, California*. Pasadena, California.
- . 2014. *Addendum No. 2 to the Biological Resources Technical Report for the Tylerhorse Wind Energy Project in Kern County, California*. Pasadena, California.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation*, 2nd ed.. California Native Plant Society, Sacramento, CA. 1300 pp.
- Shuford, W.D. and T. Gardali. (eds.) 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds 1*. Camarillo, California: Western Field Ornithologists, and Sacramento: California Department of Fish and Game.

- Sogge, M.K., D. Ahlers, and S. J. Sferra. 2010. A natural history summary and survey protocol for the southwestern willow flycatcher. U.S. Geological Survey Techniques and Methods 2A-10.
- Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Prepared for California Department of Transportation, California Department of Fish and Wildlife, and Federal Highways Administration.
- SWCA Environmental Consultants. 2017. *Summary of Post-construction Avian Surveys for the Manzanita Wind Power Project*. Pasadena, California.
- Tannerfeldt, M., A. Moehrenschlager, and A. Angerbjörn. 2003. Den Ecology of the Swift, Kit, and Artic Foxes: A Review. In *Ecology and Conservation of Swift Foxes in a Changing World*, edited by M.A. Sovada and L.N. Carbyn, 167–181. Regina, Sask.: Canadian Plains Research Center.
- Thomas, Kathryn, Todd Keeler-Wolf, Janet Franklin, and Peter Stine. 2004. *Mojave Desert Ecosystem Program: Central Mojave Vegetation Database*. Prepared for the Mojave Desert Ecosystem Program. Sacramento, California: U.S. Geological Survey.
- Thomsen, L. 1971. Behavior and ecology of Burrowing Owls on the Oakland Municipal Airport. *Condor* 73:177–192.
- U.S. Army Corps of Engineers (USACE). 1987. *Wetlands Delineation Manual* - Technical Report Y-87-1. USACE Waterways Experiment Station. Available at: <http://www.lrh.usace.army.mil/Portals/38/docs/USACE%2087%20Wetland%20Delineation%20Manual.pdf>. Accessed. July 2018.
- . 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. J.S. Wakeley, R.W. Lichvar, and C.V. Noble [eds.]. ERDC/EL TR-06016. Vicksburg, Mississippi: U.S. Army Corps of Engineers, Engineer Research and Development Center.
- . 2013. Approved Jurisdictional Determination Form. Sunlight Partners Solar Array Project, SPL-2011-01084-SLP. Los Angeles District. June 7, 2013. Available at: <http://www.spl.usace.army.mil/Portals/17/docs/regulatory/JD/AJD/2013/SPL201101084-SLP.pdf>. Accessed June 2018.
- U.S. Fish and Wildlife Service (USFWS). 1992. Field Survey Protocol for Any Federal Action That May Occur within the Range of the Desert Tortoise. Washington, DC.
- . 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, Oregon. Available at: Accessed June 2018.
- . 2010. Preparing for any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). 2010 Field Season.
- . 2016a. Critical Habitat Portal. Available at: <http://crithab.fws.gov/>. Accessed December 2016.
- . 2016b. National Wetlands Inventory: Wetland Code Interpreter. Available at: <http://137.227.242.85/Data/interpreters/wetlands.aspx>. Accessed January 2016.

- . 2016c. California Condor Recovery Program 2016 Annual Population Status. Hopper Mountain National Wildlife Refuge Complex. Available at: https://www.fws.gov/cno/es/calcondor/PDF_files/2016-CA-condor-population-status.pdf. Accessed June 2018.
- U.S. National Vegetation Classification (USNVC). 2016. United States National Vegetation Classification Database, V2.01. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. (usnvc.org). Accessed November 2017.
- Walston, Leroy J., Jr., Katherine E. Rollins, Kirk E. LaGory, Karen P. Smith, Stephanie A. Meyers. 2016. A preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States. *Renewable Energy* 92 (2016): 405e414
- Weese, Terri L., and Leigh A. Johnson. 2001. *Saltugilia latimeri*: A New Species of Polemoniaceae. *Madroño: A West American Journal of Botany*. 48(3):198-204.
- WildEarth Guardians. 2015. Petition to List the Joshua tree (*Yucca brevifolia*) Under the Endangered Species Act. Prepared by Taylor Jones and Sabrina Goldrick. Denver, Colorado. Available at: <https://ecos.fws.gov/docs/petitions/92000/683.pdf>. Accessed July 2018.

Appendix A. Biological Resources Work Plan

AMC
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CAMINO SOLAR REVISED BIOLOGICAL RESOURCES WORK PLAN

June 20, 2016

SUBMITTED TO

Bureau of Land Management
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Ridgecrest, CA 93555

PREPARED BY

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Appendix A. Sensitive Species

Appendix B. Resumes

1 INTRODUCTION

1.1 Project Background

Aurora Solar, LLC (Aurora), a wholly-owned subsidiary of Iberdrola Renewables, Inc., proposes to construct, operate, maintain, and decommission the Camino Solar Project (proposed project) southeastern Kern County, California (Figure 1). The proposed project would be a commercial solar energy generating facility sited on lands administered by the Bureau of Land Management (BLM) Ridgecrest Field Office, and adjacent private lands (Figure 2). The proposed project would be located near the existing Manzana, Pacific Wind, and Catalina wind generation projects (Figure 2). The project site is approximately 15 miles west of California State Highway 14 (Antelope Valley Freeway), 12.5 miles south of California State Highway 58 (Blue State Memorial Highway), and 8 miles north of State Route 138 (West Avenue D). The nearest populated areas are the unincorporated community of Mojave 17 miles to the northeast, the unincorporated community of Rosamond 16 miles southeast, and the City of Tehachapi 12 miles to the north.

Once operational, the facility would produce up to 44 megawatts (MW) of renewable energy using thin film photovoltaic (PV) technology. Supporting components would include a 34.5-kilovolt (kV) electrical collection system, and an inner-facility road network (Figure 3). The Project would use the existing substation and transmission line on private lands associated with the Manzana Wind Project.

1.2 Work Plan Purpose

Implementation of the proposed project will require permits and authorizations from the BLM, and as such is subject to the National Environmental Policy Act (NEPA). Development on private land would also require permits and authorizations from Kern County, and the proposed project would be evaluated under the California Environmental Quality Act (CEQA). To help meet the project proponent's biological resources requirements under NEPA and CEQA, SWCA Environmental Consultants (SWCA) has prepared this Biological Resources Work Plan, which

- Identifies, by survey type and phase, biological surveys planned to be conducted; and,
- Identifies the scope of field surveys and methods that will be used to gather data.

The results from surveys described in this plan will be incorporated into a comprehensive Biological Resources Technical Report to support BLM evaluation of the proposed project and, if required, other biological permitting needs. This Biological Resources Work Plan reflects Aurora's current understanding and design for the proposed project. The scope, methods, and schedule are subject to change if refinements to the proposed project warrant updates to the survey plans, if new species information becomes available, or if new survey guidelines are published.

Two federal plans relating to renewable energy may be applicable to the proposed project: the Desert Renewable Energy Conservation Plan (DRECP), and the BLM Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States. For projects within Development Focus Areas, the DRECP identifies 10 species requiring focused surveys prior to construction. Of these species, three may have been observed or may occur in the vicinity of the proposed project: desert tortoise (*Gopherus agassizii*), Swainson's hawk (*Buteo swainsoni*), burrowing owl (*Athene cunicularia*), and golden eagle (*Aquila chrysaetos*) (surveys for golden eagle are only required for projects proposing wind turbines and/or solar power towers). The surveys planned by Aurora would meet or exceed the survey requirements of the DRECP.

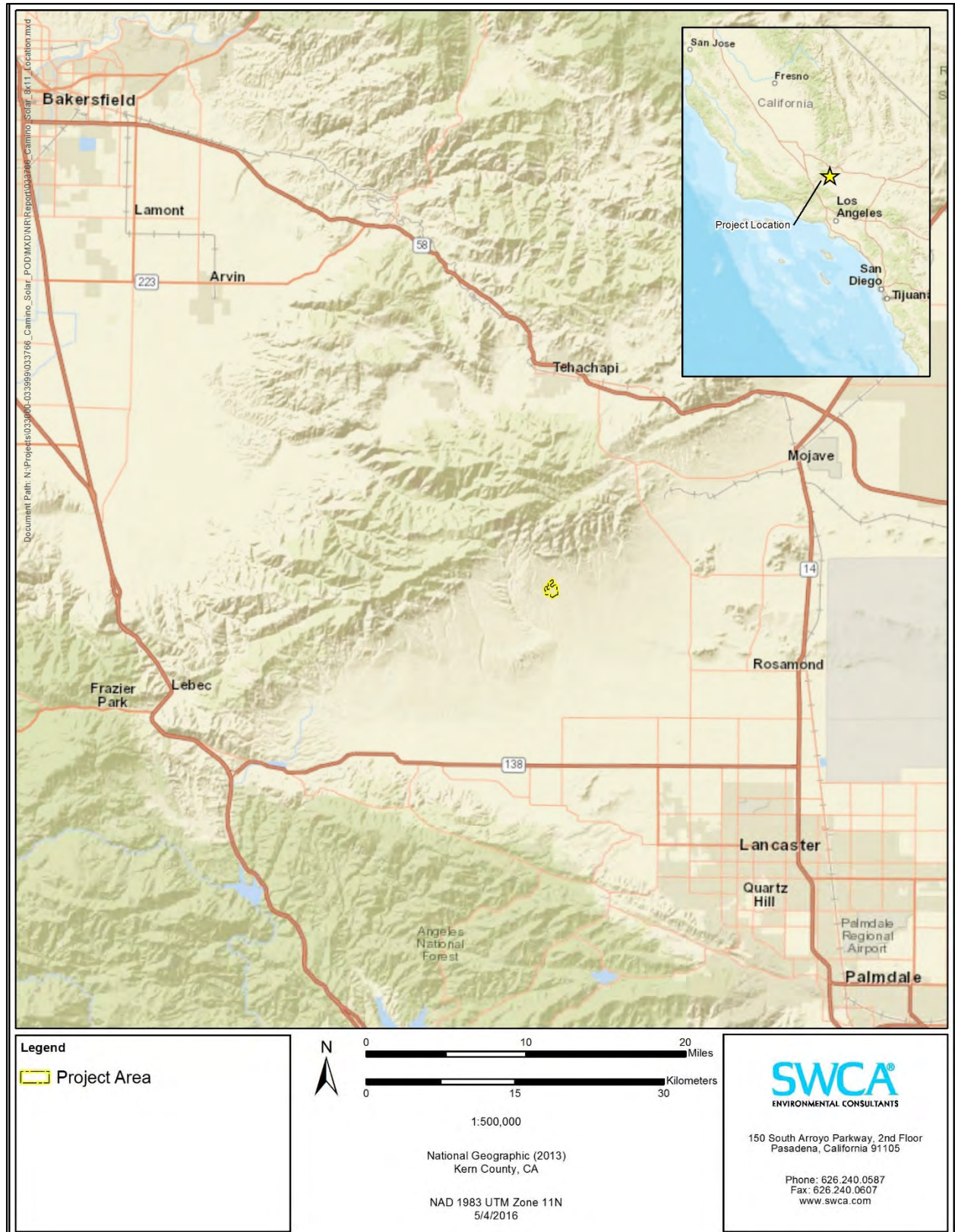


Figure 1. Project location map

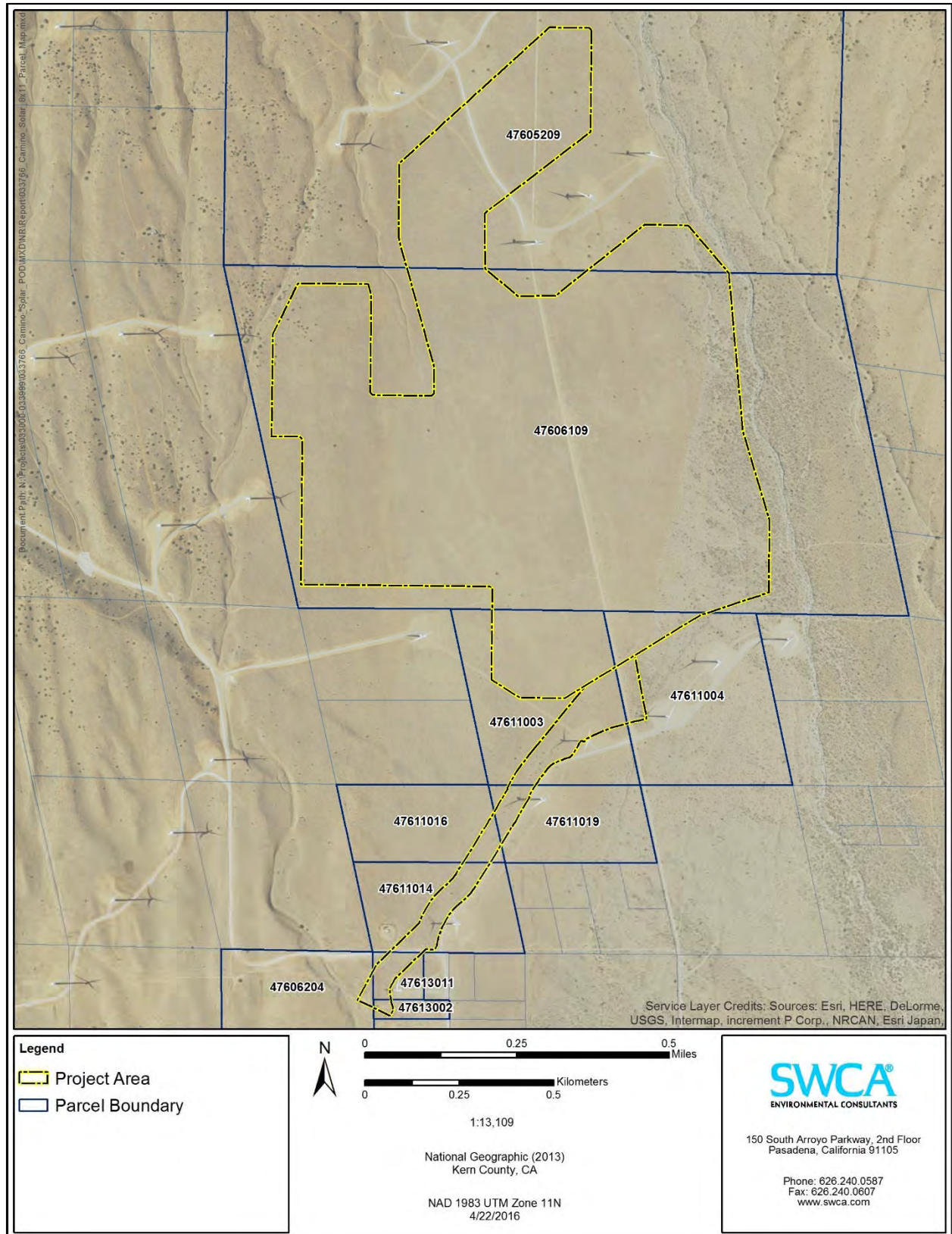


Figure 2. Project vicinity map

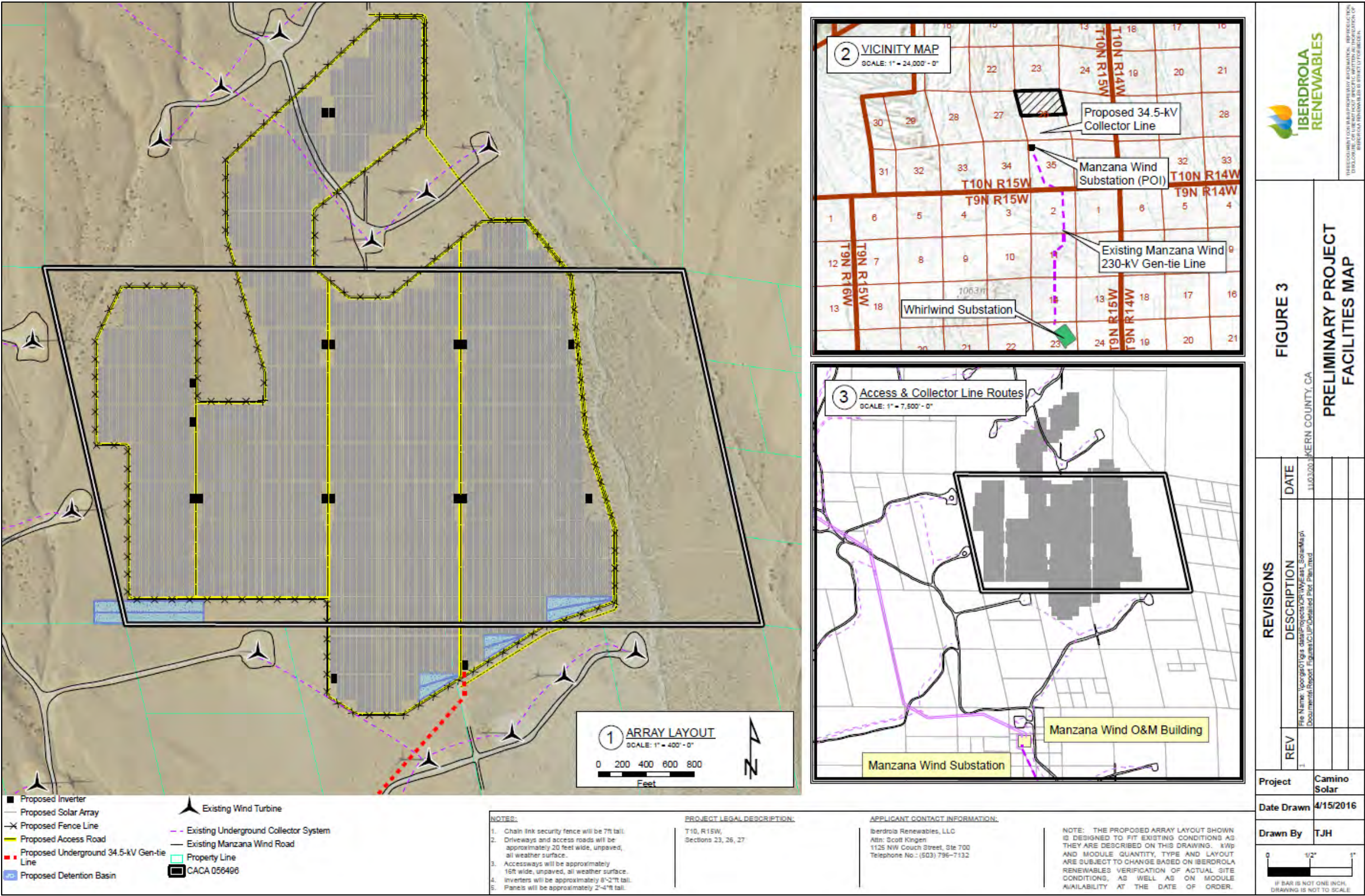


Figure 3. Detailed plot plan

2 BIOLOGICAL RESOURCES SURVEYS

This section provides a detailed description of the field survey efforts planned to support the environmental permitting requirements of the proposed project. A records search and desktop analysis was performed to provide a preliminary identification of the biological resources within the proposed project area (Appendix A). This information, along with the DRECP requirements, was used to identify the proposed field surveys and methods to gather relevant data for the potential biological resources present at the site. The actual resources that may be present will need to be field verified as described in this work plan. The methods described here are consistent with the most current survey recommendations of the BLM, California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and the California Native Plant Society (CNPS). Surveys will be completed by qualified biologists with previous experience conducting biological surveys in the Mojave Desert, and experience implementing the survey methods described in this plan. Staff qualifications are provided in Appendix B.

Trapping surveys for Mohave ground squirrel (*Xerospermophilus mohavensis*) are not planned for the project site. Numerous trapping surveys for Mohave ground squirrels have been conducted in the project vicinity, and none have detected this species. The DRECP identifies survey requirements for certain species based on location, including Mohave ground squirrel. At the project site, the DRECP, if implemented, would not require any surveys for this species.

2.1 Studies Conducted to Date

Numerous biological studies have been conducted at and around the proposed project site in support of the Manzanita Wind Power Project (operational since December 2012) and the previously planned Tylerhorse Wind Project. The surveys conducted were adequate to support the certification of an Environmental Impact Report and other permitting requirements for the Manzanita Wind Power Project, and a Draft EIS for the Tylerhorse Wind Project. SWCA will review the studies conducted for both of these projects, and incorporate relevant information into the Biological Resources Technical Report.

2.1.1 Jurisdictional Waters Delineation

A jurisdictional delineation of wetlands and waters on the BLM-administered parcel in the proposed project was conducted by SWCA in December 2015. Four linear drainages likely subject to the jurisdiction of CDFW were mapped at the site (Figure 4). The proposed project has been designed to avoid these drainages, as well as their upstream and downstream portions. No further field delineation efforts are planned at this time.

2.1.2 Plant Community Mapping

Plant communities were mapped by SWCA in April 2016. Plant communities were mapped to a 0.1-acre minimum mapping unit using vegetation alliances described by the *Manual of California Vegetation* (CNPS 2016). The majority of the site is dominated by non-native grasses, which also provides some habitat for native species (Figure 5):

- *Bromus rubens* – *Schismus (arabicus, barbatus)* Herbaceous Semi-Natural Alliance (Red brome or Mediterranean grass grasslands)

The remainder of the site consists of five vegetation alliances that are dominated by native species:

- *Juniperus californica* Woodland Alliance (California juniper woodland)
- *Yucca brevifolia* Woodland Alliance (Joshua tree woodland)

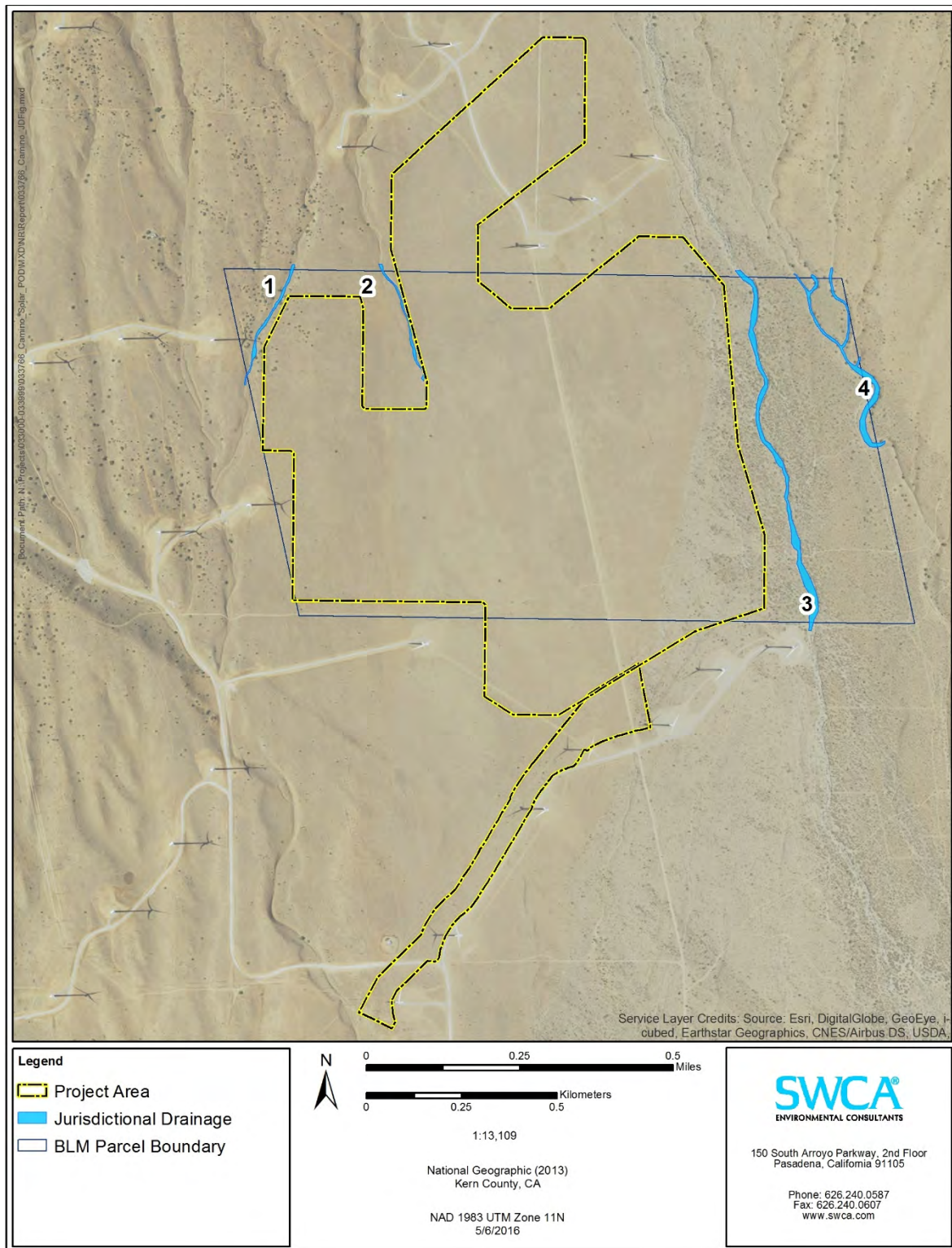


Figure 4. Jurisdictional drainages at the project site

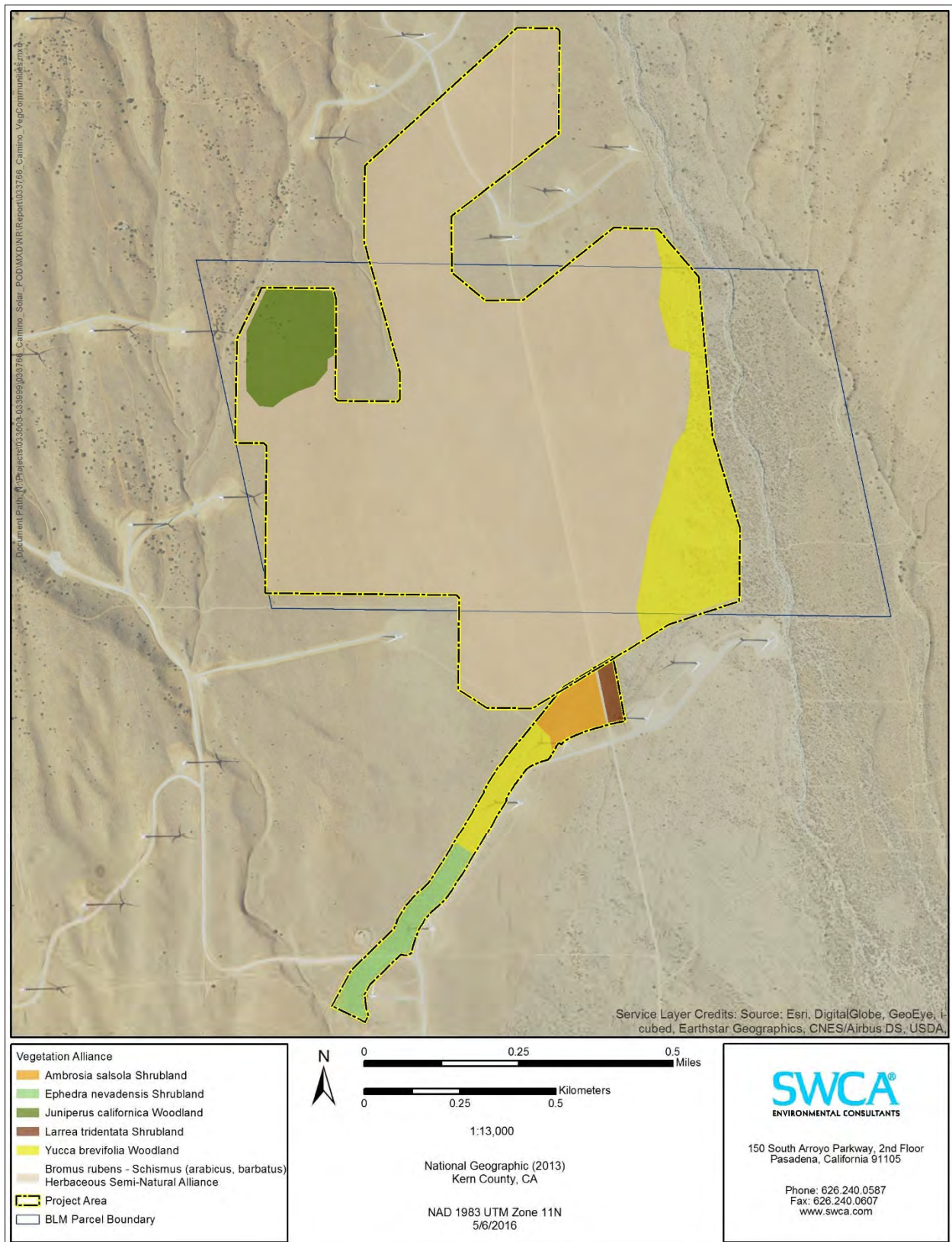


Figure 5. Plant community map

- *Larrea tridentata* Shrubland Alliance (Creosote bush scrub)
- *Ambrosia salsola* Shrubland Alliance (Cheesebush scrub)
- *Ephedra nevadensis* Shrubland Alliance (Nevada joint fir scrub)

No additional field efforts are planned at this time, and would not be warranted unless the project area should change.

2.1.3 Botanical Survey

SWCA conducted a survey for sensitive plants at the site on April 20-22, 2016. The survey methods were consistent with the survey guidelines of BLM, CDFW, and CNPS (BLM 2009, 2010, CDFW 2009, CNPS). Prior to conducting the field survey, local records of sensitive plants were reviewed to determine the species that may potentially occur at the site. The records were queried from the online databases of the California Natural Diversity Database (CNDDB), CNPS Rare Plant Inventory, and the Consortium of California Herbaria. The search area of the queries was the nine U.S. Geological Survey 7.5-minute topographic quadrangles that include and surround the proposed project. Information regarding the macro- and micro-habitat requirements of these species was considered, and sensitive species that might have suitable habitat at the site were the focus of the field survey, including the following:

- pale-yellow layia (*Layia heterotricha*), blooms March-June
- alkali mariposa-lily (*Calochortus striatus*), blooms April-June
- greenhorn fritillary (*Fritillaria brandegeei*), blooms April-June
- Piute Mountains navarretia (*Navarretia setiloba*), blooms April-July
- grey-leaved violet (*Viola pinetorum* var. *grisea*), blooms April-July
- Clokey's cryptantha (*Cryptantha clokeyi*), blooms in April

Due to the expected bloom period of these species, a survey was conducted in April, to maximize the chances of detecting Clokey's cryptantha, if present.

On April 20, SWCA botanists Rico Ramirez and Alex Beakes visited a local population of Clokey's cryptantha, and confirmed that individuals of this species were blooming and identifiable. On April 20-22, the botanists conducted a pedestrian survey of the entire site over three days, using a combination of a transect-based and intuitive controlled survey methods. The botanists walked transects spaced roughly 20 meters apart throughout the entire site, and also spent extra time intensively surveying areas of higher diversity (e.g. near the drainages, and in native-dominated plant communities) and where the sensitive plants were most likely to occur. The survey was floristic in nature: every plant taxon encountered was identified to the taxonomic level necessary to determine its rarity and listing status.

The April survey identified 90 species, subspecies, and varieties of plants. No sensitive plants were identified as a result of the survey. The field survey was adequate to identify any sensitive plants at the site, if present, and therefore complied with the BLM, CDFW, and CNPS survey recommendations. At least one additional site visit will be conducted in May, when a survey for burrowing owl and desert tortoise will be conducted. A botanists will participate in that survey, and additional plants may be identified at that time.

2.1.4 Swainson's Hawk Survey

Swainson's hawk is listed as threatened under the California Endangered Species Act (CESA) and is known to nest in small numbers in the Antelope Valley. This species forages in open habitats with little topographic relief, and in California is generally found in association with agricultural fields, where prey (small mammals such as gophers and mice) are numerous. The CDFW has published a survey protocol specific to the Antelope Valley for this species (CDFW 2010). The survey requires repeated visits to nest sites within 5 miles of a project throughout the nesting season, which is divided into four periods (Figure 6).

Prior to conducting the field survey, SWCA queried the CNDDDB for records of Swainson's hawk in the vicinity of the proposed project. The nearest known nest site in the CNDDDB is approximately 7 miles from the site. All of the local nest sites were less than 1.5 miles from agricultural fields. SWCA biologists reviewed aerial imagery within the 5-mile buffer around the proposed project, and identified areas with potential nest sites (trees and Joshua trees) for a focused survey. Juniper woodlands and forested areas in the Tehachapi foothills were not considered potential nesting habitat, per the survey protocol. No suitable nesting habitat was identified within the project site.

On May 3, 2016, SWCA biologist Michael Cady conducted a survey of potential nest sites, searching for nesting Swainson's hawks. Prior to starting the survey, Mr. Cady visited several nest sites, previously recorded in the CNDDDB, within 10 miles of the proposed project, including a cluster near the intersection of 100th Street West and West Avenue A, and second cluster south of Champagne Road and 100th Street West, to review Swainson's hawk nest features, and determine nest phenology. None of the nests visited were active, and several were in disrepair. Some of the nest sites recorded in the CNDDDB could not be found, and the putative nest trees had been removed.

Mr. Cady then conducted a windshield and pedestrian survey of potential nest sites within 5 miles of the proposed project. All large nests potentially occupied by common raven (*Corvus corax*) or raptors were watched until the occupancy status and species was determined. One area near the intersection of Irone Avenue and 140th Street West included several residences; Mr. Cady did not thoroughly search every tree in the area due to potential privacy concerns, but did identify two active common raven nests, suggesting that nesting Swainson's hawks were unlikely to be present.

No active Swainson's hawk nests were identified as a result of the survey. Due to the absence of nests, the multiple surveys of active nest specified in the CDFW survey protocol are not required. No additional surveys for Swainson's hawk are planned.

2.2 Surveys Planned

Surveys for sensitive plants, desert tortoise, and burrowing owl are planned to be conducted consistent with the current applicable survey protocols.

2.2.1 Botanical Survey

One complete botanical survey of the proposed project site was conducted in April 2016. A second botanical survey is planned for May 2016, concurrent with the survey for desert tortoise and burrowing owl burrows. The botanist will be familiar with the sensitive plants that have a potential to occur at the site, and will train other survey participants in their identification. All new plants identified at the site, sensitive or otherwise, will be recorded and listed in the faunal compendium that will be included in the Biological Resources Technical Report. Should any sensitive plants be detected, their location will be marked with a GPS unit, they will be photographed, and relevant information will be noted. They will be discussed in the Biological Resources Technical Report.

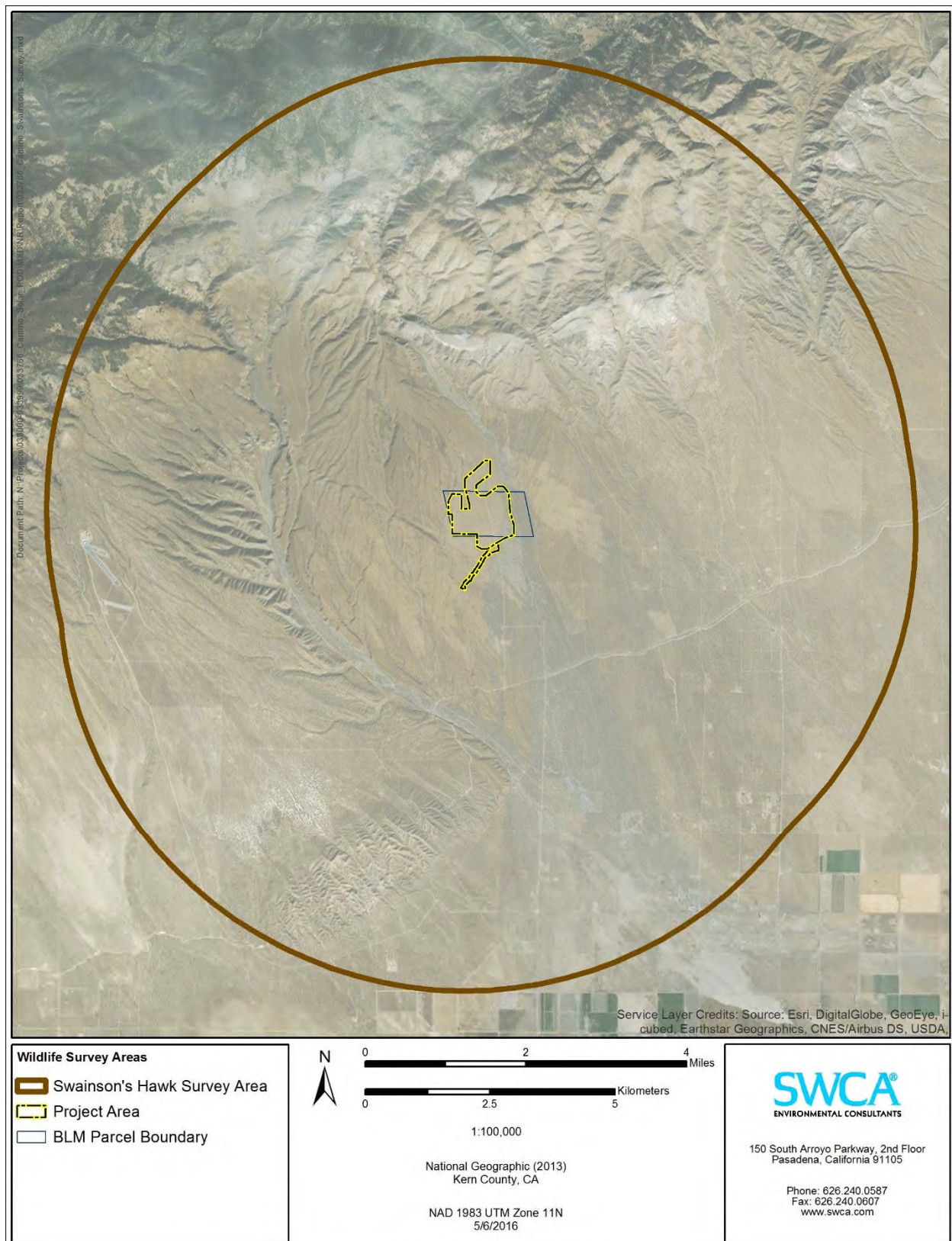


Figure 6. Swainson's hawk survey area map

During the survey, the biologists will also record and record the locations of any plants covered under the Desert Native Plants Act, and/or described as Special Vegetation Features in the DRECP. These include all species in the family Agavaceae (including Joshua trees and other yuccas), all species in the family Cactaceae (cacti), creosote rings, as well as other species and communities that are less likely to occur at the site.

2.2.2 Desert Tortoise Survey

Desert tortoise is listed as threatened pursuant to both CESA and the federal Endangered Species Act (ESA). USFWS has published a survey protocol for desert tortoise, which requires a pedestrian survey of all suitable habitat in areas that may be impacted. The survey must be conducted in April, May, and/or October when desert tortoises are most likely to be active above ground, unless special permission from USFWS is obtained to conduct the survey outside this period.

SWCA biologists have identified potentially suitable habitat for desert tortoise at the proposed project site, based on the plant community map. Non-native grasslands are not considered suitable; all other habitat types at the site are considered suitable (Figure 7). In May 2016, a team of SWCA biologists will conduct a complete pedestrian survey of all suitable habitat at the proposed project site, walking parallel transects spaced no more than 10 meters apart. The survey will be conducted concurrently with the botanical survey and the survey for burrowing owl burrows. The biologists will search for and record any desert tortoise and their sign, including burrows, carcasses, scat, pellets, and drinking sites. Every desert tortoise and sign will be photographed and marked with the GPS unit, and described in field notes.

2.2.3 Burrowing Owl Survey

SWCA biologists will conduct a survey for burrowing owls at the project site consistent with the most current CDFW guidelines (CDFW 2012). The survey will consist of four visits to the project site. The first visit will consist of a pedestrian transect-based survey throughout the entire project to search for potentially suitable burrows. The survey will be conducted concurrently with the desert tortoise and rare botanical survey, along parallel transects spaced approximately 10 to 20 meters apart, as appropriate (10 meters in suitable habitat for desert tortoise, 20 meters otherwise). As stipulated in the survey guidelines, a 150-meter buffer around the project will also be surveyed for burrows, on transects spaced approximately 20 meters apart (Figure 7). Each burrow, burrowing owl, or sign of burrowing owl (pellets, prey remains, burrow decorations, etc.) will be recorded on a GPS, and its general size will be recorded, along with any signs of burrowing owl use.

If any burrowing owl burrows are found, SWCA biologists will conduct three additional visits to determine the occupancy status of the burrows at the project site. The visits will be at least three weeks apart, and will include at least one visit between 15 June and 15 July. The results of the survey will be incorporated into the Biological Resources Technical Report.

2.2.4 Incidental Observations

Additional sensitive wildlife species, such as desert kit fox (*Vulpes macrotis arsipus*), American badger (*Taxidea taxus*), may occur at the project site, but do not have formal survey protocol requirements. Observations of these species, made at any time by SWCA biologists will be recorded as incidental observations. This includes both direct observations of individuals and sign such as dens, tracks, scat, fur, or carcasses.

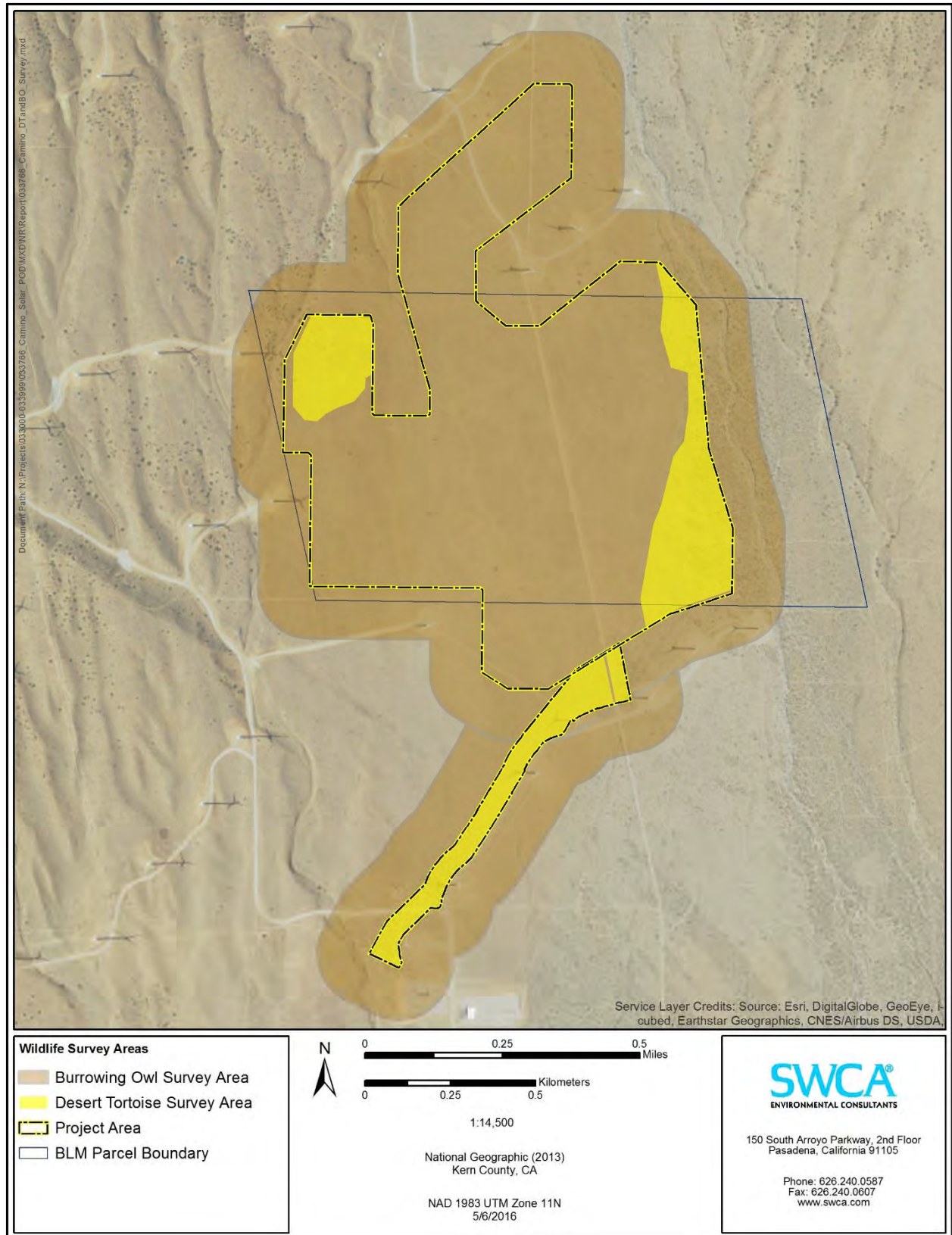


Figure 7. Desert tortoise and burrowing owl survey areas

2.2.5 Pre-construction Surveys

Once the proposed project is authorized, biological surveys will be needed to ensure avoidance and minimization of impacts to biological resources that may result from project implementation. The surveys will be conducted in accordance with the Mitigation Monitoring and Reporting Program (MMRP) that will be prepared as part of the conditions of approval for the project. Pre-construction surveys are anticipated for a variety of resources, including nesting birds, sensitive plants, and sensitive wildlife that use dens (e.g. desert kit fox, American badger, and burrowing owl). The results of those surveys will be reported to those entities specified in the MMRP, including the BLM.

3 LITERATURE CITED

- Bureau of Land Management, California State Office. 2009. Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species. CA IM 2009-026. Sacramento, CA. Available at: <http://www.blm.gov/ca/dir/pdfs/2009/im/CAIM2009-026ATT1.pdf>
- Bureau of Land Management, California State Office. 2010. Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species. CA IB 2010-012. Sacramento, CA. Available at: <http://www.blm.gov/ca/dir/pdfs/2010/ib/CAIB2010-012.pdf>
- California Department of Fish and Wildlife. 2009. Protocol for surveying and evaluating impacts to special status native plant populations and natural communities. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/protocols_for_surveying_and_evaluating_impacts.pdf
- California Department of Fish and Wildlife. 2012. Staff Report on Burrowing Owl Mitigation. Sacramento, CA.
- California Energy Commission and Department of Fish and Game. 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of the Los Angeles and Kern Counties, California.
- California Native Plant Society. 2001. CNPS Botanical Survey Guidelines. Available at: http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf
- California Native Plant Society. 2016. A Manual of California Vegetation, Online Edition. <http://www.cnps.org/cnps/vegetation>; searched on 4 May, 2016. California Native Plant Society, Sacramento, CA.
- California Natural Diversity Data Base (CNDDDB). 2015. Data retrieved using Rarefind 5 [web application]. California Department of Fish and Game, Sacramento. Available at: <http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp>. Accessed December 2015.
- Consortium of California Herbaria (CCH). Accession results for various species. Accessed December 2015 at: <http://ucjeps.berkeley.edu/consortium/>.
- U.S. Fish and Wildlife Service. 2010. Preparing for any Action that May Occur within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*). 2010 Field Season.

Appendix A. Sensitive Species

This appendix documents the results of a database search for sensitive species that may be present at the proposed project site (Table A-1). Resources consulted included the California Natural Diversity Database (CNDDB), CNPS Rare Plant Inventory, Consortium of California Herbaria, and EIRs prepared for nearby renewable energy projects. For the purposes of this analysis, sensitive species were defined to include species as those that met any of the following criteria:

- Listed as threatened or endangered pursuant to CESA, or a candidate for listing;
- Listed as threatened or endangered pursuant to the ESA, or a candidate for listing;
- Listed as a species of special concern by CDFW;
- Ranked 1, 2, or 3 by CNPS;
- Listed as sensitive by the Bureau of Land Management (BLM);
- For invertebrates, all species on the CDFW Special Animals list, regardless of the reason for inclusion; or
- Addressed in the West Mojave Plan.

Occurrences of sensitive species in the nine U.S. Geological Survey topographic quadrangles that include and surround the proposed project (Cummings Mountain, Tehachapi South, Monolith, Liebre Twins, Tylerhorse Canyon, Willow Springs, Neenach, Fairmont Butte, and Little Buttes).

Table A-1. Sensitive Species with Recorded Occurrences near the Proposed Project

Taxonomic Group	Species	Status
Plants - Monocots	Palmer's mariposa-lily <i>Calochortus palmeri</i> var. <i>palmeri</i>	1B.2, BLM S
	alkali mariposa-lily <i>Calochortus striatus</i>	1B.2, BLM S
	Greenhorn fritillary <i>Fritillaria brandegeei</i>	1B.3
Plants - Dicots	Horn's milk-vetch <i>Astragalus hornii</i> var. <i>hornii</i>	1B.1, BLM S
	round-leaved filaree <i>California macrophylla</i>	1B.2, BLM S
	Clokey's cryptantha <i>Cryptantha clokeyi</i>	1B.2, BLM S
	Tracy's eriastrum <i>Eriastrum tracyi</i>	3.2, rare
	Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	1B.1, BLM S
	pale-yellow layia <i>Layia heterotricha</i>	1B.1, BLM S
	Madera leptosiphon <i>Leptosiphon serrulatus</i>	1B.2

Taxonomic Group	Species	Status
	calico monkeyflower <i>Mimulus pictus</i>	1B.2, BLM S
	Tehachapi monardella <i>Monardella linoides</i> ssp. <i>oblonga</i>	1B.3, BLM S
	Baja navarretia <i>Navarretia peninsularis</i>	1B.2
	Piute Mountains navarretia <i>Navarretia setiloba</i>	1B.1, BLM S
	Latimer's woodland-gilia <i>Saltugilia latimeri</i>	1B.2, BLM S
	Bakersfield cactus <i>Opuntia basilaris</i> var. <i>treleasei</i>	1B.1, SE, FE, BLM S
	grey-leaved violet <i>Viola pinetorum</i> var. <i>grisea</i>	1B.3
Mollusks	whitefir shoulderband <i>Helminthoglypta concolor</i>	SA
Insects	Crotch bumblebee <i>Bombus crotchii</i>	SA
	Comstock's blue butterfly <i>Euphilotes battoides comstocki</i>	SA
	Tehachapi Mountain silverspot butterfly <i>Speyeria egleis tehachapina</i>	SA
Amphibians	Tehachapi slender salamander <i>Batrachoseps stebbinsi</i>	ST, BLM S
	yellow-blotched salamander <i>Ensatina eschscholtzii croceator</i>	SSC, BLM S
Reptiles	silvery legless lizard <i>Anniella pulchra</i>	SSC
	desert tortoise <i>Gopherus agassizii</i>	ST, FT
	coast horned lizard <i>Phrynosoma blainvillii</i>	SSC, BLM S
Birds	tricolored blackbird <i>Agelaius tricolor</i>	SC, SSC, BLM S, under consideration for ESA listing
	golden eagle <i>Aquila chrysaetos</i>	FP, BGEPA, BLM S
	burrowing owl <i>Athene cunicularia</i>	SSC, BLM S

Taxonomic Group	Species	Status
	Swainson's hawk <i>Buteo swainsoni</i>	ST, BLM S
	mountain plover <i>Charadrius montanus</i>	SSC, BLM S
	California condor <i>Gymnogyps californianus</i>	SE, FE, FP
	loggerhead shrike <i>Lanius ludovicianus</i>	SSC
	Le Conte's thrasher <i>Toxostoma lecontei</i>	WEMO
Mammals	Tulare grasshopper mouse <i>Onychomys torridus tularensis</i>	SSC, BLM S
	Tehachapi pocket mouse <i>Perognathus alticolus inexpectatus</i>	SSC
	San Joaquin pocket mouse <i>Perognathus inornatus</i>	BLM S
	American badger <i>Taxidea taxus</i>	SSC

Key:

BGEPA = Bald and Golden Eagle Protection Act, BLM S = BLM Sensitive, FE = Federally endangered, FP = State Fully Protected, FT = Federally threatened, rare = State rare, SA = Special Animal, SC = State candidate, SE = State endangered, SSC = CDFW Species of Conservation Concern, ST = State threatened, WL = CDFW Watchlist, WEMO = West Mojave Plan

CRPR Rankings:

1A: Presumed extinct in California

1B: Rare, threatened, or endangered in California and elsewhere. 0.1: Seriously threatened in California.

1B: Rare, threatened, or endangered in California and elsewhere. 0.2: Fairly threatened in California.

1B: Rare, threatened, or endangered in California and elsewhere. 0.3: Not very threatened in California.

2: Rare, threatened, or endangered in California, but more common elsewhere. 0.1: Seriously threatened in California.

2: Rare, threatened, or endangered in California, but more common elsewhere. 0.2: Fairly threatened in California.

Appendix B. Biologist Resumes

ALEX BEAKES, B.A., BIOLOGIST

Mr. Beakes is a biologist with extensive experience in the San Francisco Bay Area. He is a botanical expert, and has conducted rare plant surveys in a wide range of vegetation communities and habitats throughout Coastal and Southern California. His experience includes biological monitoring, habitat assessments, sensitive and special status species surveys, geospatial analysis with ArcGIS, and vegetation community mapping according to Manual of California Vegetation standards. He works regularly throughout the San Mateo, Los Angeles, Riverside, San Bernardino, Kern, Ventura, and San Diego Counties. Mr. Beakes' expertise includes the identification of various plant species types within California and is experienced writing technical reports for various governmental entities such as local agencies, FWS, USFS, CDFW, and RWQCB.

YEARS OF EXPERIENCE

5

EXPERTISE

Sensitive and general biological resource surveys

Rare plant identification and surveys

Habitat assessments

Habitat mitigation and monitoring planning

Construction monitoring

EDUCATION

B.A., Geography, San Francisco State University

Training/Affiliations

Desert Tortoise Introduction and Field Techniques Workshop – Desert Tortoise Council

Jepson Herbarium Plant Identification Workshops – University of California Berkeley

Environmental Analysis and Watershed Assessments using ArcGIS – San Francisco State University

Natural Resource Management – San Francisco State University

California Native Plant Society

California Invasive Plants Council

SELECTED PROJECT EXPERIENCE

Valentine Solar Project, EDF Renewable Energy; Kern County, California. SWCA was retained first by Provost & Pritchard Consulting Group, and later directly by EDF RE, to provide biological, cultural, and paleontological resources services in support of the Valentine Solar Project located on 2,000 acres in Kern County, California. SWCA's primary efforts were to provide a Biological Constraints Analysis (BCA) of the project area, which was used to refine the preliminary design of the project. Following preparation of the BCA, SWCA conducted full technical studies for biological, cultural, and paleontological field surveys to support the preparation of an Environmental Impact Report (EIR) and other permitting requirements. Natural resources studies conducted include surveys for nesting birds, burrowing owls, desert tortoise, special-status plants, vegetation communities, and jurisdictional waters. *Role: Field biologist. Conducted special-status plant surveys.*

Green Beanworks and Acorn Solar Projects, sPower; Kern, Los Angeles, and Imperial County, California. SWCA was retained by sPower to provide biological and water resource services in support of multiple solar projects in California. SWCA's primary efforts were to provide a Biological Constraints Analysis (BCA) and jurisdictional delineation for the project areas. Natural resources studies conducted include surveys and habitat assessments sensitive and special-status species, vegetation communities, and jurisdictional waters. *Role: Biologist. Conducted special status species surveys, habitat assessments, GIS support, jurisdictional delineations assistance, and deputy report authorship.*

Southern California Edison (SCE) Operations and Maintenance On-call Contract for Natural, Cultural, and Water Resources Services; Multiple Counties, California; SCE. Under a three-year on-call contract, SWCA has completed more than 1,400 survey and monitoring consultant work authorization tasks in support of various utility projects. Projects are located throughout Southern California Edison's territory in Kern, Los Angeles, San Bernardino, Riverside, Ventura, Orange, Mono, Inyo, and Tulare Counties on public and private lands. *Role: Environmental Specialist. Conducted habitat assessments, surveys, construction monitoring, jurisdictional delineation assistance, and deputy report authorship.*

Slender False Brome Eradication Program; San Mateo County, California. Under an ongoing agreement with FWS and the Midpeninsula Regional Open Space District, a multi-agency effort to eradicate slender false brome managed by the San Mateo County Resource Conservation District. *Role: Program Coordinator, surveyor, geospatial analysis, and public outreach.*

Surveys and Assessments for Early Invasive Plants; San Mateo County, California. Creating a threat assessment for newly introduced species in partnership with the California Invasive Plant Committee for public wildlands across San Mateo County. The data served as the basis to evaluate threats to local natural resources. *Role: Project Coordinator. Conducted surveys, geospatial analysis, and primary report authorship.*

MIKE CADY, B.S., BIOLOGIST/GIS

Mr. Cady is a natural resources specialist with expertise in both fieldwork and the application of environmental principles and regulatory requirements to planning and permitting processes on a wide variety of natural resource studies throughout the American Southwest. He has worked extensively in a variety of habitats and jurisdictions in southern California and he has regularly consulted with CDFW, USFWS, BLM, USACE, and RWQCB for various projects. Mr. Cady has produced documentation in support of projects requiring CEQA/NEPA compliance; jurisdictional delineation reports and permit applications for CWA Section 401 and 404 certifications and CDFG Section 1603 Streambed Alteration Agreements; and habitat mitigation and monitoring plans and 2081 applications in support of California Endangered Species Act Incidental Take Permits.

YEARS OF EXPERIENCE

12

EXPERTISE

Sensitive and general biological resource surveys

Biological Assessment preparations (including GIS support)

Biological permitting

Wetland delineations in accordance with Federal and State guidelines

Jurisdictional waters permitting

Habitat mitigation and monitoring planning

EDUCATION

B.S., Conservation Biology; California State Polytechnic University, Pomona; 2008

TRAINING

Forestry Certificate, Citrus College; 2005

Flat-tailed Horned Lizard Survey Training, U.S. Bureau of Land Management; 2009

MEMBERSHIPS

Member, California Native Plant Society; Ecological Society of America; Professional Association of Diving Instructors; Society for Conservation Biology; Society for the Study of Amphibians and Reptiles; The Wildlife Society; Western Field Ornithologists

SELECTED PROJECT EXPERIENCE

Southern California Edison (SCE) Operations and Maintenance On-call Contract for Natural, Cultural, and Water Resources Services; Multiple Counties, California; SCE. Under a three-year on-call contract, SWCA has completed more than 1400 survey and monitoring consultant work authorization tasks in support of various utility projects including deteriorated pole replacements, grid reliability and maintenance, GO 131-D, emergency services, vegetation management, and transmission line rating remediation. Projects are located throughout Southern California Edison's territory in Los Angeles, Kern, San Bernardino, Riverside, Santa Barbara, Ventura, Orange, Mono, Inyo, and Tulare Counties; projects are located on land administered by numerous agencies including the United States Air Force, the Bureau of Land Management, United States National Forests, The National Park Service, and California State Parks. **Role: Project Manager/Senior Biologist. Provided project management, habitat assessments for deteriorated pole replacement, monitored vegetation management, and conducted pre-construction surveys for sensitive resources.**

Valentine Solar Project; Kern County, California; EDF RE. SWCA was retained by Provost & Pritchard Consulting Group to provide biological, cultural, and paleontological resources services in support of the Valentine Solar Project located on 2,000 acres in Kern County, California. SWCA conducted full technical studies for biological, cultural, and paleontological field surveys to support the preparation of an EIR and other permitting requirements. Natural resources studies conducted include surveys for nesting birds, burrowing owls, desert tortoise, special-status plants, vegetation communities, and jurisdictional waters. SWCA's studies provided the technical basis for assessing potential impacts that may result from implementation of the project. SWCA is currently reviewing draft chapters of the project's EIR, conducting agency coordination for jurisdictional waters permitting. Specifically, SWCA worked closely with the project owner to site project elements to avoid cultural resources and jurisdictional drainages, to maximize the project's generating capacity while minimizing environmental impacts. **Role: Environmental Specialist.**

PG&E Pipeline Safety Enhancement Plan (PSEP) Vegetation Management General Environmental Services (2013 Pipeline Pathways); San Mateo County, California. SWCA is providing environmental services in support of PG&E's Vegetation Management program throughout the PG&E Central Coast region, including preparation of CEQA documents, environmental permit preparation; and agency consultation regarding potential impacts to special status species (e.g., California red-legged frog, California tiger salamander, San Joaquin kit fox, federally listed salmonids) and associated habitat. SWCA has also provided project environmental review; pre-construction biological surveys; and biological monitor/training in support of this program. **Role: Biologist.**

Jacalito 3D Seismic Biology On-Call; Bakersfield, Kern County, California; Geokinetics USA, Inc. SWCA provided inventory and monitoring for over 500 square miles in agricultural lands and sensitive native habitats in the San Joaquin Valley. Sensitive species being monitored included San Joaquin kit fox, giant kangaroo rat, Tipton kangaroo rat, blunt-nosed leopard lizard, California condor, California jewelflower, San Joaquin woolly-threads, Kern mallow, Hoover's woolly-star, Buena Vista Lake shrew, California tiger salamander, California red-legged frog, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, Bakersfield cactus, San Benito evening primrose, and San Joaquin adobe sunburst. **Role: Lead Biologist. Lead the inventory and monitoring for over 300,000 acres in agricultural lands and sensitive native habitats in the San Joaquin Valley. Worked with the client, agencies, and monitoring crew to ensure zero take of multiple sensitive species and to limit impacts to habitat to the extent possible. Special-status species surveys included blunt-nosed leopard lizard, San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, and burrowing owl.**

SCE North Sky River Biological Monitoring; Kern County, California; Southern California Edison Company. SWCA provided pre-construction surveys and environmental compliance monitoring for the construction of an interconnecting transmission line over a four month period. **Role: Project Manager.**

Morgan Hills Transmission Project; Kern County, California; CH2M Hill. SWCA provided biological resources survey support for nine miles of corridors associated with Terra-Gen Power's proposed Morgan Hills Wind Project located approximately five miles south of the city of Tehachapi. Focal species included Bakersfield cactus and other rare plants, burrowing owl, desert tortoise, and American badger. **Role: Lead Biologist. Lead the surveys and reporting for special-status species, as well as providing vegetation mapping and a habitat assessment.**

SCE CWA 29 15 Well Removals Biological Assessment; Unincorporated, Kern County, California; Southern California Edison Company. SWCA conducted a review of special-status species occurrence records contained within available databases; a literature review of previous biological studies conducted near the well locations; a review of site and aerial photographs; an evaluation of the potential for the presence of special-status species; an assessment of potential project impacts to any sensitive biological resources that could occur at each project site; and proposed mitigation measures that would reduce any project impacts to a less than significant level. **Role: Environmental Specialist. Conducted the background research, field surveys, and report production.**

SCE CWA 86 Los Angeles Waste Access Islands, Kern County, California; SCE Company. SWCA provided a jurisdictional waters delineation and habitat assessment for the development of access roads and elevated tower pads for 28 paired towers on a 500 kV line near the Buena Vista Recreation Area. **Role: Project Manager/Jurisdictional Delineator. Conducted jurisdictional delineation and reporting.**

El Paso Corp Ford City MS Surveys; Bakersfield, Kern County, California; El Paso Corporation. SWCA provided natural resources and cultural resources compliance surveys for an interconnect on a natural gas pipeline near Taft in Kern County, California. SWCA conducted a review of special-status species occurrence records contained within available databases; a literature review of previous biological studies conducted near the well locations; a review of site and aerial photographs; an evaluation of the potential for the presence of special-status species; an assessment of potential project impacts to any sensitive biological resources that could occur at each project site; and proposed mitigation measures that would reduce any project impacts to a less than significant level. **Role: Biologist. Conducted the background research, field surveys, and report production.**

SCE Biological Support for Cross Valley; Tulare County, California; Southern California Edison. SWCA was contracted to provide natural resources services for Southern California Edison's Cross Valley Loop Transmission Project (project) in support of the issuance of state and federal incidental take permits for the project, as well as environmental requirements governed by CEQA. The project consists of the construction of a new approximately 23-mile double-circuit 220 kV transmission line located near Visalia in Tulare County, California. Numerous sensitive natural resources in the project area required detailed surveys and mitigation plans to reduce project impacts. **Role: Biologist. Conducted rare plant surveys and reporting.**

DFM 1815-02 Biological Site Assessment and Rare Plant Survey Services; Monterey County, CA; Pacific Gas and Electric Company (PG&E). SWCA provided a biological site assessment and rare plant surveys to identify sensitive biological resources potentially impacted by construction and made suggestions regarding further studies, permitting, and constructability. SWCA will also be assisting PG&E with wetland delineation and permitting support. **Role: Biologist. Conducted site assessment, rare plant surveys, and prepared technical reports.**

Contra Costa-Moraga 230 kilovolt (kV) Reconductoring Project Avian Surveys; Contra Costa County, California; Pacific Gas and Electric Company (PG&E). Biological surveys for a 27-mile electric transmission line reconductoring project from a station in an unincorporated area of Contra Costa County just north of the city of Antioch, to a substation in the city of Orinda. The project consisted of public and private lands. **Role: Biologist. Provided burrowing owl and Swainson's hawk surveys, and prepared technical reports.**

ROBERT FITCH, M.S., BIOLOGICAL TECHNICIAN

Mr. Fitch is a biologist with experience in Southern California. He has conducted plant surveys in a wide range of vegetation communities throughout Southern California. His field experience includes managing post fire habitats within the Angeles National Forest, invasive plant eradication (mechanical and herbicide) and native species restoration, record infestations and treatment methods using ArcGIS Collector and GPS. Mr. Fitch's overall experience includes identifying California native and non-native plant species, expertise in grassland, coastal sage scrub, and chaparral communities, and contributing to technical reports.

YEARS OF EXPERIENCE

4

EXPERTISE

Vegetation monitoring surveys

Plant identification

GPS and topographic maps

EDUCATION

M.S., Biology; California State Polytechnic University, Pomona, California; 2017

B.S., Biology; California State Polytechnic University, Pomona, California; 2013

A.S., Math and Science; Riverside Community College, Riverside, California; 2010

SELECTED PROJECT EXPERIENCE (* denotes project experience prior to SWCA)

Camino Solar Environmental Support; Aurora Solar, LLC; Kern County, California. This proposed 44-MW solar PV project sited on a combination of BLM and private lands is expected to be one of the first approved under the streamlined permitting of the Desert Renewable Energy Conservation Plan (DRECP). SWCA is providing comprehensive environmental permitting support for the project, including preparation of the Plan of Development for the BLM, Conditional Use Permit Application for Kern County, and the environmental technical studies for the project, including natural, cultural, and paleontological resources; greenhouse gases, air quality, and traffic. *Role: Environmental Specialist.*

SCE Environmental Clearance (EC) Support Consulting Services; Southern California Edison Company; Multiple Counties, California. SWCA is providing support for this transmission line improvement project located on lands administered by the BLM and Department of Defense as well as private land owners. Services include the development of the BLM Plan of Development (POD), preparation of the EA, and biological, jurisdictional waters, cultural, and paleontological technical studies and reports to support the EA, POD, and environmental permits. Most recently, SWCA is providing construction support to SCE. *Role: Environmental Specialist.*

* Field Botany Technician; Rancho Santa Ana Botanic Garden, Claremont, California.

Managed post fire habitats within the Angeles National Forest; Invasive plant eradication (mechanical and herbicide) and native species restoration; Conducted field surveys and identify plant species; Recorded infestations and treatment methods using ArcGIS Collector and GPS; Navigated using GPS and topographic maps; Operated company 4-4-wheel drive vehicle on unpaved roads and rugged mountain roads; Checked in and coordinated with construction crews and USFS personnel in operation areas; Safely operated and maintained a variety of field/landscaping tools; Field work regularly required challenging outdoor conditions and prolonged hiking.

* Research Assistant; Cal Poly Pomona Foundation, Pomona, California. Vegetation monitoring surveys, identify plant species; Traveled to field sites to gather environmental and biological data; Biological data entry, maintained project records, and developed spreadsheets; Analyzed data for errors and accuracy; Wrote technical reports of research projects summarizing data, methods, and results; Conducted web-based scientific literature surveys; Responsible for communicating project progress and status to senior staff; Duties required meeting multiple deadlines, working variable hours, and being adaptable in order to achieve project objectives; Duties required working with a team and independently following established work plans.

* Teaching Associate; California State Polytechnic University Pomona, Pomona, California. Instructor for freshman biology and basic ecology laboratory classes; Trained students in common laboratory techniques, safety procedures, principles of scientific inquiry, reporting/managing/analyzing scientific data, scientific writing, and keeping a laboratory notebook.

SUNNY LEE, B.S., WILDLIFE FIELD BIOLOGIST

Mr. Lee is an On-Call Wildlife Biologist with experience in biological resource consulting, which includes biological compliance monitoring as well as pre-construction surveys. He also has past experience in implementing environmental mitigations, which includes cleanup of hazardous materials, upholding the Storm Water Pollution Prevention Plan (SWPPP), and fugitive dust control. Mr. Lee's technical writing experience includes completing daily reports, taking accurate field notes, and data logging for use in technical reports.

YEARS OF EXPERIENCE

3

EXPERTISE

Construction monitoring

Nesting bird surveys

Vegetation removal

Trimble GPS device

EDUCATION

B.S., Biological Sciences: Zoology; Cal Poly Pomona; 2013

B.F.A., Visual Communication; Illinois Institute of Art; 2003

TRAINING

Visible Emissions Evaluation (VEE) certified, California Air Resource Board

Fugitive Dust compliance trained, South Coast Air Quality Management District

Fundamentals of Enforcement

Documenting Environmental Evidence and Report Writing

Qualified SWPPP Practitioner training

Hazardous Waste Management

Hazardous Waste Classification

Desert Tortoise Survey and Handling Class

SELECTED PROJECT EXPERIENCE (* denotes project experience prior to SWCA)

Valentine Solar Biological Monitoring and Environmental Studies; Kern County, California; EDF Renewable Energy. SWCA is providing natural and cultural resources services to fulfill Kern County's permitting requirements and prepare the corresponding environmental compliance documentation required by CEQA in support of the Valentine Solar Project. **Role: Biologist/Monitor. Provided protocol surveys for desert tortoise and burrowing owl, and monitoring for geotechnical studies.**

Confidential Solar Project; Kern County, California; Confidential. SWCA is providing natural resources services in support of a solar energy project on BLM lands. **Role: Biologist. Provided protocol surveys for desert tortoise and burrowing owl, and well as background research on natural resources in the project vicinity.**

Edwards AFB MMRP Program Natural and Cultural Resources Support, Kern, Los Angeles, and San Bernardino Counties, CA. MMRP efforts on Edwards AFB include sampling and recovery activities that have a potential to affect sensitive natural and cultural resources. Edwards AFB includes habitat for desert tortoises, a federally-listed as threatened species. **Role: Biologist/Monitor. Provided habitat assessments and conducted pre-activity surveys desert tortoise.**

SCE Fort Irwin Reliability Project Environmental Assessment; San Bernardino County, California; Southern California Edison Company. SWCA is providing support for this transmission line improvement project located on lands administered by the BLM and Department of Defense as well as private land owners. Services include the development of the BLM Plan of Development (POD), preparation of the Environmental Assessment (EA), and biological, jurisdictional waters, cultural, and paleontological technical studies and reports to support the EA, POD, and environmental permits. **Role: Biologist.**

Southern California Edison (SCE) On-call Biological Services; California; SCE. SWCA provided on-call biological services support for multiple O & M and small capital projects for the Corporate Environment, Health and Safety Division of SCE's Operations Support Business Unit. **Role: Biologist/Monitor. Provided habitat assessments and conducted pre-construction surveys for sensitive resources including nesting birds, burrowing owl, rare plants and desert tortoise.**

Confidential Solar Project; Los Angeles County, California; Confidential. SWCA provided natural and cultural resources studies in support of a solar energy project. **Role: Biologist.**

Oxford Retention Basin Biological Monitoring; Los Angeles County, California; CDM Smith. SWCA prepared a CDFW-approved fish relocation plan for relocation of several species of fish at the Oxford Retention Basin in Marina del Rey, conducted fish relocation activities during dewatering of the basin, and assisted in the monitoring of project activities. **Role: Monitor. Provided biological monitoring to ensure avoidance and minimization measures for natural resources was implemented to project construction.**

FRENCH MASSAROTTO, B.S., BIOLOGIST

Ms. Massarotto is a biologist with five years of experience conducting natural resources surveys as both a scientist and as a biological consultant in California. She specializes in avian studies, including multiple years of bird banding, and also conducts surveys for special-status species, nesting bird surveys, and conducting biological resource monitoring for construction.

YEARS OF EXPERIENCE

7

EXPERTISE

Bird banding

Special-status species surveys

Nesting bird surveys

EDUCATION

B.S., Biological Sciences; c:
Evolution and Ecology;
University of California,
Riverside; 2009

B.A., Religious Studies;
University of California,
Riverside; 2009

TRAINING

Defensive Driving II Certification,
4WD Training with experience,
National Safety Council

Certified Bird Bander

CPR and First Aid

SELECTED PROJECT EXPERIENCE

Southern California Edison (SCE) Operations and Maintenance On-call Contract for Natural, Cultural, and Water Resources Services; Multiple Counties, California; SCE. Under a three-year on-call contract, SWCA has completed more than 1400 survey and monitoring consultant work authorization tasks in support of various utility projects including deteriorated pole replacements, grid reliability and maintenance, GO 131-D, emergency services, vegetation management, and transmission line rating remediation. Projects are located throughout Southern California Edison's territory in Kern, Los Angeles, San Bernardino, Riverside, Ventura, Orange, Mono, Inyo, and Tulare Counties; projects are located on land administered by numerous agencies including the United States Air Force, the Bureau of Land Management, United States National Forests, The National Park Service, and California State Parks. Pre-construction and monitoring for sensitive species includes desert tortoise, burrowing owl, Swainson's hawk and other nesting raptors, and nesting birds. *Role: Biologist. Provided nesting bird surveys and monitoring for deteriorated pole replacement, monitored construction activities, and conducted pre-construction surveys for sensitive resources (including desert tortoise). Provided support on 15 projects throughout Kern and San Luis Obispo Counties.*

Valentine Solar Project; Kern County, California; EDF RE. SWCA was retained by Provost & Pritchard Consulting Group to provide biological, cultural, and paleontological resources services in support of the Valentine Solar Project located on 2,000 acres in Kern County, California. SWCA conducted full technical studies for biological, cultural, and paleontological field surveys to support the preparation of an EIR and other permitting requirements. Natural resources studies conducted include surveys for nesting birds, burrowing owls, desert tortoise, special-status plants, vegetation communities, and jurisdictional waters. SWCA's studies provided the technical basis for assessing potential impacts that may result from implementation of the project. SWCA is currently reviewing draft chapters of the project's EIR, conducting agency coordination for jurisdictional waters permitting. Specifically, SWCA worked closely with the project owner to site project elements to avoid cultural

resources and jurisdictional drainages, to maximize the project's generating capacity while minimizing environmental impacts. *Role: Biologist.*

Deteriorated Poles Design/Build Pilot; Southern California; Asplundh. SWCA was selected to create a program to provide biological and cultural resources assessments of 500 deteriorated poles located on private land in Tulare County as part of a pilot program to revamp SCE environmental compliance protocols. *Role: Biologist. Provided nesting bird and sensitive resources surveys for deteriorated pole replacement.*

Glendora Fuels Modification Project; Los Angeles County, California. SWCA worked with the Los Angeles County Department of Fire, landscapers, and a private property owner to develop a plan for trimming and removing vegetation for reduction of fuels loading. The project was located in the City of Glendora, in natural coastal sage scrub and buckwheat scrub communities, which are both declining, prone to wildfire, and important wildlife habitats. SWCA biologists recommended methods for preserving native vegetation where possible. Before and during vegetation trimming, SWCA surveyed and monitored sensitive biological resources, including nesting coastal California gnatcatcher and coastal cactus wren. *Role: Biologist. Conducted clearance surveys and monitoring of active bird nests.*

RICO RAMIREZ, B.S., BIOLOGIST

Mr. Ramirez is a biologist with extensive experience in Southern California. He is a botanical expert, and has conducted rare plant surveys in a wide range of vegetation communities throughout Southern California. His field experience includes general flora and fauna surveys, biological monitoring, vegetation mapping, sensitive species surveys, and nesting bird surveys, and plant community mapping according to Manual of California Vegetation standards. He works regularly throughout the Los Angeles, Riverside, San Bernardino, Kern, Orange, Inyo, Ventura, and San Diego Counties. Mr. Ramirez's expertise includes the identification of various desert plant species types within Southern California. He conducts habitat assessments and pre-construction surveys for sensitive wildlife and plants throughout the region, and has prepared biological assessments, survey reports, and various technical reports for USFS, CDFW, and USFWS review. Mr. Ramirez is an active participant in the Bureau of Land Management's Seeds of Success Program and technical protocol for the collection, study, and conservation of seeds from native plant species.

YEARS OF EXPERIENCE

2

EXPERTISE

Sensitive and general biological resource surveys

Rare plant identification and surveys

Habitat assessments

Habitat mitigation and monitoring planning

Construction monitoring

EDUCATION

B.S. Biology. California State University, San Bernardino

Training/Affiliations

CPR and First Aid

Seeds of Success, Bureau of Land Management, native seed collection protocol

California Native Plant Society

Rancho Santa Ana Botanic Garden

Calflora

SELECTED PROJECT EXPERIENCE

Southern California Edison (SCE) Operations and Maintenance On-call Contract for Natural, Cultural, and Water Resources Services; Multiple Counties, California; SCE. Under a three-year on-call contract, SWCA has completed more than 1400 survey and monitoring consultant work authorization tasks in support of various utility projects including deteriorated pole replacements, grid reliability and maintenance, GO 131-D, emergency services, vegetation management, and transmission line rating remediation. Projects are located throughout Southern California Edison's territory in Kern, Los Angeles, San Bernardino, Riverside, Ventura, Orange, Mono, Inyo, and Tulare Counties; projects are located on land administered by numerous agencies including the United States Air Force, the Bureau of Land Management, United States National Forests, The National Park Service, and California State Parks. *Role: Environmental Specialist. Conducted field habitat assessments, surveys, and construction monitoring throughout the SCE service area for plants and wildlife*

Gordon Mull Subdivision Project; Terry A. Hayes Associates; Glendora, California. SWCA and Terry A. Hayes Associates were selected to prepare technical studies and an Environmental Impact Report for the Gordon Mull Subdivision Project. The project will develop a 71-acre, 19-lot property located in the San Gabriel foothills. *Role: Biologist. Conducted rare plant surveys, vegetation mapping, reptile and amphibian surveys, and habitat assessments for sensitive species.*

Gordon Highlands Incidental Take Permit Compliance Project; Glendora, CA; Glendora East Ranch Company. SWCA coordinating with CDFW to implement the conditions of California Endangered Species Act Incidental Take Permit # 2081-2011-070-05 on the Gordon Highlands property for thread-leaved brodiaea (*Brodiaea filifolia*). In accordance with the ITP schedule, SWCA is conducting outplantings of this state- and federally-endangered plant, assisting with development and completion of a conservation easement and coordinating with CDFW, in addition to administrative coordination. *Role: Biologist. Conducted restoration, field planting, weeding, invasive species monitoring and removal, overseeing rodent control, native grass planting, thread-leaved brodiaea planting and preparation of annual status and monitoring reports.*

Valentine Solar Project; Kern County, California; EDF Renewable Energy. SWCA provide biological, cultural, and paleontological resources services in support of the Valentine Solar Project located on 2,000 acres in Kern County, California. SWCA conducted full technical studies for biological, cultural, and paleontological field surveys to support the preparation of an Environmental Impact Report (EIR) and other permitting requirements. Natural resources studies conducted include surveys for nesting birds, burrowing owls, desert tortoise, special-status plants, vegetation communities, and jurisdictional waters. *Role: Field biologist. Conducted special-status plant surveys.*

Appendix C. Botanical Survey Memorandum Report



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June 26, 2016

Matthew Hutchinson and Scott Kringen
Aurora Solar, LLC
1125 NW Couch Street
Suite 700
Portland, Oregon 97209

RE: April 2016 Botanical Survey at the Camino Solar Project

Dear Mr. Hutchinson and Mr. Kringen:

This memorandum summarizes the botanical survey conducted by SWCA Environmental Consultants (SWCA) at Aurora Solar, LLC's proposed Camino Solar Project in Southern California in April 2016. The project site is 15 miles west of California State Highway 14 (Antelope Valley Freeway), 12.5 miles south of California State Highway 58 (Blue State Memorial Highway) and 8 miles north of State Route 138 (West Avenue D) in Kern County, California (Figure 1, Figure 2). The project area is comprised of a combination of privately owned and federal lands administered by the Bureau of Land Management (BLM), and is approximately 359 acres in area.

The primary purpose of SWCA's botanical survey was to determine whether special-status plants are present at the project site. Additional aims were to conduct a floristic inventory and map the vegetation alliances at the site. Because many annual plants have aboveground parts for a limited time, appropriately timed surveys are essential to detect many species, especially spring ephemerals.

Two SWCA biologists conducted a survey for special-status plants at the site on April 20-22, 2016. Special-status plants were defined as those with a CNPS Rare Plant Rank of 1 or 2, listed as rare by CDFW or sensitive by BLM, or listed or candidates for listing under the state or federal Endangered Species Acts. The survey methods were consistent with the survey guidelines recommended by BLM¹, the California Department of Fish and Wildlife (CDFW)², and the California Native Plant Society (CNPS)³. Prior to conducting the field survey, local records of sensitive plants were reviewed to determine the species that may potentially occur at the site. The records were queried from the online databases of the California Natural Diversity Database (CNDDDB), CNPS Rare Plant Inventory, and the Consortium of California Herbaria. The search area for the queries was the nine U.S. Geological Survey 7.5-minute topographic quadrangles that include and surround the proposed project.

¹ Bureau of Land Management, California State Office. 2009. Survey Protocols Required for NEPA and ESA Compliance for BLM Special Status Plant Species. CA IM 2009-026. Sacramento, CA. Available at: <http://www.blm.gov/ca/dir/pdfs/2009/im/CAIM2009-026ATT1.pdf>

² California Department of Fish and Wildlife. 2009. Protocol for surveying and evaluating impacts to special status native plant populations and natural communities. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/protocols_for_surveying_and_evaluating_impacts.pdf

³ California Native Plant Society. 2001. CNPS Botanical Survey Guidelines. Available at: http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf

California Information regarding the macro- and micro-habitat requirements of these species was considered, and sensitive species that might have suitable habitat at the site were the focus of the field survey, including the following:

- Pale-yellow layia (*Layia heterotricha*), blooms March-June
- Alkali mariposa-lily (*Calochortus striatus*), blooms April-June
- Greenhorn fritillary (*Fritillaria brandegeei*), blooms April-June
- Piute Mountains navarretia (*Navarretia setiloba*), blooms April-July
- Grey-leaved violet (*Viola pinetorum* var. *grisea*), blooms April-July
- Clokey's cryptantha (*Cryptantha clokeyi*), blooms in April

Due to the expected bloom period of these species, a survey was conducted in April, to maximize the chances of detecting sensitive plants, if present.

On April 20, SWCA botanists Rico Ramirez and Alex Beakes visited a local population of Clokey's cryptantha and confirmed that individuals of this species were blooming and identifiable. On April 20-22, the botanists conducted a pedestrian survey of the entire site over three days, using a combination of a transect-based and intuitive controlled survey methods. The botanists walked transects spaced roughly 20 meters apart throughout the entire site, and also spent extra time intensively surveying areas of higher diversity (e.g. near the drainages, and in native-dominated plant communities) and where the sensitive plants were most likely to occur. The survey was floristic in nature: every plant taxon encountered was identified to the taxonomic level necessary to determine its rarity and listing status.

As a result of the survey, 90 species, subspecies, and varieties of plants were identified and recorded. No sensitive plants were detected.

Plant communities were mapped to a 0.1-acre minimum mapping unit based on the vegetation alliances described by the *Manual of California Vegetation*.⁴ The majority of the site is dominated by non-native grasses, which also provides some habitat for native species (Figure 3):

- *Bromus rubens* – *Schismus* (*arabicus*, *barbatus*) Herbaceous Semi-Natural Alliance (Red brome or Mediterranean grass grasslands)

The remainder of the site consists of five vegetation alliances that are dominated by native species:

- *Juniperus californica* Woodland Alliance (California juniper woodland)
- *Yucca brevifolia* Woodland Alliance (Joshua tree woodland)
- *Larrea tridentata* Shrubland Alliance (Creosote bush scrub)
- *Ambrosia salsola* Shrubland Alliance (Cheesebush scrub)
- *Ephedra nevadensis* Shrubland Alliance (Nevada joint fir scrub)

⁴ California Native Plant Society. 2016. A Manual of California Vegetation, Online Edition. <http://www.cnps.org/cnps/vegetation>; searched on 4 May, 2016. California Native Plant Society, Sacramento, CA.

The field survey was adequate to identify any sensitive plants at the site, if present, and therefore complied with the BLM, CDFW, and CNPS survey recommendations.

If you have any questions or comments regarding the survey, please contact me at (626) 240-0587 or PROberts@swca.com.

Sincerely



Pauline K. Roberts, Ph.D.
Senior Natural Resources Project Manager

Attachments:

- Figure 1. Camino Solar Project location map
- Figure 2. Project vicinity map
- Figure 3. Map of vegetation alliances and land cover at the project site
- Floral Compendium

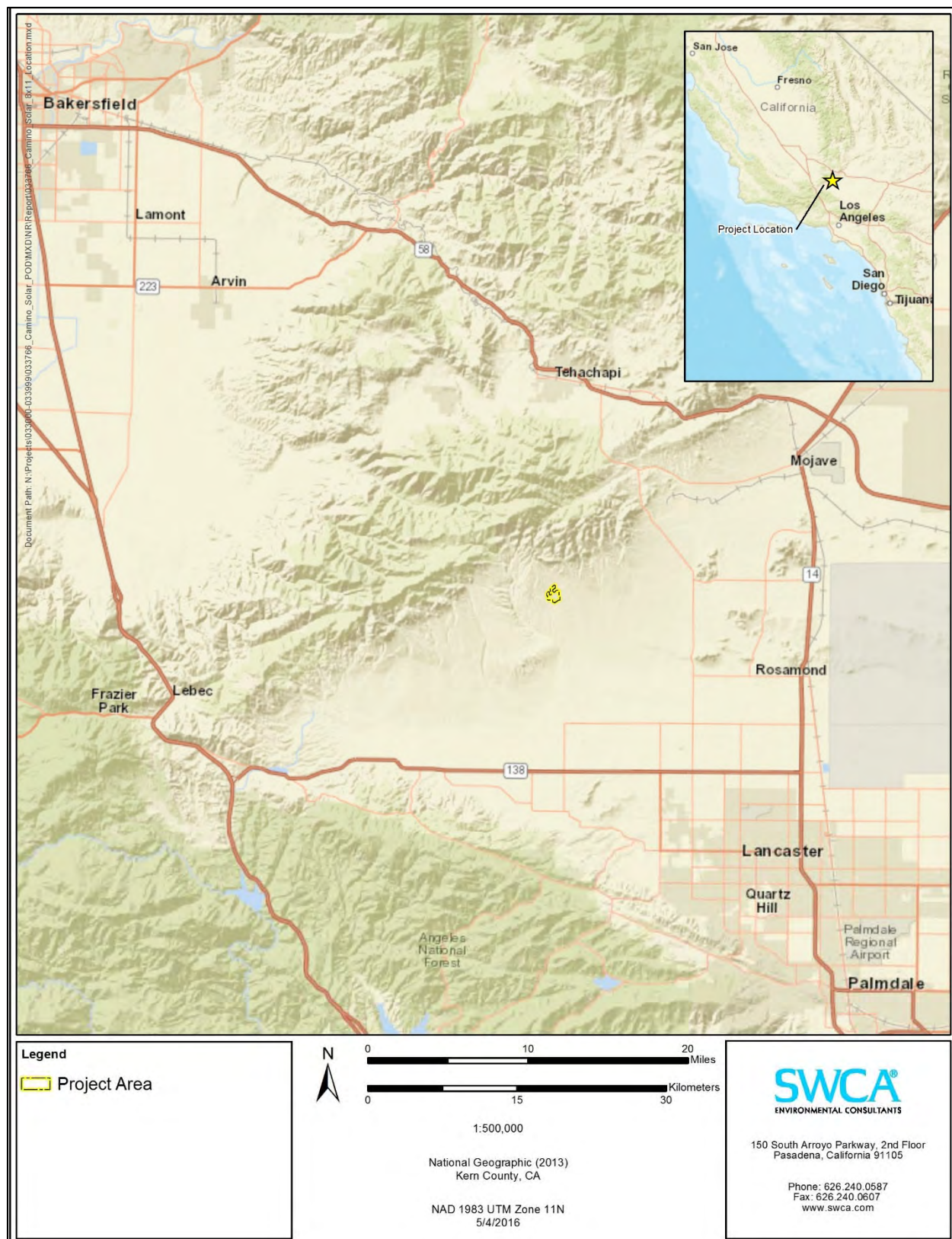


Figure 1. Camino Solar Project location map.

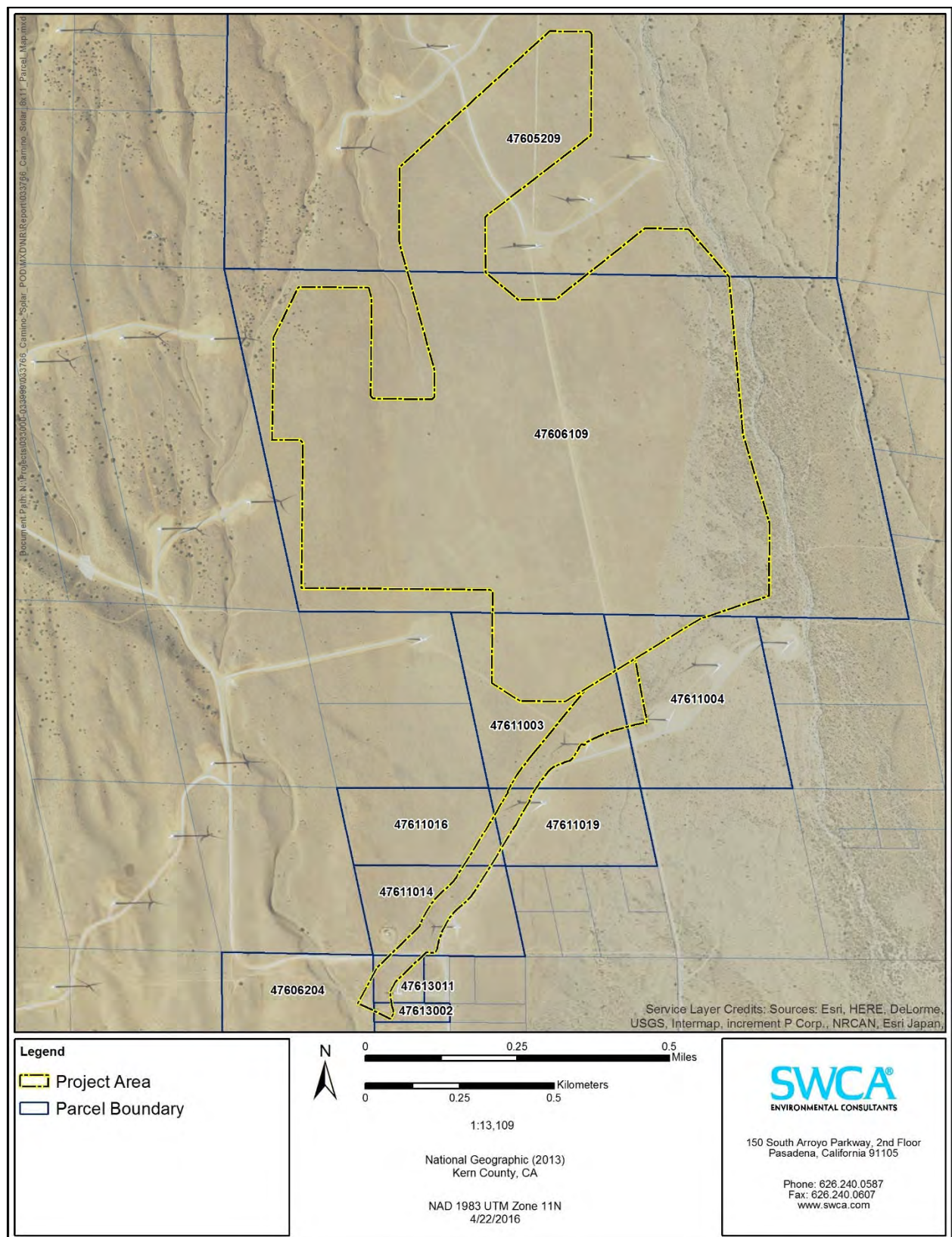


Figure 2. Project vicinity map.

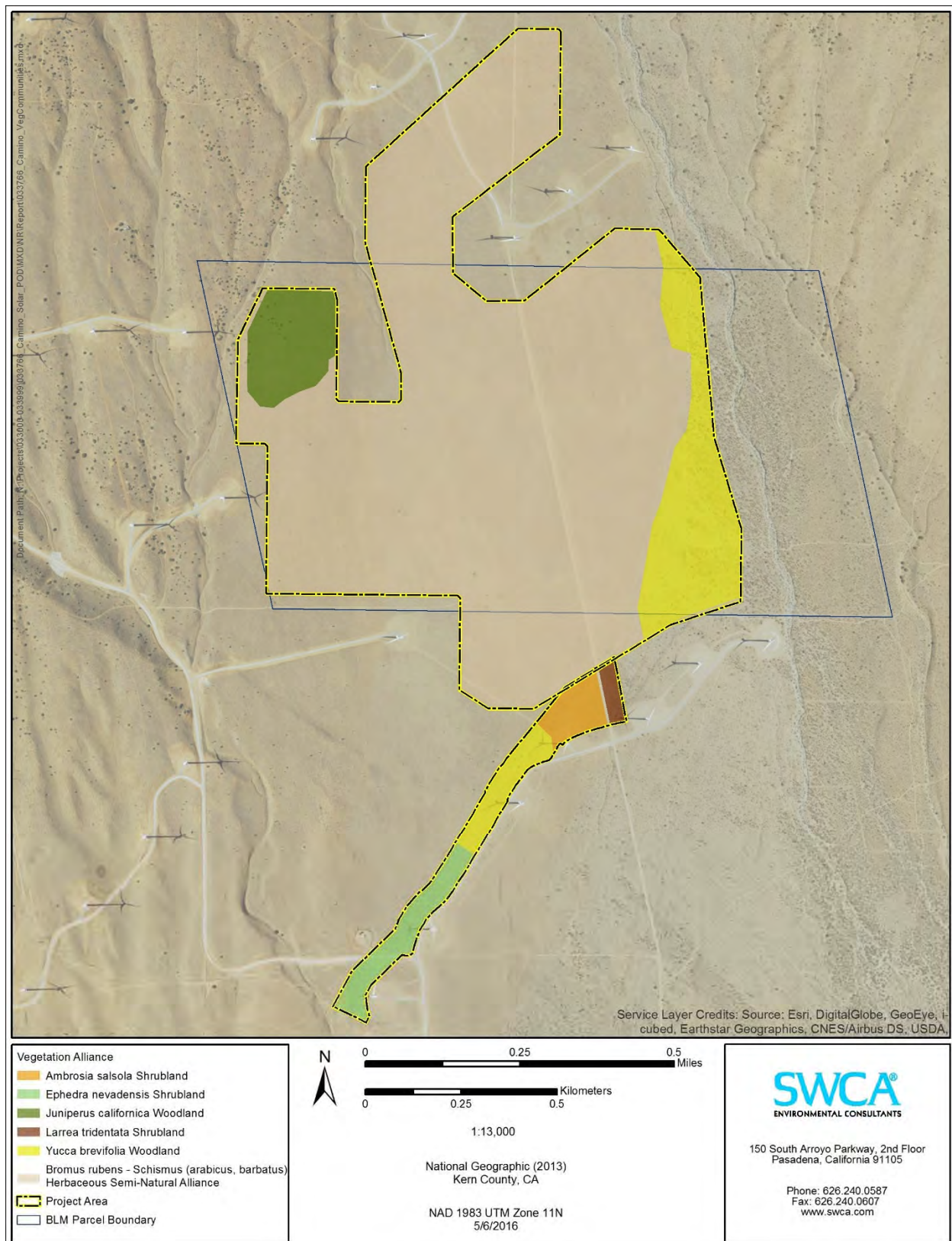


Figure 3. Map of vegetation alliances and land cover at the project site.

Floral Compendium

Scientific Name	Common name	Family	Native/ Alien	Flowering or Fruiting/Seeds /Vegetative
<i>Acamptopappus sphaerocephalus</i>	goldenhead	Asteraceae	N	F
<i>Acmispon strigosus</i>	Stiff-haired lotus	Fabaceae	N	F
<i>Ambrosia dumosa</i>	White bur-sage	Asteraceae	N	F
<i>Ambrosia salsola</i>	cheesebush	Asteraceae	N	F
<i>Amsinkia tessellata</i>	Checker fiddleneck	Boraginaceae	N	S
<i>Anisocoma acaulis</i>	scalebud	Asteraceae	N	S
<i>Astragalus lentiginosus</i> var. <i>variabilis</i>	freckled milkvetch	Fabaceae	N	V
<i>Bromus madritensis</i>	Foxtail chess	Poaceae	A	S
<i>Bromus tectorum</i>	Cheatgrass	Poaceae	A	S
<i>Calochortus kennedyi</i>	Desert mariposa lily	Liliaceae	N	F
<i>Calyptidium monandrum</i>	common pussypaws	Montiaceae	N	F
<i>Camissonia campestris</i>	Mojave suncup	Onagraceae	N	F
<i>Camissonia claviformis</i> ssp. <i>aurantiaca</i>	Brown eyed primrose	Onagraceae	N	F
<i>Camissoniopsis intermedia</i>	Intermediate sun cup	Onagraceae	N	F
<i>Camissoniopsis pallidavar.</i> <i>pallida</i>	Pale sun cup	Onagraceae	N	F
<i>Caulanthus coulteri</i>	Coulter's jewel flower	Brassicaceae	N	F
<i>Chenopodium fremontii</i>	Fremont's goosefoot	Asteraceae	N	V
<i>Croton setigerus</i>	dove weed	Euphorbiaceae	N	V
<i>Cryptantha decipiens</i>	Gravel cryptantha	Boraginaceae	N	S
<i>Cryptantha</i> sp. (not <i>C. decipiens</i> or <i>clokeyi</i>)	Cryptantha	Boraginaceae	N	S
<i>Cylindropuntia echinocarpa</i>	silver cholla	Cactaceae	N	V
<i>Descurania pinnata</i>	tansy mustard	Brassicaceae	N	S
<i>Dichelostemma capitatum</i>	Blue dicks	Themidaceae	N	S
<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	Whispering bells	Boraginaceae	N	F
<i>Encelia actonii</i>	Acton encelia	Asteraceae	N	F
<i>Ephedra nevadensis</i>	Nevada ephedra	Ephedraceae	N	F

Scientific Name	Common name	Family	Native/ Alien	Flowering or Fruiting/Seeds /Vegetative
<i>Ephedra viridis</i>	green ephedra	Ephedraceae	N	V
<i>Epilobium cana</i> ssp. <i>latifolium</i>	California fushia	Onagraceae	N	V
<i>Eriastrum sapphirinum</i>	Sapphire eriastrum	Polemoniaceae	N	F
<i>Ericameria linearifolia</i>	narrowleaf goldenbush	Asteraceae	N	v
<i>Ericameria cooperi</i>	Cooper's goldenbush	Asteraceae		
<i>Ericameria nauseosa</i>	rubber rabbitbrush	Asteraceae		
<i>Eriogonum angulosum</i>	angle-stemmed buckwheat	Polygonaceae	N	F
<i>Eriogonum baileyi</i> var. <i>baileyi</i>	Bailey's buckwheat	Polygonaceae	N	V
<i>Eriogonum brachyanthum</i>	yellow buckwheat	Polygonaceae	N	F
<i>Eriogonum deflexum</i>	flat top buckwheat	Polygonaceae	N	F
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat	Polygonaceae	N	V
<i>Eriogonum gracillimum</i>	Slender stemmed buckwheat	Polygonaceae	N	V
<i>Eriogonum mohavense</i>	mojave buckwheat	Polygonaceae	N	F
<i>Eriophyllum pringlei</i>	Pringle's wooly sunflower	Asteraceae	N	F
<i>Erisimum capitatum</i>	wallflower	Brassicaceae	N	S
<i>Erodium cicutarium</i>	red-stemmed filaree	Geraniaceae	A	S
<i>Eschscholzia californica</i>	California poppy	Papaveraceae	N	F
<i>Eschscholzia minutiflora</i>	Pygmy poppy	Papaveraceae	N	F
<i>Euphorbia albomarginata</i>	rattlesnake weed	Euphorbiaceae	N	F
<i>Gilia breccarium</i> var. <i>breccarium</i>	Tiny gilia	Polemoniaceae	N	F
<i>Gilia cana</i> ssp. <i>speciosa</i>	showy gilia	Polemoniaceae	N	F
<i>Gilia capitata</i> var. <i>abrotanifolia</i>	ball gilia	Polemoniaceae	N	F
<i>Gilia latiflora</i> ssp. <i>latiflora</i>	broad flowerd gilia	Polemoniaceae	N	F
<i>Gutierrezia microcephala</i>	Sticky snakeweed	Asteraceae	N	S
<i>Hirschfeldia incana</i>	Short podded mustard	Brassicaceae	A	F
<i>Hordeum</i> sp.		Poaceae	A	S
<i>Juniperus californica</i>	California juniper	Cupressaceae	N	F
<i>Krascheninnikovia lanata</i>	winterfat	Chenopodiaceae	N	S
<i>Larrea tridentata</i>	creosote bush	Zygophyllaceae	N	F
<i>Lasthenia californica</i>	goldfields	Asteraceae	N	S

Scientific Name	Common name	Family	Native/ Alien	Flowering or Fruiting/Seeds /Vegetative
<i>Leptosyne bigelovii</i>	Bigelow's coreopsis	Asteraceae	N	F
<i>Loeseliastrum matthewsii</i>	desert calico	Polemoniaceae	N	F
<i>Loeseliastrum schottii</i>	Schott's calico	Polemoniaceae	N	F
<i>Lupinus concinnus</i>	Concinnus	Fabaceae	N	F
<i>Lupinus microcarpus</i> var. <i>densiflorus</i>	Chick lupine	Fabaceae	N	F
<i>Lycium andersonii</i>	Anderson's boxthorn	Solanaceae	N	V
<i>Lycium cooperi</i>	Cooper's boxthorn	Solanaceae	N	F
<i>Malacothrix glabrata</i>	Desert dandelion	Asteraceae	N	S
<i>Mentzelia albicaulis</i>	white stemmed blazing star	Loasaceae	N	F
<i>Mirabilis laevis</i>	wishbone bush	Nyctaginaceae	N	F
<i>Nicotiana attenuata</i>	Coyote tobacco	Solanaceae	N	F
<i>Opuntia basilaris</i> var. <i>basilaris</i>	beavertail cactus	Cactaceae	N	F
<i>Pectocarya linearis</i>	Sagebrush combseed	Boraginaceae	N	S
<i>Pectocarya recurvata</i>	Arched nutted comb-bur	Boraginaceae	N	S
<i>Pectocarya setosa</i>	moth combseed	Boraginaceae	N	S
<i>Penstemon</i> sp.		Plantaginaceae	N	V
<i>Phacelia distans</i>	Common phacelia	Boraginaceae	N	S
<i>Phacelia fremontii</i>	Fremont's phacelia	Boraginaceae	N	F
<i>Phoradendron juniperinum</i>	juniper mistletoe	Viscaceae	N	V
<i>Plagiobothrys arizonicus</i>	Arizona popcorn flower	Boraginaceae	N	S
<i>Salsola tragus</i>	Russian tumbleweed	Chenopodiaceae	A	V
<i>Salvia columbariae</i>	chia	Lamiaceae	N	F
<i>Schismus arabicus</i>	Mediterranean grass	Poaceae	A	S
<i>Schismus barbatus</i>	Common mediterranean grass	Poaceae	A	S
<i>Sisymbrium altissimum</i>	Tumble mustard	Brassicaceae	A	S
<i>Sonchus asper</i>	sow thistle	Asteraceae	N	F
<i>Stephanomeria exigua</i>	small wire lettuce	Asteraceae	N	V
<i>Stephanomeria parryi</i>	Parryi rock pink	Asteraceae	N	V
<i>Stephanomeria pauciflora</i>	wirelettuce	Asteraceae	N	V
<i>Stipa speciosa</i>	Desert needle grass	Poaceae	N	F
<i>Syntricopappus fremontii</i>	yellow ray Fremont's gold	Asteraceae	N	S

Scientific Name	Common name	Family	Native/ Alien	Flowering or Fruiting/Seeds /Vegetative
<i>Tetradymia axillaris</i> var. <i>longispina</i>	long-spined cottonthorn	Asteraceae	N	V
<i>Tetradymia stenolepis</i>	Mojave horse brush	Asteraceae	N	V
<i>Yucca brevifolia</i>	Joshua tree	Agavaceae	N	S

Appendix D. Representative Site Photographs



Photo 1: View across the project area of Red Brome or Mediterranean Grass Grasslands.



Photo 2: Red Brome or Mediterranean Grass Grasslands.



Photo 3: View northwest across the project site toward the Tehachapi foothills.



Photo 4: Edge habitat near Joshua Tree Woodland and Creosote Bush Scrub.



Photo 5: Red Brome or Mediterranean Grass Grasslands transitioning to Joshua Tree Woodland.



Photo 6: California Juniper Woodland.

Appendix E.
Field Delineation of Hydrological Features at the Camino Solar Project



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January 11, 2016

Kristen Goland and Scott Kringen
1125 Northwest Couch Street
Suite 700
Portland, Oregon 97209

RE: Field delineation at the Camino Solar Project

Dear Ms. Goland and Mr. Kringen:

This memorandum summarizes the jurisdictional delineation conducted by SWCA Environmental Consultants (SWCA) at Aurora Solar, LLC's proposed Camino Solar Project in southern Kern County, California (Figure 1). The project is located 15 miles west of California State Highway 14 (Antelope Valley Freeway), 12.5 miles south of California State Highway 58 (Blue State Memorial Highway) and 8 miles north of State Route 138 (West Avenue D) in southern Kern County, California. The project area is comprised entirely of federal lands administered by the Bureau of Land Management (BLM), and is approximately 359 acres in area.

The purpose of SWCA's field delineation was to determine the extent and jurisdictional status of the linear drainage features present at the project site. Specifically, the delineation was intended to identify which, if any, portions of the drainages would be subject to the regulatory authority of the California Department of Fish and Wildlife (CDFW), the Regional Water Quality Control Board (RWQCB), and/or the U.S. Army Corps of Engineers (USACE). However, it is important to note that the authority to make a jurisdictional determination rests solely with each regulatory agency. A jurisdictional delineation report with more detailed information than this memorandum includes is typically prepared to support the agencies' determinations and the regulatory permitting process. Instead, this memorandum is intended to support the earlier stages of project design and decision-making. Avoiding and minimizing impacts to jurisdictional waters through project design refinements can streamline regulatory permitting and reduce mitigation costs.

The proposed project is located in the north-central Antelope Valley, on the lower foothills of the Tehachapi Mountains. Drainages in the Antelope Valley watershed flow toward and terminate in the Rosamond, Rogers, and Buckhorn Dry Lakes. Because the watershed is isolated, does not connect to the ocean or cross a state boundary, and does not have any commerce related to surface waters, the USACE has determined that the entire watershed, excluding Lake Palmdale and its tributaries in the southeastern part of the watershed, are not subject to USACE jurisdiction. Wetland and non-wetland surface hydrological features (e.g. streams, ponds, lakes, etc.) at the project site are therefore also non-jurisdictional for the USACE. The USACE's determination of non-jurisdiction does not affect CDFW and the RWQCB's jurisdictions; both agencies have asserted jurisdiction over various drainages in the Antelope Valley, and a delineation at the project site is therefore warranted.

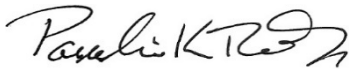
On December 30, 2015, SWCA biologist Michael Cady conducted a jurisdictional delineation at the project site. In the field, Mr. Cady followed the procedures and guidelines accepted for delineating waters potentially subject to USACE, CDFW, and RWQCB jurisdictions, recording the limits of the streambeds and banks, ordinary high water marks, and extent of riparian habitats.

As a result of the survey, four (4) linear drainage features were observed and delineated at the project site, all of which were considered subject to the jurisdiction of both CDFW and RWQCB (Figure 2). All four were ephemeral streams that convey water only intermittently. No riparian habitats were observed that would extend CDFW's jurisdiction beyond the limits of the streambeds and banks. For convenience, the features have been numbered 1 through 4, as read from west to east (left to right on a map). Features 1, 3, and 4 all pass completely through the project site, beginning uphill (north) of the site and flowing approximately southward into and then out of the site. Feature 2 also begins outside and north of the project site; however its jurisdictional extent ends within the project site, and at the downstream end it flows presumably percolate into the ground or become undefined surficial sheet flow that are not contained within a defined bed and bank.

The delineation conducted by SWCA reflects conditions at the project site at the time of the field survey. As natural features subject to erosion and other natural processes, the location and extent of the drainages may change over time. Such changes are usually gradual and minor, but extraordinary natural events or anthropogenic activities may cause substantial changes; if these types of events occur at the project site, SWCA's field delineation may no longer be applicable.

Please contact me at PROberts@swca.com or (626) 240-0587 with any questions or comments.

Sincerely



Pauline K. Roberts, Ph.D.
Senior Natural Resources Project Manager

Attachments:

- Figure 1
- Figure 2



Figure 1. Camino Solar Project vicinity map.

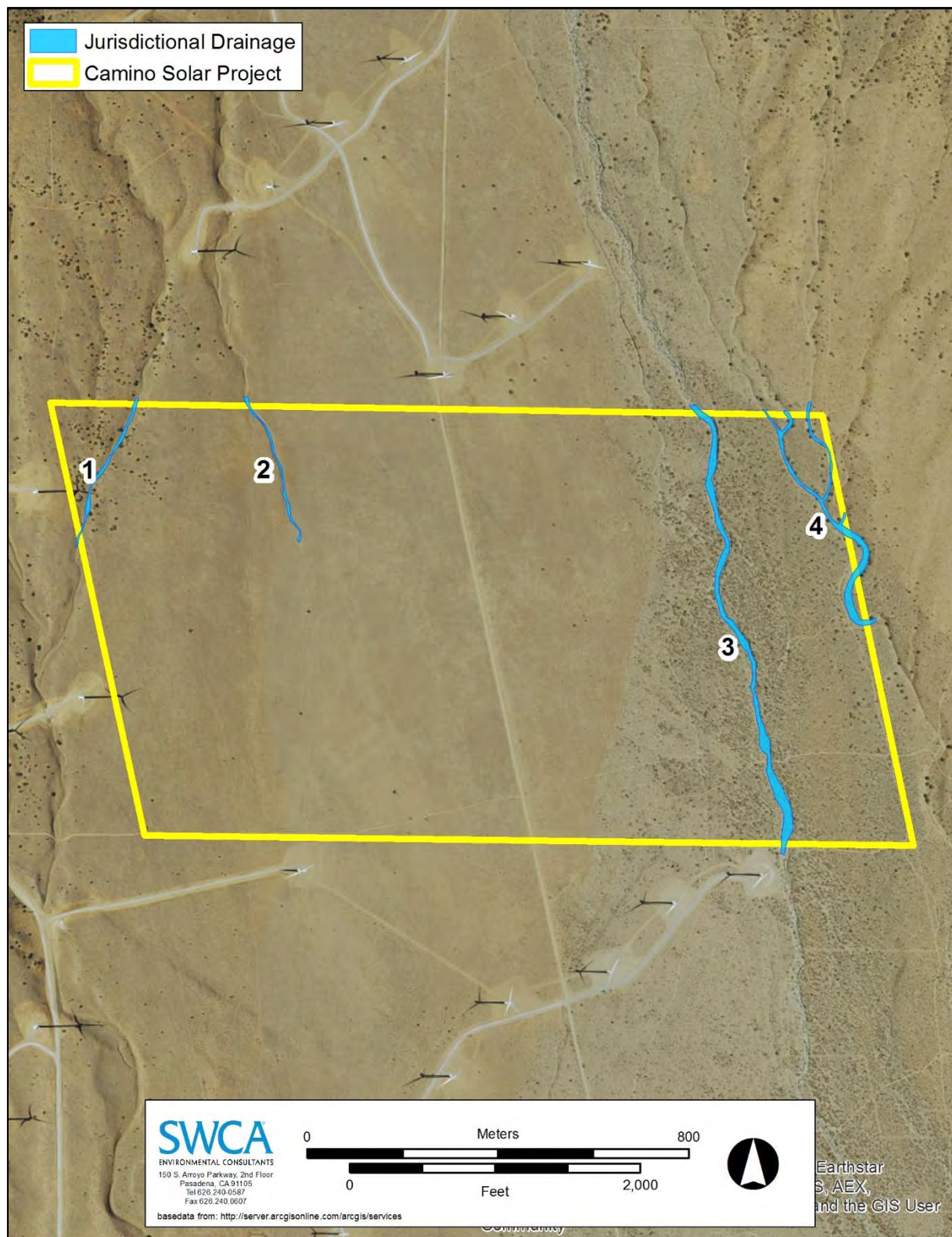


Figure 2. Jurisdictional drainages delineated at the project.

Appendix F. Floral and Faunal Compendia

Table F-1: Plants Observed at the Project

Scientific Name	Common Name
Gymnosperms	
Ephedraceae—Ephedra Family	
<i>Ephedra nevadensis</i>	Nevada ephedra
<i>Ephedra viridis</i>	Green ephedra
Angiosperms	
Dicots	
Apiaceae—Carrot Family	
<i>Lomatium mohavense</i>	Mohave wild parsley
Apocynaceae—Dogbane Family	
<i>Asclepias eriocarpa</i>	Indian milkweed
Asteraceae—Sunflower Family	
<i>Acamptopappus sphaerocephalus</i>	Goldenhead
<i>Ambrosia acanthicarpa</i>	Annual bursage
<i>Ambrosia dumosa</i>	White bursage
<i>Ambrosia salsola</i>	Cheesebush
<i>Anisocoma acaulis</i>	Scale bud
<i>Chaenactis xantiana</i>	Xantus' pincushion
<i>Chenopodium fremontii</i>	Fremont's goosefoot
<i>Encelia actoni</i>	Acton encelia
<i>Ericameria cooperi</i>	Cooper's goldenbush
<i>Ericameria linearifolia</i>	Narrowleaf goldenbush
<i>Ericameria nauseosa</i>	Rubber rabbitbrush
<i>Ericameria teretifolia</i>	Green rabbitbrush
<i>Eriophyllum pringlei</i>	Pringle's woolly sunflower
<i>Gutierrezia microcephala</i>	Sticky snakeweed
<i>Lasthenia californica</i>	Goldfields
<i>Lasthenia gracilis</i>	Needle goldfields
<i>Layia glandulosa</i>	White layia
<i>Leptosyne bigelovii</i>	Bigelow's coreopsis
<i>Malacothrix glabrata</i>	Desert dandelion
<i>Sonchus asper</i>	Sow thistle
<i>Stephanomeria exigua</i>	Small wire lettuce
<i>Stephanomeria parryi</i>	Parry's wirelettuce
<i>Stephanomeria pauciflora</i>	Wirelettuce
<i>Syntrichopappus fremontii</i>	Yellowray Fremont's gold
<i>Tetradymia axillaris</i> var. <i>longispina</i>	Long-spined cottonthorn
<i>Tetradymia stenolepis</i>	Narrow scaled felt thorn
Boraginaceae—Borage Family	
<i>Amsinckia tessellata</i>	Checker fiddleneck

Table F-1: Plants Observed at the Project

Scientific Name	Common Name
<i>Cryptantha decipiens</i>	Gravel cryptantha
<i>Cryptantha</i> sp.	
<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	Whispering bells
<i>Pectocarya linearis</i>	Sagebrush combseed
<i>Pectocarya penicillata</i>	Winged combseed
<i>Pectocarya recurvata</i>	Arched nutted comb-bur
<i>Pectocarya setosa</i>	Moth combseed
<i>Phacelia distans</i>	Common phacelia
<i>Phacelia tanacetifolia</i>	Tansy leafed phacelia
<i>Phacelia fremontii</i>	Fremont's phacelia
<i>Plagiobothrys arizonicus</i>	Arizona popcorn flower
Brassicaceae—Mustard Family	
<i>Caulanthus coulteri</i>	Coulter's jewel flower
<i>Descurainia pinnata</i>	Yellow tansy mustard
<i>Erisimum capitatum</i>	Wallflower
<i>Hirschfeldia incana</i> *	Short podded mustard
<i>Sisymbrium altissimum</i> *	Tumble mustard
<i>Tropidocarpum gracile</i>	Dobie pod
Cactaceae—Cactus Family	
<i>Cylindropuntia echinocarpa</i>	Silver cholla
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Beavertail cactus
Chenopodiaceae—Goosefoot Family	
<i>Krascheninnikovia lanata</i>	Winter fat
<i>Salsola tragus</i> *	Russian thistle
Cupressaceae—Cypress Family	
<i>Juniperus californica</i>	California juniper
Euphorbiaceae—Spurge Family	
<i>Croton setigerus</i>	Dove weed
<i>Euphorbia albomarginata</i>	Rattlesnake weed
Fabaceae—Pea Family	
<i>Acemisson strigosus</i>	Stiff-haired lotus
<i>Astragalus douglasii</i>	Douglas's milkvetch
<i>Astragalus lentiginosus</i> var. <i>variabilis</i>	Freckled milkvetch
<i>Lupinus bicolor</i>	Bicolor lupine
<i>Lupinus concinnus</i>	Concinnus
<i>Lupinus microcarpus</i> var. <i>densiflorus</i>	Chick lupine
Geraniaceae—Geranium Family	
<i>Erodium cicutarium</i> *	Red-stemmed filaree
Lamiaceae—Mint Family	

Table F-1: Plants Observed at the Project

Scientific Name	Common Name
<i>Salvia columbariae</i>	Chia
Loasaceae—Evening Star Family	
<i>Mentzelia albicaulis</i>	White stemmed blazing star
Montiaceae—Miner's Lettuce Family	
<i>Calyptidium monandrum</i>	Common pussypaws
Nyctaginaceae—Four O'Clock Family	
<i>Mirabilis laevis</i>	Wishbone bush
Onagraceae—Primrose Family	
<i>Camissonia campestris</i>	Mojave sun cup
<i>Camissonia calviformis</i> ssp. <i>aurantiaca</i>	Brown eyed primrose
<i>Camissoniopsis bistorta</i>	California sun cup
<i>Camissoniopsis intermedia</i>	Intermediate sun cup
<i>Camissonia pallida</i> var. <i>pallida</i>	Pale sun cup
<i>Epilobium cana</i> ssp. <i>latifolium</i>	California fuschia
Papaveraceae—Poppy Family	
<i>Eschscholzia californica</i>	California poppy
<i>Eschscholzia minutiflora</i>	Coville's poppy
Plantaginaceae—Plantain Family	
<i>Penstemon</i> sp.	
Polemoniaceae—Phlox Family	
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	Brittle spineflower
<i>Eriastrum densifolium</i> ssp. <i>elongatum</i>	Giant eriastrum
<i>Eriastrum sapphirinum</i>	Sapphire eriastrum
<i>Gilia breccarium</i> var. <i>breccarium</i>	Tiny gilia
<i>Gilia cana</i> ssp. <i>speciose</i>	Showy gilia
<i>Gilia capitata</i> var. <i>abrotanifolia</i>	Ball gilia
<i>Gilia latiflora</i> ssp. <i>latiflora</i>	Broad flowerd gilia
<i>Loeseliastrum matthewsii</i>	Desert calico
<i>Loeseliastrum schottii</i>	Schott's calico
Polygonaceae—Buckwheat Family	
<i>Eriogonum angulosum</i>	Angled stem buckwheat
<i>Eriogonum baileyi</i> var. <i>baileyi</i>	Bailey's buckwheat
<i>Eriogonum brachyanthum</i>	Yellow buckwheat
<i>Eriogonum deflexum</i>	Flat topped buckwheat
<i>Eriogonum elongatum</i>	Long stemmed buckwheat
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat
<i>Eriogonum gracillimum</i>	Slender buckwheat
<i>Eriogonum mohavense</i>	Mojave buckwheat
<i>Eriogonum plumatella</i>	Yucca wild buckwheat

Table F-1: Plants Observed at the Project

Scientific Name	Common Name
Solanaceae—Nightshade Family	
<i>Datura wrightii</i>	Jimsonweed
<i>Lycium andersonii</i>	Anderson's boxthorn
<i>Lycium cooperi</i>	Cooper's boxthorn
<i>Nicotiana attenuata</i>	Coyote tobacco
Viscaceae—Mistletoe Family	
<i>Phoradendron juniperinum</i>	Juniper mistletoe
Zygophyllaceae—Caltrop Family	
<i>Larrea tridentata</i>	Creosote bush
Monocots	
Agavaceae- Agave Family	
<i>Yucca brevifolia</i>	Joshua tree
Liliaceae—Lily Family	
<i>Calochortus kennedyi</i>	Desert mariposa lily
Poaceae—Grass Family	
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	Foxtail chess
<i>Bromus tectorum</i> *	Cheatgrass
<i>Hordeum</i> sp.*	
<i>Schismus arabicus</i> *	Mediterranean grass
<i>Schismus barbatus</i> *	Common Mediterranean grass
<i>Stipa speciosa</i>	Desert needle grass
Themidaceae—Themidaceae Family	
<i>Dichelostemma capitatum</i>	Blue dicks

* Non-native species

Table F-2: Wildlife Observed at the Project

Scientific Name	Common Name
Reptiles and Amphibians	
<i>Aspidoscelis tigris munda</i>	California whiptail
<i>Crotalus scutulatus scutulatus</i>	Northern Mohave rattlesnake
<i>Pituophis catenifer</i>	Gopher snake
<i>Sceloporus magister</i>	Desert spiny lizard
<i>Uta stansburiana</i>	Western side-blotched lizard
Birds	
<i>Artemisiospiza bellii</i>	Bell's sparrow
<i>Buteo jamaicensis</i>	Red-tailed hawk

Table F-2: Wildlife Observed at the Project

Scientific Name	Common Name
<i>Campylorhynchus brunneicapillus</i>	Cactus wren
<i>Chondestes grammacus</i>	Lark sparrow
<i>Corvus corax</i>	Common raven
<i>Eremophila alpestris</i>	Horned lark
<i>Geococcyx californianus</i>	Greater roadrunner
<i>Haemorhous mexicanus</i>	House finch
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Mimus polyglottus</i>	Northern mockingbird
<i>Myiarchus cinerascens</i>	Ash-throated flycatcher
<i>Sialia mexicana</i>	Western bluebird
<i>Sturnella neglecta</i>	Western meadowlark
<i>Sturnus vulgaris</i>	European starling
<i>Tyrannus verticalis</i>	Western kingbird
<i>Zenaida macroura</i>	Mourning dove
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
Mammals	
<i>Ammospermophilus leucurus</i>	White-tailed Antelope ground squirrel
<i>Bos bovis</i> *	Domestic cow
<i>Canis latrans</i>	Coyote
<i>Equus equus</i> *	Domestic horse
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Ovis aries</i> *	Domestic sheep
<i>Sylvilagus audubonii</i>	Desert cottontail
<i>Vulpes macrotis arsipus</i>	Desert kit fox

* Non-native species

Appendix G.
Email Communication -
RE: Camino Solar bi-monthly call Nov. 22, 2016

Pauline K. Roberts

From: Ray Bransfield <ray_bransfield@fws.gov>
Sent: Tuesday, November 22, 2016 7:15 PM
To: Pauline K. Roberts; cwoods@blm.gov; Kim
Subject: RE: Camino Solar bi-monthly call Nov 22, 2016

Follow Up Flag: Follow up
Flag Status: Flagged

Pauline,
Thanks for the notes. The section on the desert tortoise correctly reflects today's discussion.
Ray

P.S. Sorry I was late for the call.

From: Pauline K. Roberts [mailto:PROberts@swca.com]
Sent: Tuesday, November 22, 2016 2:44 PM
To: prodriqu@blm.gov; djstorm@blm.gov; csymons@blm.gov; lelser@blm.gov; Kringen, Scott; cbeck@blm.gov; cwoods@blm.gov; rpawelek@blm.gov; rporter@blm.gov; gmler@blm.gov; msintetos@blm.gov; Matt Hutchinson - Iberdrola Renewables, LLC (matthew.hutchinson@avangrid.com); Kim Marsden (kmarsden@blm.gov); Bransfield, Ray
Subject: Camino Solar bi-monthly call Nov 22, 2016

Hi everyone,

Here are my notes from today's call and action items from today's call. Please let me know if you have any questions, comments, or edits – of note this week was BLM and USFWS stating that desert tortoise can be considered absent from the site. Thanks to everyone who made it this week.

Hope you all have a great Thanksgiving holiday,
Pauline


Pauline Roberts, PhD
Senior Natural Resources Project Manager

SWCA Environmental Consultants
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Appendix E

Cultural Resources Survey Report for the Camino Solar Project





CULTURAL RESOURCES SURVEY REPORT FOR THE CAMINO SOLAR PROJECT, KERN COUNTY, CALIFORNIA

FINAL

August 2017

SUBMITTED TO

Bureau of Land Management
300 S. Richmond Road
Ridgecrest, CA 93555

AND

Aurora Solar, LLC
1125 NW Couch Street, Suite 700
Portland, OR 97209

PREPARED BY

SWCA Environmental Consultants
150 South Arroyo Parkway, Second Floor
Pasadena, CA 91105

Archaeological and other heritage resources can be damaged or destroyed through uncontrolled public disclosure of information regarding their location. This document contains sensitive information regarding the nature and location of archaeological sites that should not be disclosed to the general public or unauthorized persons.

Information regarding the location, character, or ownership of a cultural resource is exempt from the Freedom of Information Act pursuant to 16 USC 470w-3 (National Historic Preservation Act) and 16 USC Section 470(h) (Archaeological Resources Protections Act).

Confidential – Not For Public Distribution

**CULTURAL RESOURCES SURVEY REPORT
FOR THE CAMINO SOLAR PROJECT,
KERN COUNTY, CALIFORNIA**

Prepared for

Bureau of Land Management
300 S. Richmond Road
Ridgecrest, CA 93555
Attn: Donald Storm

and

Aurora Solar, LLC
1125 NW Couch Street, Suite 700
Portland, OR 97209
Attn: Matthew Hutchinson

Prepared by

Michael J. Retter, M.A., RPA,
Liz Denniston, M.A., RPA
and
Alyssa Bell, Ph.D.

SWCA Environmental Consultants
150 South Arroyo Parkway, 2nd Floor
Pasadena, CA 92374
(626) 240-0587
www.swca.com
Contact: Pauline Roberts, Project Manager

U.S. Geological Survey 7.5-Minute Quadrangle: Tylerhorse Canyon, California

SWCA Project No. 33766
SWCA Cultural Resources Report No. 16-412

August 2, 2017

Keywords: Cultural resources survey; positive results; total survey acreage 83.5 acres; total project APE acreage 421.2 acres; Los Angeles Aqueduct; 1 historic isolate; 1 prehistoric isolate; Kern County; Antelope Valley; Tylerhorse Canyon quadrangle; Township 10 North, Range 15 West, Sections 23, 26, 27, 34, 35.
(San Bernardino Base and Meridian)

EXECUTIVE SUMMARY

Purpose and Scope: SWCA Environmental Consultants (SWCA) was retained by Aurora Solar, LLC (Aurora) to conduct a cultural resources study in support of the proposed Camino Solar Project (project) in Kern County, California. This cultural resources study is intended to characterize and describe cultural resources (including paleontological resources) identified within the area of potential effects (APE) or project area that could be affected by ground-disturbing activities associated with the project. The project consists of an approximately 421.24-acre project area with auxiliary features consisting of: additional access roads, generation tie (gen-tie) line, a new fence line, battery storage, an operations and maintenance (O&M) facility, and an approximately four-acre laydown yard located on both private and Bureau of Land Management (BLM) lands. The cultural resources APE is defined as the main project area and the additional features, and it covers approximately 421.2 acres combined. Previous surveys conducted in 2010 and later covered approximately 337.5 acres of the APE, including all of the BLM-managed lands (Sapphos Environmental, Inc. [Sapphos] 2010, 2012a, 2012b, 2013); these areas were not resurveyed, per the BLM's direction. Therefore, the current project survey area is defined as approximately 83.5 acres of the combined project area. The laydown yard will be sited within the existing fenced operations and maintenance yard of the privately-owned Manzana Wind Power Project. A complete cultural survey was completed in 2005 for the Manzana project and resurvey of any potential laydown yard location was deemed unnecessary, per the BLM's direction (Sapphos 2006a, 2006b).

All lands within the current survey area are privately owned lands; however, the presence of BLM-managed lands within the project APE constitutes a federal nexus. The current study includes a review of previous cultural resources surveys conducted in the APE, an intensive-level pedestrian survey, and the preparation of a cultural resources technical report that documents the results of these efforts and provides management recommendations. This study was completed in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulation, 36 Code of Federal Regulations (CFR) 800. Undertakings on tribal lands are subject to compliance with the NHPA of 1966, as amended (16 United States Code [USC] 470 et seq.), and implementing regulations (36 CFR 800).

Additionally, the study was completed under the provisions of the California Environmental Quality Act (CEQA). Public Resources Code (PRC) Section 5024.1, Title 14 California Code of Regulations (CCR) Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1 were also used as basic guidelines for this cultural resources study (Governor's Office of Planning and Research 1998).

Dates of Investigation: A records search was conducted by Sapphos for the project area at the Southern San Joaquin Valley Information Center (SSJVIC) on December 13, 2011. SWCA archaeologists conducted intensive-level pedestrian survey of 78.8 acres on June 27, 2016 and again surveyed 4.7 acres on January 18, 2017. This report was completed in August 2016 and augmented for the additional acreage in March 2017.

In March 2017, an Expedited Vertebrate Paleontology Records Search was requested at the Los Angeles County Museum of Natural History. It was returned quickly and the current report is a result of that search.

Findings of the Investigation: No previously recorded resources were identified within the APE during the records search. The current survey identified two cultural resources (one historic isolated artifact and one prehistoric isolated artifact) in the APE. As isolates are not eligible for listing to the National Register of Historic Places (NRHP; National Register) or for the California Register of Historic Resources (CRHR; California Register), no resources in the APE are listed in either the National Register or the California Register.

The records search conducted by the LACM and the review of scientific literature by SWCA revealed several fossil finds in the vicinity of the project area, and identified the old alluvial sediments as having high paleontological sensitivity.

Investigation Constraints: Ground surface visibility in the APE varied slightly from approximately 80 percent to more than 90 percent in some areas. On average, ground surface visibility was excellent, given the sparse vegetation present in the survey area. Although the depositional context of the area has the potential to contain partially or shallowly buried paleontological resources, the sparse vegetation provided excellent ground surface visibility to facilitate the identification of paleontological or archaeological materials if they were present. SWCA did not survey areas that had been surveyed within the previous 6 years (Sapphos 2010, 2012a, 2012b, 2013). SWCA's field efforts were limited to the current survey area.

Impact Analysis and Recommendations Summary: Considering that approximately 80 percent of the APE had received prior cultural resource survey that did not identify the presence of cultural resources and that the current study identified two isolated cultural resources, the APE is unlikely to contain significant archaeological resources. The isolated artifacts identified within the APE are not considered eligible for listing to the NRHP or the CRHR. For this reason, no further actions are necessary for either the main project area or auxiliary features, and cultural studies are complete. The proposed project will have no effect to cultural resources within the APE. In the event that cultural resources or human remains are exposed during construction, work in the immediate vicinity of the find must stop until a qualified archaeologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the NHPA, additional work such as testing or data recovery may be warranted. The discovery of human remains is always a possibility during ground disturbances, and compliance with existing regulations is required.

SWCA recommends that the selected qualified paleontologist or their designee will provide a briefing to construction personnel to provide information on regulatory requirements for the protection of paleontological resources. As part of this training, construction personnel will be briefed on proper procedures to follow should unanticipated cultural or paleontological resources discoveries be made during construction. Workers will be provided contact information and protocols to follow if inadvertent discoveries are made. Additionally, workers will be shown examples of the types of paleontological resources that would require notification of the project paleontologist. If necessary, the project paleontologist can create a training video, PowerPoint presentation, or printed literature that can be shown to new workers and contractors to avoid continuous training throughout the life of the project. SWCA further recommends that paleontological monitoring be carried out in all units with high paleontological sensitivity (whether present at the surface or in the subsurface underlying low-sensitivity sediments).

Disposition of Data: This report will be on file with the following entities: the SSJVIC located at California State University, Bakersfield; Kern County Planning and Community Development Department; and SWCA's Pasadena, California, office. All field notes and records related to the current project are on file at SWCA's office in Pasadena, California.

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INTRODUCTION

SWCA Environmental Consultants (SWCA) was retained by Aurora Solar, LLC (Aurora), a wholly-owned subsidiary of Avangrid Renewables, LLC (Avangrid), formerly known as Iberdrola Renewables, to conduct a cultural resources study in support of the proposed Camino Solar Project (project) in Kern County, California. The proposed project will result in the construction, operation, maintenance and decommission of a solar field. This cultural resources study is intended to characterize and describe cultural resources identified within the area of potential effects (APE) that could be affected by ground-disturbing activities associated with the proposed project. The project consists of an approximately 421.2-acre project area contains the main project area, and auxiliary project features consisting of: additional access roads, generation tie (gen-tie) line, a laydown yard, a new fence line, a battery storage area, and an operations and maintenance (O&M) facility. It is located on both private and Bureau of Land Management (BLM) lands. The cultural resources APE is defined as the main project area plus auxiliary features listed above, and it covers approximately 421.2 acres. Previous surveys conducted in 2010 and after covered approximately 80 percent of the APE, including all of the BLM-managed lands (Sapphos Environmental, Inc. [Sapphos] 2010, 2012a, 2012b, 2013); these areas were not resurveyed, per the BLM's direction. Therefore, the current project survey area is defined as approximately 83.5 acres. The laydown yard will be sited within the existing fenced operations and maintenance yard of the privately-owned Manzana Wind Power Project. A complete cultural survey was completed in 2005 for the Manzana project and resurvey of any potential laydown yard location was deemed unnecessary, per the BLM's direction (Sapphos 2006a, 2006b). All lands within the current survey area are privately owned lands; however, the presence of BLM-managed lands within the project APE constitutes a federal nexus.

This study includes a review of previous cultural resources surveys (Sapphos 2006a, 2006b, 2010, 2012a, 2012b, 2013) conducted in the APE, an intensive-level pedestrian survey, a review of the Los Angeles County Museum of Natural History (LACMNH) records search, and the preparation of a cultural resources technical report that documents the results of these efforts and provides management recommendations. The purpose of this cultural resources study is to determine whether previously recorded or unrecorded cultural resources are located in the APE and to aid Aurora in avoiding impacts to these resources during project implementation.

This study is compliant with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and implementing regulation 36 Code of Federal Regulations (CFR) 800. Undertakings on tribal lands are subject to compliance with the NHPA of 1966, as amended (16 United States Code [USC] 470 et seq.), and implementing regulations (36 CFR 800). This study was conducted pursuant to the National Environmental Policy Act of 1969; the Archaeological and Historic Preservation Act of 1974; and Section 106 of the NHPA, including 36 CFR 800.

Additionally, the study was completed under the provisions of the California Environmental Quality Act (CEQA). Public Resources Code (PRC) Section 5024.1, Title 14 California Code of Regulations (CCR) Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1 were also used as basic guidelines for this cultural resources study (Governor's Office of Planning and Research 1998). PRC Section 5024.1 requires the identification and evaluation of cultural resources to determine their eligibility for the California Register of Historical Resources (CRHR). The CRHR is a listing of the state's historical resources, and it indicates which properties are to be protected from substantial adverse change, as defined in CEQA, to the extent prudent and feasible.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature" (Appendix G, State CEQA Guidelines). In general, for project areas that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the

potential for significant impacts to paleontological resources. For project areas that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units that underlie the non-sensitive unit are also affected.

Cultural Resources Study Personnel

This report was completed by Registered Professional Archaeologist (RPA) and Cultural Resource Principal Investigator Michael J. Retter, M.A. Cultural Resource Project Manager Liz Denniston, M.A., RPA managed the cultural resources tasks, and Senior Natural Resources Project Manager Pauline Roberts, Ph.D., managed the project. Jeremy Huey, M.A., a geographic information system (GIS) professional, managed and performed quality control of the GIS data and prepared the report figures. Field survey was completed by qualified Cultural Resources Specialists Aaron Elzinga, M.A., RPA and William Kendig, M.A. Cultural Resources Principal Investigator Heather Gibson, Ph.D., RPA performed quality control review for this report.

Paleontological Resources Study Personnel

The analysis of paleontological resources presented in this report was performed by SWCA Lead Paleontologist Alyssa Bell, Ph.D. Peter Albert Von der Porten, a geographic information system (GIS) professional, generated the geologic and paleontological sensitivity maps.

PROJECT DESCRIPTION

Proposed Project Work

Aurora proposes to develop the 421.2-acre Camino Solar Project with the objective of selling its electricity under a long-term power purchase agreement. The Camino Solar Project would interconnect with the Whirlwind Substation. The proposed project site is located within the central-eastern portion of the 189-megawatt (MW) Manzanita Wind Power Project, which began operations in 2012. The proposed work will involve ground disturbance and alteration to the existing undeveloped lands.

The proposed project would include high-efficiency, commercially available, solar photovoltaic (PV) modules that would generate electricity by converting sunlight into direct current (DC) electrical energy; their supporting structures and local electrical collection equipment (collectively called solar arrays); access roads and new fencing; stormwater detention basins; and an electrical collector line connecting the proposed project to an existing substation. Temporary laydown and parking areas would use the existing O&M facility on private land approximately 0.75 mile south of the project site, and are included in the APE, although new disturbance is not anticipated. A proposed battery storage area will be located about 0.5 miles south of the main project location. As proposed, the project would be capable of generating up to 44 MW using approximately 180,000 PV modules.

Project Location

The current 421.2-acre project APE is located on privately-owned and BLM-administered lands in the southeastern portion of unincorporated Kern County, California (Figure 1). Specifically, the project is situated approximately 1.8 miles north of the intersection of Aqueduct Road and 170th Street in Sections 23, 26, 27, 34, and 35, Township 10 North, Range 15 West San Bernardino Meridian of the Tylerhorse Canyon (1965), California, U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 2). The survey area consists of the approximately 83.5 acres of the APE that are on privately owned lands and have not been surveyed within the last six years (Figure 3). See Figure 4 for a map of the APE with auxiliary features defined.

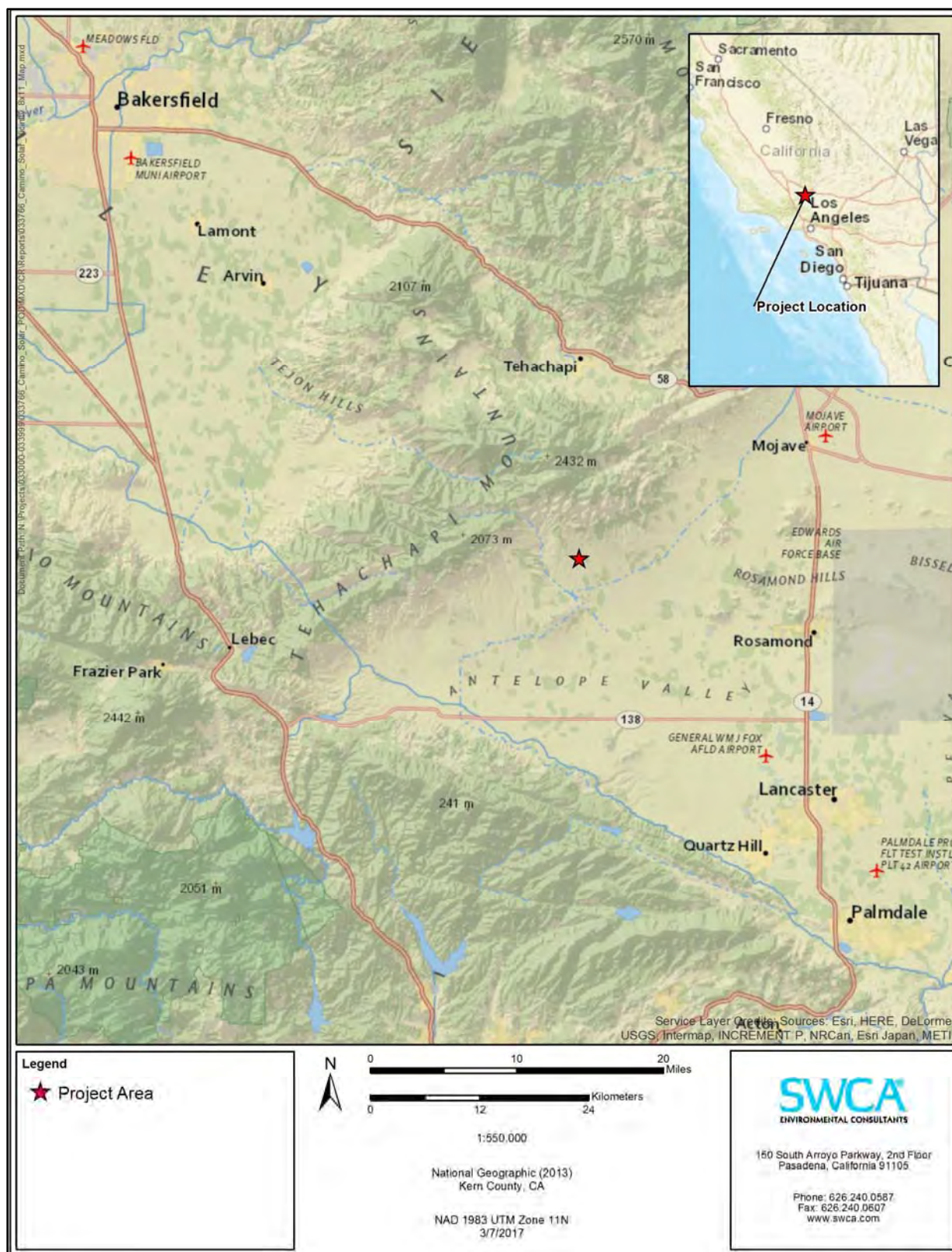


Figure 1. Project Area Vicinity Map

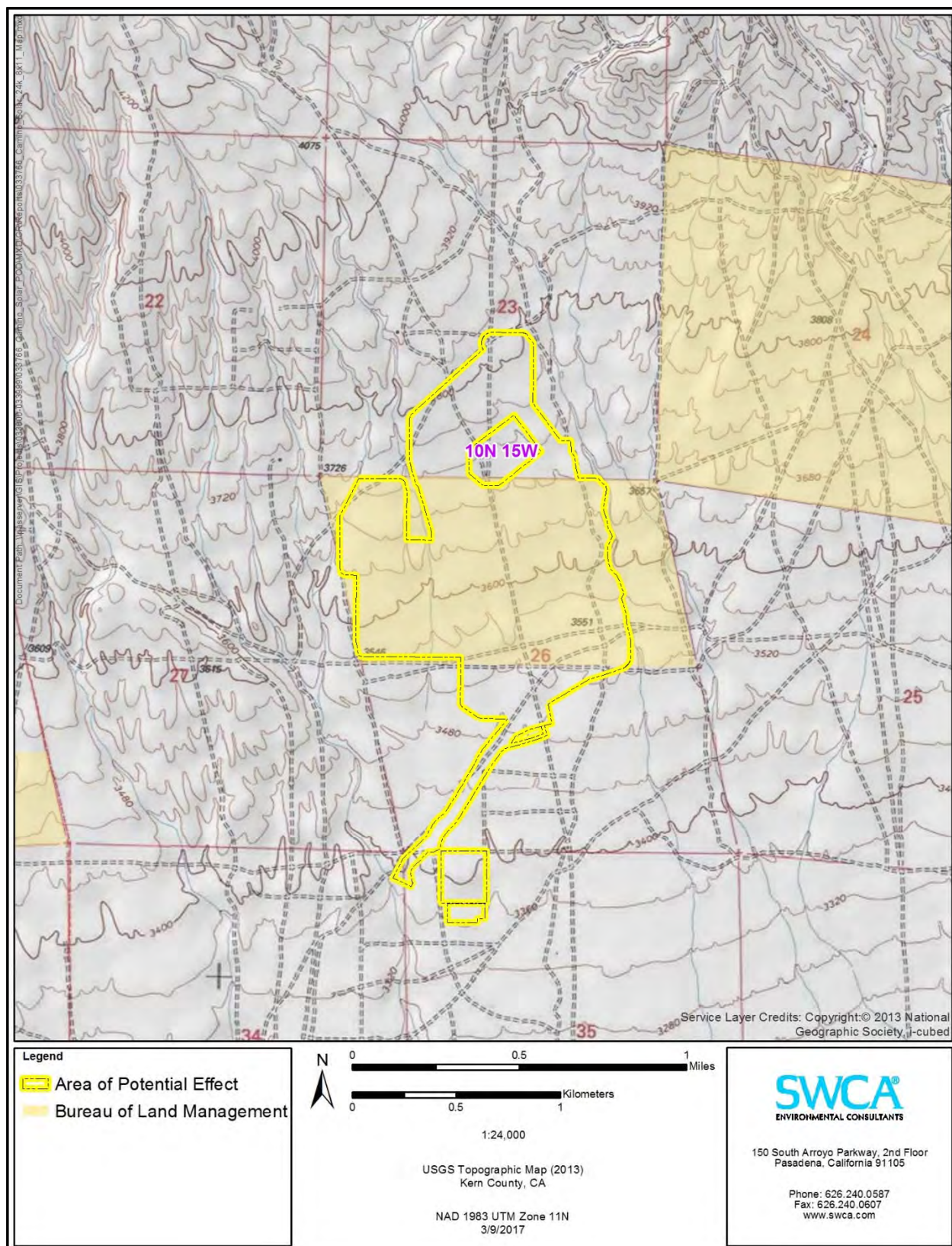


Figure 2. Area of Potential Effect

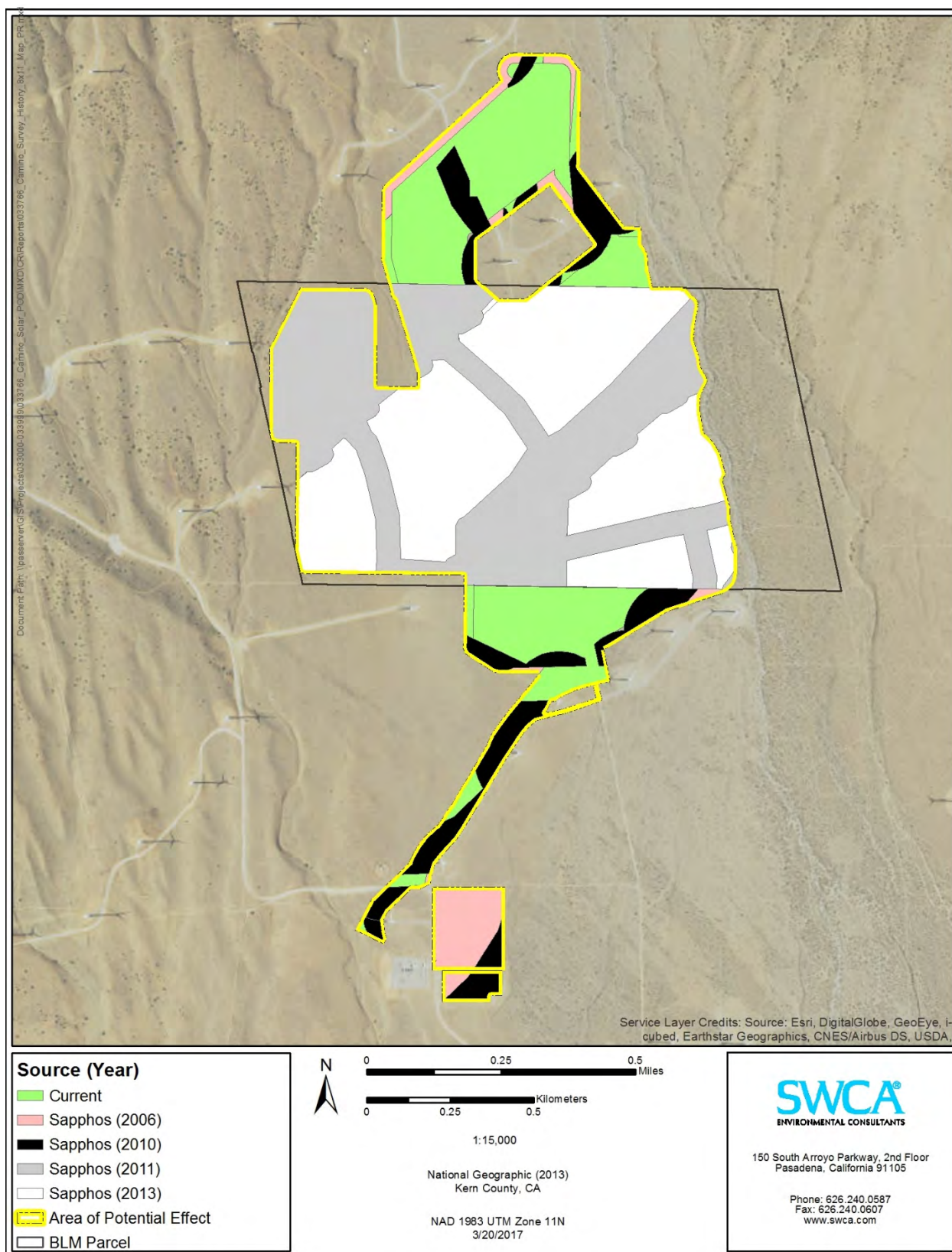


Figure 3. Map of Areas Surveyed

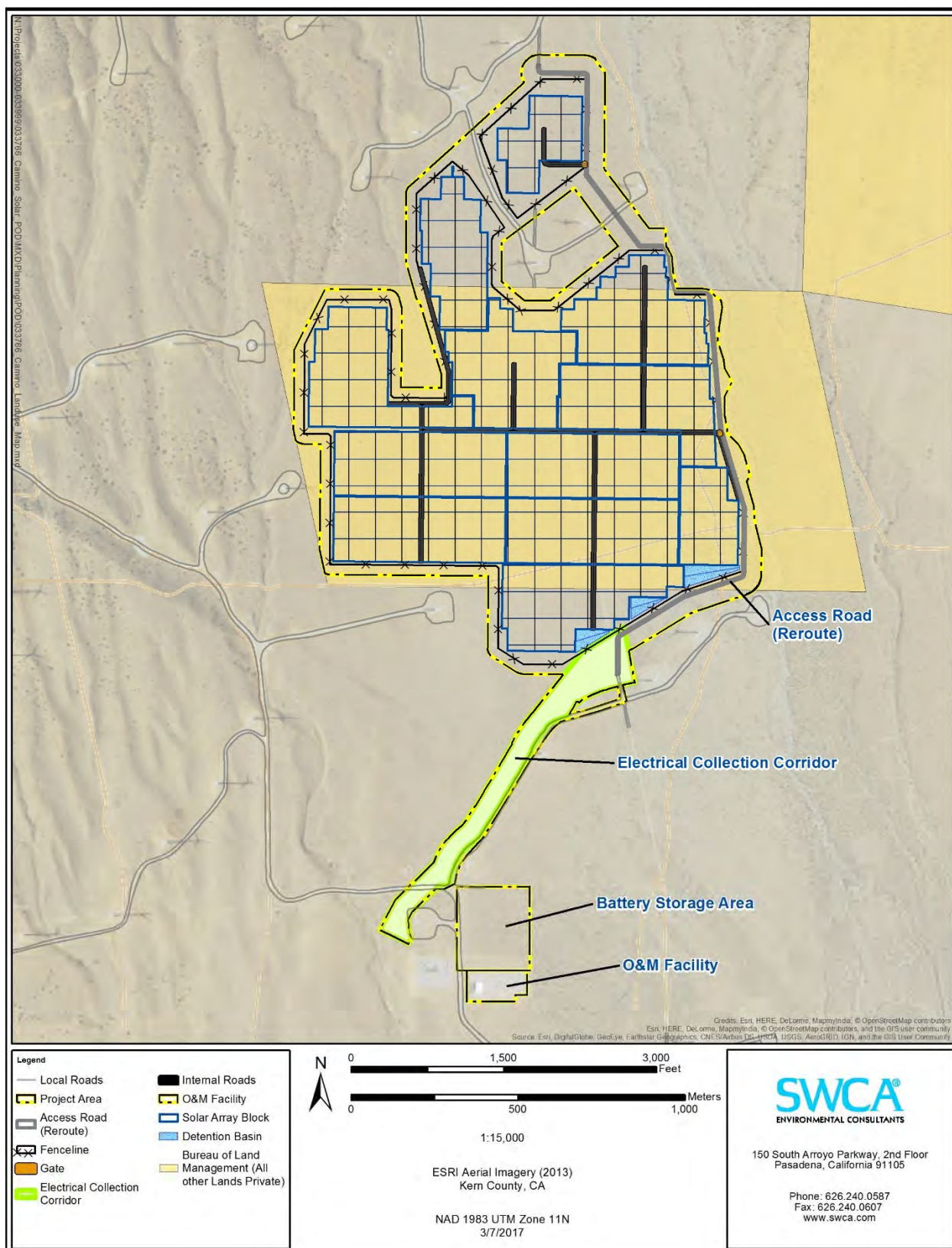


Figure 4. Project Location with Auxiliary Features

REGULATORY FRAMEWORK

National Historic Preservation Act

Projects that involve federal funding or permitting (i.e., that have a federal nexus) must comply with the provisions of the NHPA, as amended (16 USC 470f). Cultural resources are considered during federal undertakings chiefly under Section 106 of NHPA through one of its implementing regulations, 36 CFR 800 (Protection of Historic Properties), and under the National Environmental Policy Act. Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the NHPA. Other relevant federal laws include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1989.

Section 106 requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, cultural resources must be identified and evaluated; effects to historic properties are reduced to acceptable levels through mitigation measures or agreements among consulting and interested parties. Historic properties are those resources that are listed in or are eligible for the NRHP per the criteria listed below (36 CFR 60.4) (ACHP 2000).

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history.

Impacts of an undertaking that affect contributing elements of a historic property are considered a significant effect on the environment. Under 36 CFR 800.5(a)(2), adverse effects on historic properties include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- (vi) Neglect of a property which causes its deterioration;

- (vii) Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Federal Regulations for the Protection of Paleontological Resources

There are several federal statutes that provide legislative protection for paleontological resources. The first of these is the Antiquities Act of 1906 (Public Law [PL] 59-209; 16 United States Code 431 et seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, as well as other objects of historic or scientific interest on federally administered lands, the latter of which would include fossils. The Antiquities Act both establishes a permit system for the disturbance of any object of antiquity on federal land and also sets criminal sanctions for violation of these requirements. The Antiquities Act was extended to specifically apply to paleontological resources by the Federal-Aid Highways Act of 1958. More recent federal statutes that address the preservation of paleontological resources include the National Environmental Policy Act (NEPA), which requires the consideration of important natural aspects of national heritage when assessing the environmental impacts of a project (P.L. 91-190, 31 Stat. 852, 42 U.S.C. 4321-4327). The Federal Land Policy Management Act of 1976 (P.L. 94-579; 90 Stat. 2743, U.S.C. 1701-1782) requires that public lands be managed in a manner that will protect the quality of their scientific values, while Title 40 Code of Federal Regulations (C.F.R.) Section 1508.2 identifies paleontological resources as a subset of scientific resources. The Paleontological Resources Preservation Act (Title VI, Subtitle D of the Omnibus Land Management Act of 2009) furthers the protection of paleontological resources on federal lands by criminalizing the unauthorized removal of fossils.

California Environmental Quality Act

This study is being conducted pursuant to CEQA, which requires a lead agency to determine whether a project may have a **significant effect** on historical resources (CCR Section 21084.1). The BLM is the lead agency for the current project. If it can be demonstrated that a project will cause damage to a **unique archaeological resource**, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

Section 21083.2(g) defines a **unique archaeological resource** as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- 1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- 2) Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- 3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A **historical resource** is a resource listed in, or determined to be eligible for listing in, the CRHR (Section 21084.1); a resource included in a local register of historical resources (CCR Section 15064.5[a][2]); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (CCR Section 15064.5[a][3]).

PRC Section 5024.1, CCR Section 15064.5, and PRC Sections 21083.2 and 21084.1 were used as the basic guidelines for this cultural resources study. PRC Section 5024.1 requires an evaluation of historical resources to determine their eligibility for listing in the CRHR. The purpose of the CRHR is to maintain listings of the state's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below.

According to PRC Section 5024.1(c)(1–4), a resource is considered **historically significant** if it (i) retains “substantial integrity,” and (ii) meets at least one of the following criteria:

- 1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- 2) Is associated with the lives of persons important in our past;
- 3) Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
- 4) Has yielded, or may be likely to yield, information important in prehistory or history.

Impacts to significant cultural resources that affect the characteristics of any resource that qualify it for the NRHP or that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. These impacts could result from “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, Section 15064.5 [b][1], 2000). Material impairment is defined as demolition or alteration “in an adverse manner [of] those characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register....” (CEQA Guidelines Section 15064.5[b][2][A]).

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code Section 7050.5. More specifically, remains suspected to be Native American are treated under CEQA at CCR Section 15064.5 and under language found at PRC Section 5097.98 that illustrates the process to be followed if remains are discovered. Further, if human remains are discovered during the construction of the proposed project, no further disturbance to the site shall occur, and the Kern County Coroner must be notified (PRC Section 15064.5 and 5097.98). If the coroner determines the remains to be Native American, the coroner shall notify the Native American Heritage Commission (NAHC) within 48 hours. The NAHC shall identify the person or persons it believes to be the most likely descendant of the deceased, and the MLD may then make recommendations as to the disposition of the remains.

PALEONTOLOGICAL RESOURCES

CEQA also applies to paleontological resources. The guidelines include as one of the questions to be answered in the Environmental Checklist (Appendix G, Section V, Part c) the following: “Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?” Other state requirements for the management of paleontological resources are contained in California Public Resources Code Chapter 1.7, Section 5097.5 (Statutes 1965, Chapter 1136, Pg 2792). This statute defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor. California Public Resources Code Section 30244 requires reasonable mitigation of adverse impacts to paleontological resources on state-owned land.

Kern County General Plan

Kern County Land Use, Conservation, Open Space Element of the General Plan

Section 1.10.3 of the Land Use, Conservation, Open Space Element of the *Kern County General Plan* (General Plan) identifies the county's policy and implementation measures that guide the preservation of cultural resources in Kern County. These measures are provided below:

Policy 25. The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Implementation Measure L. The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Implementation Measure M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Implementation Measure N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O. On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document. (Kern County Planning Department 2009)

Kern County Energy Element of the General Plan

Section 5.4.7 of the Energy Element of the General Plan encourages development of transmission lines in urban areas to limit impacts, and identifies the following policies with respect to transmission line development:

- 1) The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.
- 2) The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.
- 3) In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.
- 4) The County should work with other agencies in establishing routes for proposed transmission lines.
- 5) The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

- 6) The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors. (Kern County Planning Department 2009)

ENVIRONMENTAL SETTING

The APE is at the northwest edge of Antelope Valley. The toe slopes and foothills of the Tehachapi Mountains are immediately northwest of the project, and the Rosamond Hills are approximately 10.3 miles to the east. Rosamond Lake, a large Pleistocene-age dry lake bed, is approximately 19.3 miles southeast of the project. This lakebed is a remnant of ancient Lake Thompson, which receded approximately 8,000 years before present (B.P.) after the waning of glacial climate in western North America (Thompson 1929). Tylerhorse Canyon forms the eastern boundary of the APE, and Cottonwood Creek is to the west and south. The APE increases in elevation from approximately 3,360 feet above mean sea level (amsl) at its southern extent to approximately 3,810 feet amsl at its northern extent. The habitat in the region consists of Mojave Desert scrub and includes saltbush scrub, creosote bush scrub, Joshua tree woodland, and “wash wetland” or mesquite bosque (Sawyer 1994; Vasek and Barbour 1977). The dominant vegetation in the project vicinity is saltbush scrub, with occasional areas of creosote bush scrub (Giambastiani et al. 2007). The project is located on the edge of the Antelope Valley, an alluvial plain, with mountains to the north and south; numerous rivers, creeks, and seasonal drainages feed into the valley, depositing sediments. The dominant soil types in the APE are alluvium derived from granite, and they consist of Arizo gravelly loamy sand, Cajon loamy sand, Hanford gravelly sandy loam, Ramona sandy loam, and Ramona gravelly sandy loam (United States Department of Agriculture 2016). High winds are common in the vicinity, and aeolian processes help shape the land.

There are no incorporated municipalities in the APE; the community of Willow Springs is approximately 8.8 miles to the southeast, and the community of Rosamond is approximately 13.6 miles to the southeast. Although the APE is largely undeveloped, numerous unpaved roads bisect it and a recently constructed wind energy project surrounds the APE; these elements have contributed to surface disturbances. In addition, several large-scale energy projects have affected the surrounding landscape: The Los Angeles Aqueduct is approximately 1.25 miles south of the southern end of the proposed gen-tie line; solar facilities are with 6.5 miles to the east, southeast and south; and several large-scale mining operations have been conducted in the surrounding hills. As a result, minor surface disturbances associated with industrial activities have occurred in the APE.

Geological and Paleontological Setting

The surficial geology of the project area has been mapped at a scale of 1:62,500 by Dibblee and Minch (2008). Figure 5 shows the surficial geology of the APE and vicinity. The majority of the project area is made of older Quaternary alluvium (mapped as Qoa), while a small section at the eastern-most margin is made of younger Quaternary alluvium (Qa). Older Quaternary alluvium dates to the Pleistocene (10,000 years – 2.6 million years old) and consists of poorly bedded alluvial gravel and sand (Dibblee and Minch 2008). Younger Quaternary alluvium dates to the Holocene (recent – 10,000 years ago) and consists of alluvial silt, sand, and gravel (Dibblee and Minch 2008). Due to their age, these sediments are too young to preserve fossil resources and have low paleontological sensitivity. Based on their age, they do have potential to contain buried *cultural* resources, when cultural resources are present. However, if cultural resources are absent on the surface of these formations, then there is little to no potential to contain them subsurface; see discussion of cultural resources sensitivity in the Recommendation Section.

The younger Quaternary alluvium sediments overlie the highly sensitive older Quaternary alluvium, and so ground disturbing activities that exceed the depth of the younger sediments is at risk of impacting fossils that may be present in these deeper, sensitive sediments. The depth of the younger Quaternary alluvium has not been determined in the APE.

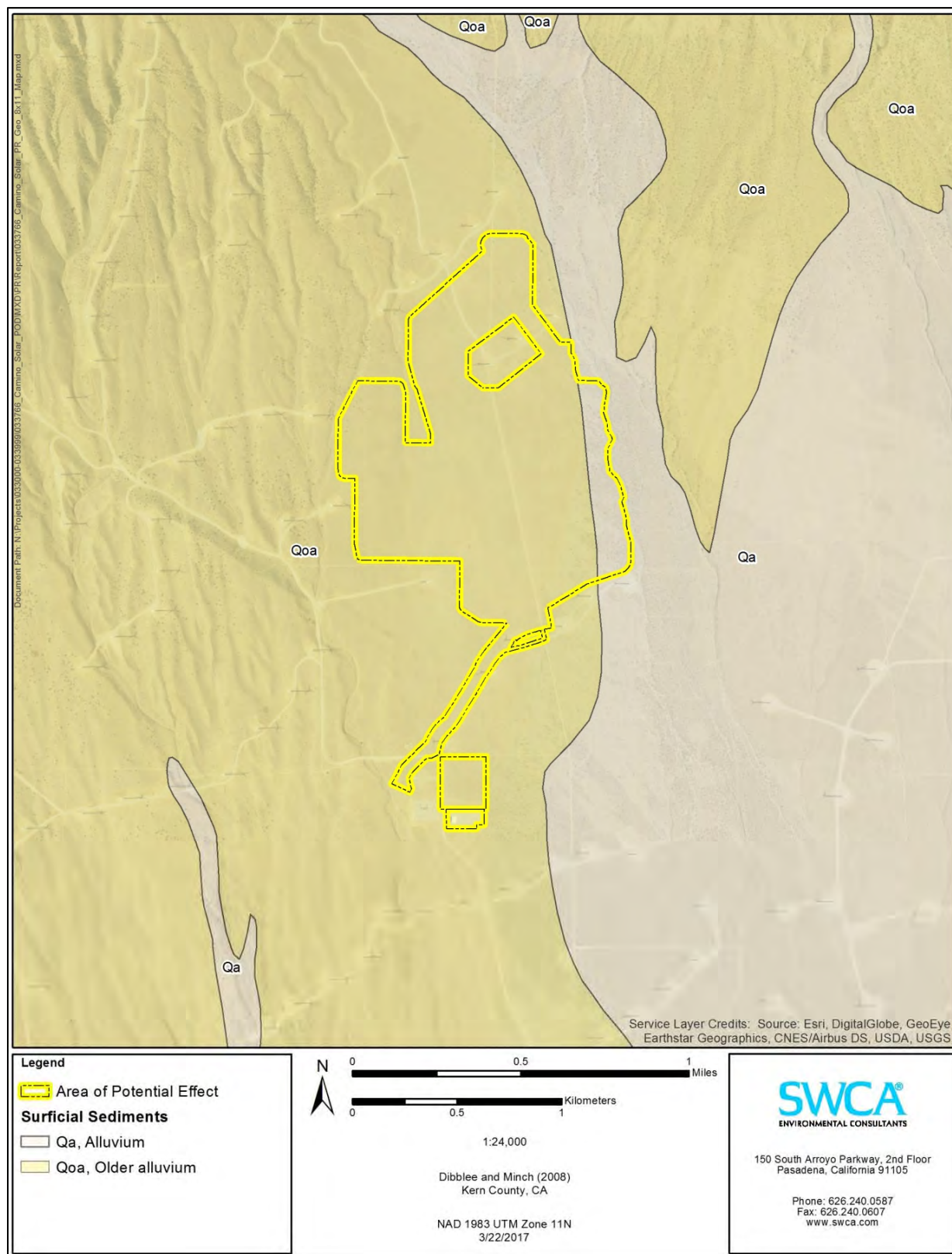


Figure 5. Project Area Plotted with Geologic Units Taken from Dibblee and Minch (2008)

Definition and Significance of Paleontological Resources

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or un-mineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Paleontological resources include not only the fossils themselves, but also the physical characteristics of the fossils' associated sedimentary matrix.

The fossil record is the only evidence that life on earth has existed for more than 3.6 billion years. Fossils are considered nonrenewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced (Murphey and Daitch 2007). Fossils are important scientific and educational resources and can be used to:

- study the phylogenetic relationships amongst extinct organisms, as well as their relationships to modern groups;
- elucidate the taphonomic, behavioral, temporal, and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record;
- reconstruct ancient environments, climate change, and paleoecological relationships;
- provide a measure of relative geologic dating, which forms the basis for biochronology and biostratigraphy, and is an independent and corroborating line of evidence for isotopic dating;
- study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time;
- study patterns and processes of evolution, extinction, and speciation; and
- identify past and potential future human-caused effects to global environments and climates (Murphey and Daitch 2007).

Prehistoric Overview

California's southeastern desert region has a long history of human occupation, with dates at the start of the early Holocene stretching back to ca. 10,000 years B.C. (Moratto 1984:96–97; Sutton et al. 2007:233–237). This now-arid region includes the Colorado and Mojave Deserts, located east of the Sierra Nevada, Peninsular, and Transverse ranges. Prehistoric material culture in this region has been categorized according to periods defined by technological, economic, social, and ideological elements characteristic of each period. Within these periods, archaeologists have defined cultural patterns or complexes specific to prehistory within the desert region, including the APE. Table 1 illustrates the chronological framework developed for the Mojave Desert. This framework is divided into three major periods: Paleoindian period (ca. 10,000–6000 B.C.), Archaic period (7000 B.C.–A.D. 1100), and Late Prehistoric period (A.D. 1100–historic contact).

Table 1. Cultural Chronology for the Mojave Desert

Period	Sub-Period	Cultural Complex	Date Range
Paleoindian/Western Pluvial Lakes Tradition		Lake Mojave and San Dieguito Complexes	10,000–6000 B.C.
Archaic	Early Archaic	Pinto Complex	7000–3000 B.C.
		Deadman Lake Complex (at Twentynine Palms)	7500–5200 B.C.

Period	Sub-Period	Cultural Complex	Date Range
	Late Archaic	Gypsum Complex	2000 B.C.–A.D. 200
		Rose Springs Complex	A.D. 200–1100
Late Prehistoric		Late Prehistoric Complex	A.D. 1100–historic contact

Paleoindian Period (ca. 10,000–6000 B.C. [12,000–8000 B.P.])

Although occupation in California began as early as 8,000–11,000 years ago, evidence for the presence of humans before ca. 6000 B.C. is relatively sparse and scattered throughout the state. The Western Pluvial Lakes Tradition (WPLT) Paleoindians occupied the interior regions of California and practiced a diverse mixture of hunting and gathering, but they were not dependent on large Pleistocene megafauna as in other parts of North America at the time. A major occupational emphasis by WPLT peoples was on Pleistocene lakeshores in the now-arid areas of southern California (Moratto 1984:90–92). With the onset of the early Holocene approximately 10,000 years ago, significant warming and drying occurred in the environment, and hunter-gatherers subsequently adapted their subsistence economy to the changing resource structure. Lakes and streams within the interior desert regions gradually dried and shrank compared with late Pleistocene times. The WPLT way of life, which emphasized adaptations to lakes and marshes, gradually disappeared by 6000–5000 B.C. as the environment warmed during the Altithermal (Byrd and Raab 2007:217–218; Moratto 1984:91).

Archaic Period (ca. 7000 B.C.–A.D. 870/1100 [9000–1200/800 B.P.])

Subsistence patterns shifted ca. 6000 B.C. coincident with the gradual desiccation associated with the onset of the Altithermal, a warm and dry period that lasted approximately 3,000 years (Antevs 1955). The Archaic period generally is characterized by an ecological adaptation to collecting. This resulted in an increased frequency of ground stone implements like milling stones (metates and slabs) and handstones (manos and mullers) for grinding edible resources like seeds. In the Mojave Desert region, a recent summary has proposed four divisions for the Archaic period, with a long temporal spread for the period between ca. 7000 B.C. and A.D. 1100 (Sutton et al. 2007:236).

The Early Archaic period/Pinto Complex (7000–3000 B.C.) occurs throughout the Mojave Desert, except at Twentynine Palms. The Deadman Lake Complex occurs at the same time as the Pinto Complex but only at Twentynine Palms, and is not discussed further here. Widespread evidence for the Pinto Complex has been recovered from sites throughout the Mojave Desert. The presence of ground stone implements, indicating a reliance on plant resources, is the greatest difference between the Pinto Complex and the preceding one (Sutton et al. 2007:238).

The Late Archaic period, which is further subdivided into the Gypsum Complex (2000 B.C.–A.D. 200) and the Rose Spring Complex (A.D. 200–1100), follows the Early Archaic period/Pinto Complex. The cultural material associated with the Gypsum Complex includes evidence of an increase in trade and social complexity, and sites indicate that subsistence and settlement patterns, particularly during the earlier, wetter part of this period, were dependent on streamside settings (Sutton et al. 2007:241). The introduction to the archaeological record of smaller projectile points, the Eastgate and Rose Spring series, which likely marked the use of the bow and arrow, defines the Rose Spring Complex in the Mojave Desert. The large number of sites identified in the region combined with the remains of villages and other structural remains suggest there was a related population increase in what was likely a more productive ecological setting. An unusually warm and dry climatic period known as the Medieval Climatic Anomaly (MCA) occurred during

the Rose Spring Complex and coincides with a number of changes in culture in association with desiccation of lakes and other permanent water sources in the desert region (Sutton et al. 2007:232, 242). Because the MCA lasted from A.D. 800 to 1350, it likely triggered the demise of the Rose Springs Complex ca. A.D. 1100.

Late Prehistoric Period (ca. A.D. 1100 [800 B.P.]–historic contact)

The Late Prehistoric period in the southern California deserts is characterized by a number of changes in subsistence, foraging, and land use patterns, which begin to reflect the use pattern known from Historic period Native American groups. The changes most likely reflect in situ cultural adaptations in response to shifts in environmental conditions and influences from outside the area. The introduction of ceramics to the archaeological record is the hallmark of this period. With the exception of the rudimentary ceramic industry found during the Early Archaic/Milling Stone period in Orange County, pottery occurs in southern California sites for the first time.

The introduction of ceramics to the archaeological record of the Mojave Desert region occurs after the end of the Rose Spring Complex (Sutton 1996; Sutton et al. 2007:242), which places the beginning of the Late Prehistoric period in the greater APE around ca. A.D. 1100. Perhaps because of the continuing influence of the MCA and the associated deteriorating environment, populations in the Mojave Desert region declined during the Late Prehistoric period (Sutton et al. 2007:242). At the same time, there was an increasing diversification in the food resource base, with terrestrial (and, in coastal areas, maritime) hunting steadily complementing the collection of vegetal resources (Warren 1984:425–426). Material culture grew in complexity, with an increase in the classes and types of artifacts produced. The wealth of numerous sites found along the Mojave River suggests that this was an increasingly important trade route during the Late Prehistoric period, a role that continued well into the Historic period (Warren 1984:426). It has been suggested that cultural complexes emerged that may be related to recorded ethnographic groups, with the area north of the Mojave River the boundary between the two (Warren 1984: Figure 8.26).

Ethnographic Overview

The project is where the foothills of the southern Sierra Nevada and Tehachapi Mountains transition to the alluvial fans of the western Mojave Desert. The ecological zones existing within these areas, although varying with time according to differing climatic regimes, would have provided diverse resources for prehistoric populations. At the time of European contact, these populations made up two ethnographic groups, the Kawaiisu and the Kitanemuk, with the Serrano occupying the region to the south.

Kawaiisu

The Kawaiisu were mobile hunter-gatherers who primarily resided in a core area in the southern Sierra Nevada and Tehachapi Mountains and made frequent forays into the Mojave Desert to exploit seasonal resources (Zigmond 1986). Linguistically, Kawaiisu has been identified as a part of the Southern Numic branch of the extensive Uto-Aztecan language family, which includes most languages of the Great Basin, extending south from southern Idaho into Mexico and east into Arizona (Mithun 2006:539).

Although there is general agreement about the location of the Kawaiisu core area, the extent of their territory in the Mojave Desert is less clearly understood. Zigmond (1986:399) depicts an area of seasonal use that extends east of the Granite Mountains, in present-day Fort Irwin. Kroeber (1976:602) cites an account of a Kawaiisu group on the upper Mojave River and in the southern Panamint Range. Steward (1938:71, Figure 1) also places the Kawaiisu in the southern Panamint Valley, the Argus Range, Trona, and an undetermined area to the south and west. He notes further that although the northern Panamint Valley was occupied by the Shoshone, the Kawaiisu and Shoshone were mixed in the southern part of the valley and perhaps near Trona.

Dietary staples for the Kawaiisu included piñon, juniper, yucca, chia, wild rice, sunflower, buckwheat, and screwbean. Zigmond (1981) identifies 233 plant species used by the Kawaiisu, of which 112 were used for food and beverages. Deer was a major source of meat when populations were residing in the mountainous core area, and it was supplemented by small game. Antelope and bighorn sheep were exploited by hunters on the desert floor. Salt was also important in their diet and was collected from Koehn Lake, 25 miles northeast of the project, or from Proctor Lake in the Tehachapi Valley when water levels at Koehn Lake were low (Tomo-Kahni State Historic Park 2005).

Pottery is rare in sites attributed to the Kawaiisu, and was probably primarily acquired through trading. Basket making was an important tradition among the Kawaiisu, who used numerous types of baskets for food collecting, processing, and storing, such as seedbeaters, burden baskets, containers, winnowers, trays, and hoppers (Zigmond 1986:401). Raw material for tool making, such as chert, was likely obtained from areas near Red Rock Canyon, whereas obsidian was acquired through trade with groups from the Coso Volcanic Field (east of the Sierra Nevada). Long-distance exchange with coastal areas is also evident, with the presence of marine shell artifacts in some sites attributed to the Kawaiisu.

During the winter months, the Kawaiisu lived in tomo-kahni, which are circular, aboveground structures with vertical and transverse poles bound together and covered with brush, bark, and tule mats (Zigmond 1986:401). Other structures included open, flat-roofed shade houses (havakahni) used for summer habitation, sweathouses (tivikahni), circular brush enclosures, and small granaries.

The Kawaiisu practiced a distinctive style of polychromatic (multi-colored) rock art that shares many attributes with that of the Chumash (Lee and Hyder 1991). The best-studied Kawaiisu rock art site is Teddy Bear Cave (CA-KER-508), located along the west edge of Sand Canyon, approximately 12 miles northeast of Tehachapi. Teddy Bear Cave is one site within Nettle Spring, an archaeological complex that also includes a large habitation area (CA-KER-230) along with numerous other localities. CA-KER-230 is characterized by numerous rock rings, more than 400 bedrock mortars, and rock art. Nearby sites include small camps, additional rock art localities, and a cremation site, all of which are potentially related to the Nettle Spring complex. Teddy Bear Cave is important in the oral history of the Kawaiisu people as the place where their people and the world were created (Sutton 2001).

Kitanemuk

The Kitanemuk are one of the least-known ethnographic groups in California, despite being considered by researchers as the main aboriginal inhabitants of Antelope Valley (Sutton 1979, 1987). Kitanemuk territory extended from the Tehachapi Mountains at the northwest edge of Antelope Valley southeast to beyond Rosamond Lake, although their populations were densest in the mountains at the south end of the San Joaquin Valley (Blackburn and Bean 1978:564; Kroeber 1976:611). Like the Kawaiisu, the Kitanemuk were primarily mountain dwellers who lived in semi-permanent village sites that functioned as year-round base camps; during the late winter and early spring, expeditions ventured onto the desert floor in pursuit of available seasonal resources (Earle 1997).

Kroeber (1976:611) notes that the Kitanemuk were a subdivision of the Serrano and therefore spoke a language of the Takic family that was similar to dialects spoken by groups living as far south and east as Yucca Valley and Twentynine Palms. Although some aspects of Kitanemuk social organization are similar to those of other Takic-speaking groups, Blackburn and Bean (1978:564) argue that Kitanemuk ritual, mythology, and shamanism were most strongly shaped by their neighbors to the north (Kawaiisu and Tubatulabal) and west (Chumash). The Kitanemuk appear to have enjoyed particularly strong trade ties with coastal and inland Chumash groups (Blackburn and Bean 1978:564; Kroeber 1976:613). Modern-day descendants of the Kawaiisu and the Kitanemuk live at the Tule River Reservation, Porterville, and Tejon Ranch.

Serrano

The Serrano occupied parts of San Bernardino County, south of the project (Bean and Smith 1978). The traditional territory for the Serrano centered in the San Bernardino Mountains and extended northeast into parts of the Mojave River area and southeast to the Tejon Creek area (Bean and Smith 1978). Their lands were south of the traditional Kawaiisu lands and north of lands inhabited by the Cahuilla. Traditionally, the Serrano people were hunter-gatherers who used resources in the Apple and Lucerne Valleys in the winter and in the Big Bear Lake area in the summer. Both acorns and piñon nuts featured as staple foods in their diet, as did small game that could be obtained using traps and bow-and-arrow technology.

The Serrano language is part of the Serrano division of a branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2006:539, 543). The Serrano language is one of the two Serran languages, Kitanemuk and Serrano, which are closely related. Kitanemuk lands were northwest of Serrano lands. The Serrano language was originally spoken by a relatively small group located within the San Bernardino and Sierra Madre Mountains, and the term *Serrano* has come to be ethnically defined as the name of the people in the San Bernardino Mountains (Kroeber 1976:611). The Vanyume, who lived along the Mojave River and associated Mojave Desert areas and are also referred to as the Desert Serrano, spoke either a dialect of Serrano or a closely related language (Mithun 2006:543).

Historic Overview

Post-contact history for the state of California is generally divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769, the Spanish period in California began with the establishment of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain marks the beginning of the Mexican period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American period, when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers made sailing expeditions along the coast of Southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríguez Cabrillo stopped in 1542 at present-day San Diego Bay. With his crew, Cabrillo explored the shorelines of present-day Catalina Island and San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the following half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabrillo and Vizcaíno (Bancroft 1886:96–99; Gumprecht 1999:35).

Inland exploration and colonization of Alta (upper) California by Spain would not be a priority for more than 200 years. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the king of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July 1769, Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823.

The first documented expedition into Kern County occurred in 1772, when Don Pedro Fages traveled from San Diego to San Luis Obispo via Cajón Pass, the Mojave Desert, Hughes Lake, Antelope Valley, Tejón

Pass, Cañada de los Uvas (Grapevine Canyon), and Buena Vista Lake. Fages left the first written record of exploration in the south San Joaquin Valley (California [Office of Historic Preservation] OHP 2013). In 1776, Francisco Garces is reported to have explored the region, including the Cummings and Tehachapi Valleys in the Tehachapi Mountains, when traveling from the San Joaquin Valley to the Mojave River near Barstow. Historical accounts also indicate that Garces left traces of his visit at Willow Springs (near Rosamond) and on Castle Butte (near California City). After this time, little documentation exists for European explorations or visits to the Mojave Desert and beyond until the 1800s; however, it is certain that such contacts occurred. Native Americans residing in these areas were likely indirectly affected by disruptions in trade caused by the European occupation in the coastal areas.

In the early 1800s, the Spanish increased their efforts to incorporate Native Americans into the mission system. Native Americans from interior tribes were either brought or came to the San Gabriel and San Fernando missions, established in 1771 and 1797, respectively, which may have exerted influence as far as the upper Mojave River. Although the Spanish were determined to gather all natives into the mission system, there are numerous examples of interior Native American villages not represented in the mission registers, such as in the southern Antelope Valley, suggesting low levels of interaction or influence before this time. For example, according to Earle (1997), the first baptism of a Kawaiisu member was not recorded in the missions until 1821. As the Spanish presence in Southern California increased, native neophytes attempted to escape missions by running away and seeking refuge with interior tribes, such as in the Southern San Joaquin Valley or the Mojave Desert and adjacent mountains. This led to forays into these regions by Spanish soldiers who were attempting to recapture runaway neophytes, and the influx of natives from different tribal territories resulted in tribal intermixing and blurred territorial boundaries.

Mexican Period (1822–1848)

During this period, trappers and explorers from the eastern United States journeyed westward. Jedediah Strong Smith was among these early American adventurers. He traveled through the project vicinity in 1826 and 1827 and nicknamed the Mojave River the “Inconstant River” because it frequently disappeared beneath the surface.

The influence of the California missions waned in the late 1820s through the early 1830s, and, as one consequence, extensive land grants in the interior were initiated in the Mexican period, in part to increase the population away from the more settled coastal areas where the Spanish had concentrated their colonization efforts. Following adoption of the Secularization Act of 1833, the Mexican government privatized most Franciscan lands, including holdings of their California missions. By 1836, this sweeping process effectively reduced the California missions to parish churches and released their vast landholdings. Although earlier secularization schemes had called for redistribution of lands to Native American neophytes who were responsible for construction of the mission empire, the vast mission lands and livestock holdings were instead redistributed by the Mexican government through several hundred land grants to private, non-Native American ranchers (Langum 1987:15–18).

During the Mexican period, the large ranchos became important economic and social centers. Five ranchos covering over 225,000 acres were granted in Kern County. These comprise Ranchos San Emidio, Castac, Los Alamos Y Agua Caliente, El Tejon, and La Liebre, which straddled the present-day boundary between Los Angeles and Kern Counties.

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary Southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The non-Native American population of California increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population unfortunately

contributed to the introduction and spread of diseases foreign to the Native American population, who had no associated immunities. Large numbers of native peoples in the Central Valley, for example, died of disease between 1830 and 1833, and disease exterminated whole tribes along the American, Merced, Tuolumne, and Yuba Rivers. The Central Valley was hit by a second epidemic in 1837, which further decimated indigenous Californians (Cook 1955).

American Period (1848–Present)

The Mexican-American War ended with the Treaty of Guadalupe Hidalgo, signed in 1848, ushering California into its American period. Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the Southern California economy through the first decade of the Gold Rush beginning in 1848. California became a member of the United States with the Compromise of 1850, which also designated Utah and New Mexico (with present Arizona) as United States territories. Wagon roads and railroads constructed across California's Colorado and Mojave Deserts from the 1840s to the 1870s connected coastal California with the rest of the country. These modes of transport served to carry mail, prospectors, miners, entrepreneurs, merchants, immigrants, laborers, muleteers, settlers, and military personnel as well as civilian and military supplies, livestock, produce, timber, and minerals produced by desert mines, among other necessities. The construction of permanent roadways across the desert trails and wagon roads accompanied the increased use of the automobile at the turn of the twentieth century.

In addition to the Mojave River Trail (Old Spanish Trail) and the southern Yuma route (Gila Trail, Southern Overland Trail, Butterfield Stage Route), the earliest routes that traversed the California deserts from the west to the Colorado River included Brown's Wagon Road, the Bradshaw Trail, and Brown and Frink's Road. Sometime before 1855, Hank Brown blazed the first east–west wagon road across Riverside County from west of Dos Palmas Spring (southeast of Mecca) through Salt Creek Pass (formerly Brown's Pass) to the Colorado River (Gunther 1984:73).

Following the Civil War, overland stage services to and from Southern California resumed in 1868 with the Holladay and Wells Fargo operations (Nevin 1974; Stein 1994). The pre–Civil War national initiative for a southern transcontinental railroad route resumed during the 1870s, as the Texas and Pacific (T&P) Railway Company in 1871 received a federal charter and conducted transcontinental surveys to pursue the initiative. In 1873, however, the T&P's westerly construction stalled in north-central Texas. The resulting delay was critical, allowing San Francisco investors to extend their own Southern Pacific Railroad (SPRR) through Imperial Valley to the Colorado River in 1877, bridging the river at Yuma into Arizona along the T&P survey in 1878 (Yenne 1985).

The construction of the Southern Pacific Railway across Antelope Valley began in the mid-1800s and was completed in 1876. After 1875, the use of the railroad system and the closing of mines forced the main stage lines in Kern County to come to an end, although small lines continued to transport passengers up until 1912 (Burmeister 1977). This period was followed by an influx of people during the Southern California land boom of the late 1880s when immigrants settled in the Antelope Valley and Mojave Desert areas in search for more affordable land near water. Between the 1880s and 1920s, climatic conditions in the region varied dramatically between wet and dry years. Only settlements with enough water supplies for human consumption and irrigation survived; the others failed. However, by the 1930s, there were more than 80 towns in the Antelope Valley, most of them located along the railroads. The importance of gold mining operations ended around 1942 due to the War Production Board issuance of Limitation Order L-208, which classified goldmines as nonessential for the World War II effort (Taskiran et al. 1997).

Another important development in the history of the area is the construction of the first Los Angeles Aqueduct. From 1904 through May 1905, the City of Los Angeles began to acquire land and water rights

in Owens Valley. In 1907, the voters of Los Angeles approved a bond measure to build an aqueduct system that would divert water from the Owens River to Los Angeles (Smith 1974). The water from the Owens River was needed by the city's growing population, which had reached 100,000 by 1900 (Hundley 2001). Constructed between 1908 and 1913, the aqueduct totaled approximately 226 miles in length and at the time was the largest single water project in the world. In addition to the construction of the aqueduct itself, the development of new infrastructure was required to support the project. The entire construction of the aqueduct required thousands of laborers, housed in camps alongside the aqueduct route, which left an imprint on the local economies.

The first highways across the Mojave Desert followed the Cajon Pass–Barstow–Needles route established by the Southern California Railway and the Atchison, Topeka, and Santa Fe. Established in 1912, the Ocean-to-Ocean Highway, now known as the National Old Trails Road, stretched from Baltimore, Maryland, to California. The route across the California deserts followed the Mojave River/Old Spanish Trail through Needles and Barstow to San Bernardino. Established in 1926, most of U.S. Route 66 largely followed the Ocean-to-Ocean Highway, passing through the desert region south of Needles on its way across the country to Los Angeles. After U.S. Route 66 was decommissioned in 1985, parts of it became Interstate 40 as well as Interstate 15. Remains of the route in several western states, including California, have been designated a National Trails Highway. Other important highways that crossed through the region included the Randsburg/San Bernardino Road, which was added to the state system of secondary highways in 1933 and designated State Route 145. Two years later, the highway was designated U.S. Route 395.

Kern County

The written history of Kern County began during the Spanish period. In 1772, Pedro Fages, acting governor of Alta California, became the first European to travel to the area. Beginning in today's Imperial Valley, Fages crossed Tejon Pass in the Tehachapi Mountains into Grapevine Canyon, and entered the San Joaquin Valley, all in pursuit of Spanish Army deserters (Hoover et al. 1990:126). Four years later, Francisco Garcés, a Franciscan friar, entered the area from the south. Garcés named a large river Río de San Felipe, now known as the Kern River.

During the Mexican period, Rancho de Castac, a 22,178-acre rancho, was granted in 1843 to José Maria Covarrubias, who was a secretary to Governor Pío Pico and later a member of the state legislature (Hoover et al. 1990:121). The rancho extended from Lake Castac near Lebec in the south through the Tehachapi Mountains to Grapevine in the north. Also in 1843, José Aguirre and Ignacio del Valle received a large land grant: the 97,616-acre Rancho Tejón. In the 1850s, General Edward Beale established a fort and reservation on Tejón ranch lands to protect local Native Americans from depredations by settlers. This outpost served as a military post and stage stop; it later housed a group of camels that Beale brought to the United States to serve in the Mojave Desert, known as the Camel Corps. Beale bought the Tejón ranch in 1865 and retired there.

Governor Pico granted Rancho la Liebre, a 48,800-acre rancho, to Jose Maria Flores in 1846; it was later acquired by General Beale in 1855. Located on the border of Kern and Los Angeles Counties along the southeast edge of the Tehachapi Mountains, the rancho was named for the abundance of jackrabbits in the area (Kielbasa 1998:71). Beale built an adobe within this holding at the west edge of the Antelope Valley and raised sheep on the rancho. The Tejón Ranch Company has since acquired many ranchos in the area, including Rancho Tejón, Rancho de Castac, and Rancho la Liebre, amassing in excess of 250,000 acres of land (Hoover et al. 1990:127). The buildings of Fort Tejón have been restored; the site is now Fort Tejon State Historic Park on Interstate 5 in Grapevine Canyon.

John C. Fremont led an expedition into Kern County in 1845 and 1846. He brought an artist by the name of Edward Meyer Kern from Philadelphia to act as the topographer for the expedition. While crossing a

river, Kern narrowly escaped drowning, and Fremont named the river after his colleague (Gudde 1998:192; Hoover et al. 1990:124).

Gold was discovered on the upper Kern River in 1853, bringing miners and settlers to the area. Kern County was established in 1866, with portions of Los Angeles and Tulare Counties being set aside to form the new county. It is California's third-largest county, and the county seat was established at Havilah in 1866. Mr. Asbury Harpending, who made a fortune in gold mining along the Kern River, built a toll road from Bakersfield to Havilah. The county seat was moved from Havilah to Bakersfield in 1874 (Gudde 1998:161; Hoover et al. 1990:132).

Historical Context of the Area of Potential Effects

The project is a few miles west-northwest of two small nineteenth-century towns. Willow Springs is approximately 8.8 miles to the southeast, and Rosamond is approximately 13.6 miles to the southeast. The first known historical record of Willow Springs dates to 1776 when Francisco Garcés (Franciscan friar) visited the springs while returning to the Colorado River after his exploration of the San Joaquin Valley (California OHP 2013). Other notable visits in the mid-nineteenth century include those by Frémont (1844) and the Jayhawk Party returning to Los Angeles from Death Valley (1850) (Wynn 1951). These early visitors made use of an established trail referred to as the old Horse Thief Trail and later called the Joe Walker Trail. The 1856 plat maps for Township 10 North, Range 14 West show the road (labeled Tihichipi [*sic*] Road) trending north-south through the eastern sections, and the plat maps for Township 9 North, Range 13 West show the same road in the west sections (California Surveyor's General Office 1856a, 1856b). Beginning in 1864, Willow Springs served as a stop on the Los Angeles-Havilah and Inyo Stage Lines, which continued until 1876 when the Southern Pacific Railroad Company completed construction of the railroad from Tehachapi Pass to Mojave (Brewer 2001:26).

Agriculture

The construction of the railroad through the Antelope Valley was a boon for development and settlement of the region. Rosamond was established in 1877 as a townsite owned by the Southern Pacific Railroad Company, reportedly named after the daughter of one of the railroad officials. The initial population base comprised homesteaders who purchased lots (see Local Land Patents section). The economy at this time was primarily driven by sheep and cattle ranching. By 1890, favorable rainfall supported an increasing agricultural base to communities in the Antelope Valley, including towns like Rosamond and Lancaster that already had established townsites (Burmeister 1977). A decades-long drought began in 1894 and temporarily stunted further growth until the area became productive again in the 1920s with the aid of advanced irrigation methods and electricity (Burmeister 1977:128). Initially, staple crops like wheat, barley, and alfalfa were grown in small plots. After the turn-of-the-century resurgence, vegetable crops such as carrot, corn, onion, and potato were included, and the large-scale production of alfalfa began.

Mining

Twenty years after the decline of the stage routes, Illinois-native and civil war veteran Ezra M. Hamilton brought his family to visit Willow Springs in 1896 (*Los Angeles Times* 1900; Rogers 1948). Hamilton would later become a prominent figure in development of the Antelope Valley, including both Willow Springs and Rosamond. The owner of a tile works company in Los Angeles in the mid-1880s, Hamilton had discovered gold in a sample of silica clay he had solicited from a Rosamond-area supplier to supply a growing Los Angeles market for pipes and other clay products (Wynn 1951:16). Having originally immigrated to California in 1853 to prospect for gold, in the mid-1890s, Hamilton started searching the areas surrounding the clay source provided by Charles Graves of Kentucky, who was living on a ranch on the south side of what would become known as Hamilton Hill. In 1896, Hamilton struck his claim on a vein of gold on the top of the hill, which was later renamed Burton Hill after brothers who purchased it and

which is now known as Tropico Hill (*Los Angeles Times* 1900). Hamilton established a small mine and mill named after his wife, Lida, and used the proceeds to purchase the land surrounding Willow Springs. He constructed several small stone buildings that sustained a small part-time community of mine workers and served as a rest stop for travelers (Wynn 1951:16). Several other ventures were attempted with the land, but none were of significance.

Just 2 years before Hamilton's claim in 1896, the first formal gold discovery had been made by W.W. Bowers on a small hill south of Mojave; this discovery initiated cycles of mining booms that would persist through to the present day in a region now known as the Mojave Mining District (Vredenburg 1991). Throughout the intervening years, hundreds of mining claims were made and mills were established throughout the Antelope Valley, including many of the prominent mines known today such as the Queen Esther (1894), Elephant (1896), Karma (1896), and Exposed Treasure (1904) on Standard Hill. Hamilton sold some of his claims between 1900 and 1902, and, after trading between different owners, his claims were held by the Tropico Mining and Milling Company in 1909, after whom the hill was renamed.

It was during this time that the Los Angeles Aqueduct was being constructed and Mojave was reinstated as a terminal on the Southern Pacific Railroad after having been dedicated strictly as a freight line. A 1915 historic topographic map depicts a network of unnamed paved roads and unpaved trails connecting population railroad terminals (e.g., Mojave and Rosamond), mining locations (e.g., Willow Springs), and access points to the Los Angeles Aqueduct. This includes one road to the south of the APE. This road is an east-west-trending unimproved road approximately 8 miles long that extends from a point north of Willow Springs to Cottonwood Creek at the Los Angeles Aqueduct. Roads in the APE do not appear on the historic General Land Office survey maps until 1936; none of these generally north-south-oriented travel routes are named, but they appear to provide access to the mines and homesteads in the Tehachapi Mountains to the north.

Several of the Mojave district mills were inactive leading up to and during World War I. By 1934, H. Clifford Burton and his brother Cecil, who had been working for Tropico, acquired all of the company's stock and brought a mining resurgence by successfully prospecting new ore locations (Vredenburg 1991). It was during this time in the mid- to late-1930s that the several new mines were established, including the Silver Queen and Golden Queen vein systems at Soledad Mountain, and the Cactus Queen Mine and Middle Butte Mine on a promontory northwest of Tropico Hill (Golden Queen Mining Company 2013). Following the shutdown in 1942 of all non-essential mines by the United States government at the onset of World War II, all of the mines in the Mojave Mining District were shut down.

Los Angeles Aqueduct

Located south of the project area is a segment of the Los Angeles Aqueduct (P-15-003549; CA-KER-3549H/CA-LAN-2150H/CA-INY-4592H). This water conveyance system was constructed between 1907 and 1913 and directs water from the Owens River in the Eastern Sierra Nevada Mountains south to Los Angeles's San Fernando Valley. Traversing 215 miles and three counties, the aqueduct features include reservoirs, dams, siphons, tunnels, channels, and spillways.

Plans to bring water to Los Angeles from the Owens River began as early as 1890. Fred Eaton, the former mayor of Los Angeles and a prominent landowner in Owens Valley, recognized the potential of capturing the water supply of the Eastern Sierra Nevada for the rapidly expanding metropolis Los Angeles, which by the late nineteenth century had outgrown its primary water source, the Los Angeles River (Underwood 2000). This developed into a full blown water crisis by 1904, allowing Eaton to convince William Mulholland, the chief engineer and superintendent of the Los Angeles City Water Company, that the Owens River was the best source for Los Angeles' future needs. As Eaton secured the necessary land and water rights, Mulholland examined the feasibility and costs of the project. With their results, the two were able to

first win the support of the Board of Water Commissioners and then the Los Angeles voters, who on September 7, 1905, approved a \$1,500,000 bond measure to fund the project (Department of Public Service of the City of Los Angeles 1916).

Construction began in 1907 and was divided into several divisions, with division headquarters in various locations along the route of the aqueduct. Each was under the direction of a division engineer and included attendant office staff, surveyors, machinists, medical personnel, and laborers. In addition, numerous temporary camps were constructed along the system; these consisted of mess halls, bunk houses, barns, shops, and homes for workers and their families (Underwood 2000). Mojave functioned as the construction headquarters for the project, with supplies, equipment, and thousands of workers funneled through the small community on their way from Los Angeles to the Owens Valley.

When it was completed in 1913, the aqueduct was the third-largest engineering achievement of its time, exceeded only by New York City's water system and the Panama Canal (Underwood 2000). Its development resulted in new innovations such as huge steam and electric shovels, which were used to excavate ditches, tunnels, dams, and reservoirs. Construction also required massive quantities of local resources, including limestone and clay that were provided by a plant developed specifically for the project northwest of Mojave at Monolith.

The aqueduct system was expanded in the 1930s by tapping the waters of the Mono Basin. The original system continues to be used today, although portions of the original aqueduct were reinforced in 1960 (Underwood 2000). As Los Angeles continued to grow in the decades following World War II, the increasing demand for water resulted in the development of a second aqueduct. Constructed between 1967 and 1972, this second aqueduct obtained water from the Haiwee Reservoir in the Owens Valley.

NATIVE AMERICAN COORDINATION

Although coordination with Native American groups was not conducted as part of the current project, it has been completed as part of the previous studies conducted for the PdV/Manzana Wind Energy Project and the Tylerhorse Wind Energy Project, which surround the current APE. Based on these previous consultations with the NAHC, no Native American sacred sites have been identified as part of the previous surveys for this area (Sapphos 2009; 2013).

METHODS

SWCA reviewed the previous survey work and associated reports completed in the APE, and conducted an intensive-level pedestrian survey. The following section discusses the methods used for both of these efforts.

Previous Work Review

The purpose of the review of previous work was to identify previously recorded prehistoric or historic cultural resources, including isolated artifacts, archaeological sites, historical buildings, and structures that are in the APE and to identify areas within the current APE that have received adequate previous survey coverage. The previous work review was intended to give field crews information about specific resources that may be in the APE and to provide a preliminary assessment of the cultural resources sensitivity of the APE. This review included the appropriate USGS quadrangles on which archaeological sites are plotted, archaeological site records, and data from previous surveys and research reports.

Cultural Resources Pedestrian Survey

SWCA archaeologists conducted intensive-level pedestrian survey of 78.8 acres on June 27, 2016; SWCA archaeologists conducted intensive-level pedestrian survey of 4.7 acres on January 18, 2017; totaling 83.5 acres of intensive-level cultural resources survey. Based on the review of previous surveys that overlap the current APE, SWCA surveyed all areas that have never received survey or resurveyed areas where the previous survey was conducted prior to 2010, per BLM direction; areas that have been surveyed more recently than 2010 were not resurveyed as part of the current effort. Surveys were conducted by walking parallel transects spaced a maximum of 15 meters (m) apart, depending on terrain. A Trimble global positioning system (GPS) receiver and a topographic map were used to locate survey boundaries and maintain transit accuracy. The ground surface was examined for the presence of prehistoric artifacts (e.g., flaked stone tools, tool-making debris, or stone milling tools), historical artifacts (e.g., metal, glass, or ceramics), sediment discoloration that might indicate the presence of a cultural midden, depressions, and other features that might indicate the former presence of structures or buildings (e.g., post holes or foundations).

Where cultural materials were encountered, SWCA collected all data necessary to complete the appropriate State of California Department of Parks and Recreation (DPR) 523 series forms. Following California OHP guidelines, any cultural material more than 45 years old was recorded as an archaeological site, built environment resource, or isolate, as appropriate. The 45-year-old threshold acknowledges that there is commonly a lag of up to 5 years between the time of resource recordation and the date that planning and construction decisions are made (California OHP 1995:2). Sites were mapped with handheld, mapping-grade Trimble GeoXT GPS units with sub-meter accuracy and differential correction. All linear site features such as site boundaries, roads, and fence lines, as well as point features such as the site datum, features, and tools, were mapped with these Trimble units. Field GPS data for sites were post-processed using ArcGIS ArcPad software and projected into Universal Transverse Mercator (UTM), Zone 11 North, North American Datum 1983 (NAD 83) with electronic shapefiles. All GPS data were exported into GIS shapefiles and plotted onto the associated geo-referenced USGS 7.5-minute quadrangle to ensure accuracy and to produce location maps of all resources. In addition to the site mapping, SWCA documented all sites with overview photographs. Associated features and diagnostic artifacts were inventoried, numbered sequentially, measured, recorded using a GPS unit, and photographed and sketched as appropriate. The environmental setting, depositional context, structure, topography, and geographical location were noted for each site. No artifacts were collected during the surveys.

Sites and isolates were given temporary field numbers using the prefix “33766” to represent SWCA’s Camino Solar Project number and the designation “S” for site and “ISO” for isolate. The numbering system is continuous for the archaeological sites and isolates, with assignment of field numbers as the survey progressed. For the purposes of this study, archaeological resources were classified as sites if they comprise three or more artifacts of any type within a 30-m (100-foot) radius or if they include one or more archaeological features. Any assemblage that did not meet this requirement (e.g., two historical cans) was classified as an isolate. Artifacts were recorded by material type (e.g., glass, ceramic, or metal) and object class (e.g., bottle, clothing, or can). Measurements and diagnostic attributes, especially maker’s marks, were documented as thoroughly as possible.

Following fieldwork, SWCA prepared DPR 523 series forms for all the two newly-identified isolated occurrences, including primary record, and location map for each. All completed DPR forms are presented herein as Appendix A. DPR forms will be submitted to the Southern San Joaquin Valley Information Center (SSJVIC), which will issue primary numbers for all newly recorded isolated occurrences. No sites were discovered during survey.

Paleontological Resources

Resource Assessment Guidelines

The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts on paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (a significant impact). At the project-specific level, direct impacts can be mitigated to below a significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to “directly or indirectly destroy a significant paleontological resource or unique geologic feature” (Appendix G, State CEQA Guidelines). In general, for project areas that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For project areas that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units that underlie the non-sensitive unit are also affected.

Professional Standards

The Society for Vertebrate Paleontology (SVP) has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation (1995, 2010). Most practicing professional vertebrate paleontologists adhere closely to the SVP’s assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological laws, ordinances, regulations, and standards accept and use the professional standards set forth by the SVP.

As defined by the SVP (2010:11), significant paleontological resources are defined as:

fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

Based on the significance definitions of the SVP (2010), all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely will a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information about the taxon it represents, its paleoenvironment, and/or its distribution. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

A geologic unit known to contain significant fossils is considered to be sensitive to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either disturb or destroy fossil remains directly or indirectly. This definition of sensitivity differs fundamentally from the definition for archaeological resources as follows:

It is extremely important to distinguish between archaeological and paleontological (fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontological sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case (SVP 1995).

Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are often contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity.

In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of fossils on the surface, it is necessary to assess the sensitivity of rock units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken in order to prevent adverse impacts to these resources.

Paleontological Sensitivity

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its “Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources,” the SVP (2010:1–2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

High Potential. “Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ashes or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.”

Low Potential. “Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.”

Undetermined Potential. “Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.”

No Potential. “Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources” (SVP 2010:1–2).

Records Search

A records search was requested from the Natural History Museum of Los Angeles County on March 22, 2017 to determine if any paleontological resources have been collected from the project area, or from similar geologic units in the vicinity of the project. A review of the scientific literature was also conducted in order to further establish the paleontological history of the project area and vicinity, including a review of the most recent geologic mapping.

RESULTS

Background Research

Previously Conducted Cultural Resource Studies

Seven cultural resources studies have been previously conducted by Sapphos for the wind energy projects that surround the current APE; five are within the APE. Approximately 80 percent of the APE, including the auxiliary project features, has previously been subjected to survey for cultural resources. Most recently, Sapphos conducted a cultural resource study for the Tylerhorse Wind Energy Project (2013). The 1-mile study area for that project completely encompasses the current APE, and the survey area for that project covers the central portion of the current APE.

For the Tylerhorse Wind Energy Project, Sapphos conducted an updated record search at the SSJVIC on December 13, 2011. One previous survey conducted in 1999 was identified within 1 mile of the Tylerhorse Wind Energy Project area. Reports associated with the previous studies are listed in Table 2 by year.

Table 2. Previous Cultural Resource Studies within 1 Mile of the Area of Potential Effects

Report Number	Author	Year	Report Title	Relationship to APE
KE 02321	Christopher D. Dore, Ph.D., RPA	1999	<i>Cultural Resources Assessment of Township 10 North, Range 15 West, Sections 10, 11, 14, 15, and 35, Kern County, California</i>	Within
	Sapphos	2006	<i>PDV Wind Energy Project – Cultural Resources Technical Report: Volume I and Volume II</i>	Within
	Sapphos	2009	<i>Addendum to the Cultural Resources Technical Report for the PDV Wind Energy Infill Project</i>	Within
	Sapphos	2011	<i>Memorandum for the Record: Supplemental Phase I Cultural Resources Evaluation for the Manzana Wind Energy Project</i>	Within
	Sapphos	2012	<i>Manzana Wind Energy Project: Phase II Archaeological Evaluation Report</i>	Outside
	Sapphos	2012	<i>Manzana Wind Energy Project: Phase II Archaeological Evaluation Report For Site PWA 1H</i>	Outside
	Sapphos	2013	<i>Tylerhorse Wind Energy Project: Cultural Resources Technical Report.</i>	Within

Previously Recorded Cultural Resources

The records search for the Tylerhorse Wind Energy Project identified 24 cultural resources: 16 historic archaeological sites and six prehistoric archaeological sites. The majority of these historic resources consist of low rock mounds of unknown function, which Sapphos recorded in 2006 for the Manzana Wind Energy Project. Sapphos also identified one prehistoric isolate within the Tylerhorse Wind Energy Project area. None of the previously recorded resources are within the current APE, but these resources do fall within 1 mile.

The Los Angeles Aqueduct (P-15-003549/CA-KER-3549H), which is approximately 1.25 miles south of the southern end of the gen-tie line, is listed in the CRHR and has previously been determined eligible for listing in the NRHP with concurrence from the state historic preservation office. The entire length of the aqueduct was found eligible under Criterion 1/A, and some segments were found eligible under Criterion 3/C (Costello and Marvin 1992, as cited in Panich et al. 2010: 33). Details pertaining to these resources are provided below in Table 3. No resources in the APE are listed in the NRHP.

Table 3. Previously Recorded Cultural Resources within 1 Mile of the Area of Potential Effects

Primary Number	Trinomial Number	Temporary Number	Temporal Affiliation	Description
P-15-012227	CA-KER-6929H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012229	CA-KER-6930H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012231	CA-KER-6932H	N/A	Historic	Linear rock feature
P-15-012238	CA-KER-6934H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012239	CA-KER-6935H	N/A	Historic	Homestead foundation and historic debris
P-15-012249	CA-KER-6939H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012251	CA-KER-6940H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012252	CA-KER-6941H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012253	CA-KER-6942H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012254	CA-KER-6943H	N/A	Historic	Rock feature or indeterminate age and function

Primary Number	Trinomial Number	Temporary Number	Temporal Affiliation	Description
P-15-012263	CA-KER-6944H	N/A	Historic	Two linear rock features
P-15-012265	CA-KER-6945H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012266	CA-KER-6946H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012267	CA-KER-6947H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012268	CA-KER-6948H	N/A	Historic	Historic debris scatter
P-15-012270	CA-KER-6949H	N/A	Historic	Historic rock ring
P-15-012272	CA-KER-6950H	N/A	Historic	Rock feature or indeterminate age and function
P-15-012273	CA-KER-6951H	N/A	Historic	Rock feature or indeterminate age and function
P-15-000752	CA-KER-752	N/A	Prehistoric	Small midden
P-15-001198	CA-HER-1198	N/A	Prehistoric	Single mortar cup in a decomposed granite outcrop
P-15-001195	CA-KER-1195	N/A	Prehistoric	Two bedrock mortars
P-15-001193	CA-KER-1193	N/A	Prehistoric	Small pictograph and bedrock mortar
P-15-000273	CA-KER-273	N/A	Prehistoric	Pictograph, bedrock mortars; occupation site
P-15-001906	CA-KER-1906	N/A	Prehistoric	Two mortars worked into a single granite boulder; milling station
		TY-ISO-1	Prehistoric	Isolate: Possible Black Rock Concave Base projectile point

Map and Historic Aerial Photography Research

Additional archival research for this project included review of plat maps (California Surveyor's General Office 1856a, 1856b, 1882, 1935) and historic topographic maps. Historic topographic maps consulted include the Elizabeth Lake 30-minute quadrangle (USGS 1915), the 1943 Willow Springs 15-minute quadrangle (USGS 1943), and the Tylerhorse Canyon 7.5-minute quadrangles (USGS 1965, 1974). Additional map research was conducted in the digital collections of the Library of Congress. Historic aerials depicting the project area in 1963 and 1974 were also reviewed (Historic Aerials 2016).

Plat maps from the second half of the nineteenth century show early transportation routes and depict the early survey lands in the region (California Surveyor's General Office 1856a, 1856b, 1882). The plat maps for Township 10 North, Range 15 West prior to the 1930s do not depict any roads or other historic features (California Surveyor's General Office 1856a, 1856b, 1873, 1881). However, the 1936 Dependent Resurvey plat map depicts a number of generally north-south-oriented roads crossing the APE (California Surveyor's General Office 1936). These roads appear to provide access to mines and homesteads in the area along the base of the Tehachapi Mountains to the north outside of the APE. A "Dry Well" is depicted in the southwest quarter of Section 26, Township 10 North, Range 15 West, and a number of fence lines are shown in Section 27 to the west; these features likely represent ranching activities in the area.

Historic maps show that the APE and vicinity were only sparsely developed in the first decades of the twentieth century, mostly related to the construction of the Los Angeles Aqueduct. A 1908 topographic map of the Los Angeles Aqueduct shows that the APE fell within the Mojave Division (Division Number 8) for the construction of the aqueduct, which extended from Pinto Station to the north end of A.V. Cottonwood Siphon (City of Los Angeles Water Department 1908). The main project area lies north of the aqueduct and the West Antelope Aqueduct Station. Railroad stations are indicated at Rosamond, Gloster, and Mojave on this map. The town of Willow Springs is indicated to the southeast of the main project area.

By 1915, the aqueduct was fully constructed, and historic maps indicate mining activity at Willow Springs, Rosamond, and Cactus Mine (USGS 1915). In addition, some settlement of the project vicinity is evident, with buildings present just outside the project area to the south and west. These buildings are likely residences or homesteads related to early settlement for agriculture and mining.

The 1943 map shows additional development related to the aqueduct. West Antelope Aqueduct Station is located to the south of the project area, and Willow Springs Pumping Station is to the east.

The 1965 maps show that mining activities continued in the vicinity, with Cactus Queen Mine northeast of the APE at Oak Creek. Several ranches also appear east of the APE, including Willow Springs Ranch and Wagon Wheel Ranch. Aerial photos from the 1950s through 1970s indicate that the project vicinity was likely used for ranching, as opposed to agriculture, with little to no settlement within the project area itself (Historic Aerials 2016).

Local Land Patents

Four patents are on file at the BLM for lands in the APE (Table 4). With the exception of the 1894 railroad grant to the Southern Pacific Railroad Company, all of the land patents date between 1919 and 1925, and they were granted under the authority of the 1862 Homestead Act (12 Stat. 392). The high percentage of land patents dating between 1919 and 1929 likely correlates with the development of the town of Willow Springs and this portion of the valley following the construction of the Los Angeles Aqueduct, seen on the 1915 topographic map, and suggests an influx of settlers to the project vicinity during the 1910s and 1920s. In addition, several sections in the APE were part of grants to the Southern Pacific Railroad Company. Although the railroad itself ran north–south through Rosamond, Southern Pacific was granted additional lands under the Act of Congress July 27, 1866, including alternating sections of public lands within 10 miles on either side of the railroad right-of-way (Robinson 1948:155).

Table 4. Land Patents in the Area of Potential Effects

Owner	Year	Authority	Legal*
Southern Pacific Railroad Company	07/10/1894	July 27, 1866: Grant-RR-Atlantic and Pacific (14 Stat. 292)	Sections 23, 27, 35, Township 10 North, Range 15 West
Georgia C Krebs Daniel Krebs	07/08/1919	May 20, 1862: Homestead Entry Original (12 Stat. 392)	South half of Section 26, Township 10 North, Range 15 West
Edward H. Fleming	06/14/1920	May 20, 1862: Homestead Entry Original (12 Stat. 392)	East half of Section 34, Township 10 North, Range 15 West
Mary Sewall	03/09/1925	May 20, 1862: Homestead Entry Original (12 Stat. 392)	West half of Section 34, Township 10 North, Range 15 West

*San Bernardino Base and Meridian

Cultural Resources Survey

SWCA conducted intensive-level pedestrian surveys of 83.5 acres of the APE. Transects were spaced 15 meters (45 feet) apart. Visibility in the APE was excellent, averaging from 80 to 90 percent. Although some seasonal grasses were present and obscured the view slightly, archaeologists generally had excellent visual access to the APE. In many cases, the two isolates found were partially buried as a result of natural alluvial and aeolian processes. Shallowly and partially buried surface deposits are anticipated because of the relatively active nature of this alluvial plain. The very dry sediments and frequent high winds indicate the possible, though unlikely, presence of intact, subsurface archaeological resources in the APE. Further, intentionally buried deposits associated with identified historic archaeological sites in the general vicinity may be present.

During field surveys, SWCA identified and recorded two cultural resources: two newly identified isolates (Appendix B). Isolates are generally not considered significant under Section 106 of the NHPA or the CRHR. No previously recorded sites were identified as being located within the APE. California DPR 523 Series forms for all recorded resources are included as Appendix A.

NEWLY IDENTIFIED CULTURAL RESOURCES

SWCA identified and recorded two isolates, one historic and one prehistoric. The historic isolate is a food can. The prehistoric isolate is a modified flake.

33766-ISO-1001

Isolated artifact 33766-ISO-1001 is a prehistoric modified chert flake with cortex on both sides (Figure 6). The incomplete flake is bifacially worked along the lateral margins with a hinged termination; it measures 45 × 20 × 5 millimeters. The isolate is situated on the southern, 5-to-10-degree slope of a small rise within an alluvial plain. Vegetation consists of sparse Joshua trees and juniper with sparse Russian thistle and grasses. Soil is yellowish brown (10YR 5/4) fine sand with minimal angular granitic inclusions in a residuum depositional environment with areas of alluvial and aeolian sediments. Disturbances in the immediate area include livestock grazing and construction activities associated with the wind farm.



Figure 6. Isolate 33766-ISO-1001, modified flake, plan view

33766-ISO-1002

Isolated artifact 33766-ISO-1002 is a crushed, single-serve, hole-in-top can with lap seams and stamped ends (Figure 7). This type of can dates from the early 1900s to c. 1940 and likely contained evaporated milk (Rock 1987; Kimball 2001). The isolate is situated on the southern slope of a small rise within an alluvial

plain. Vegetation consists of sparse Joshua trees and juniper with sparse creosote, brittle bush, Russian thistle, and grasses. Soil is a dark yellowish brown (10YR 4/4) fine sand with minimal angular granitic inclusions in a residuum depositional environment with areas of alluvial and aeolian sediments. Disturbances in the immediate area include livestock grazing and construction activities associated with the wind farm.



Figure 7. Isolate 33766-ISO-1002, hole-in-top can, profile view.

Paleontological Resources

The records search conducted by the LACM and the review of scientific literature by SWCA revealed a rich history of fossil finds in many of the geologic units present in the project area, as detailed below. Figure 8 shows the paleontological sensitivity of the geologic units in and around the project area.

Young Alluvium (mapped as Qa). These sediments date from the Holocene (0 – 10,000 years ago), and as such are too young to preserve fossil remains in the uppermost layers. Therefore, they have low paleontological sensitivity. However, the thickness of these sediments in the project area is undetermined, and they likely overlie old alluvial sediments (see below). Should excavations exceed the depth of the Young Alluvium, there is a risk these older buried sediments, which have high paleontological sensitivity, may be impacted.

Based on their age, the younger Quaternary alluvium sediments do have potential to contain buried *cultural* resources, when cultural resources are present. However, if cultural resources are absent on the surface of these formations, then there is little to no potential to contain them subsurface; see discussion of cultural resources sensitivity in the Recommendations Section.

Old Alluvium (mapped as Qoa). Old alluvial sediments have a record of preserving significant fossils in southern California. The results of the records search indicate that while no fossils are known from within the APE, fossils have been collected from older Quaternary alluvium in the vicinity (McLeod 2017). North-east of the APE near the California Aqueduct the LACM collected a specimen of the fossil camel *Hemiauchenia* from 21 feet below the surface (McLeod 2017). Directly north of the project area a second fossil locality was discovered during sewer line excavations in the city of Tehachapi, where a specimen of fossil horse (*Equus*) was recovered (McLeod 2017). Furthermore, sediments of this age have a proven record of preserving significant Ice Age fossils (e.g. Jefferson 1989; Lander and Reynolds 1985; Stewart et al. 2012). The past recovery of significant fossil resources in older Quaternary alluvium indicates this unit has high paleontological sensitivity.

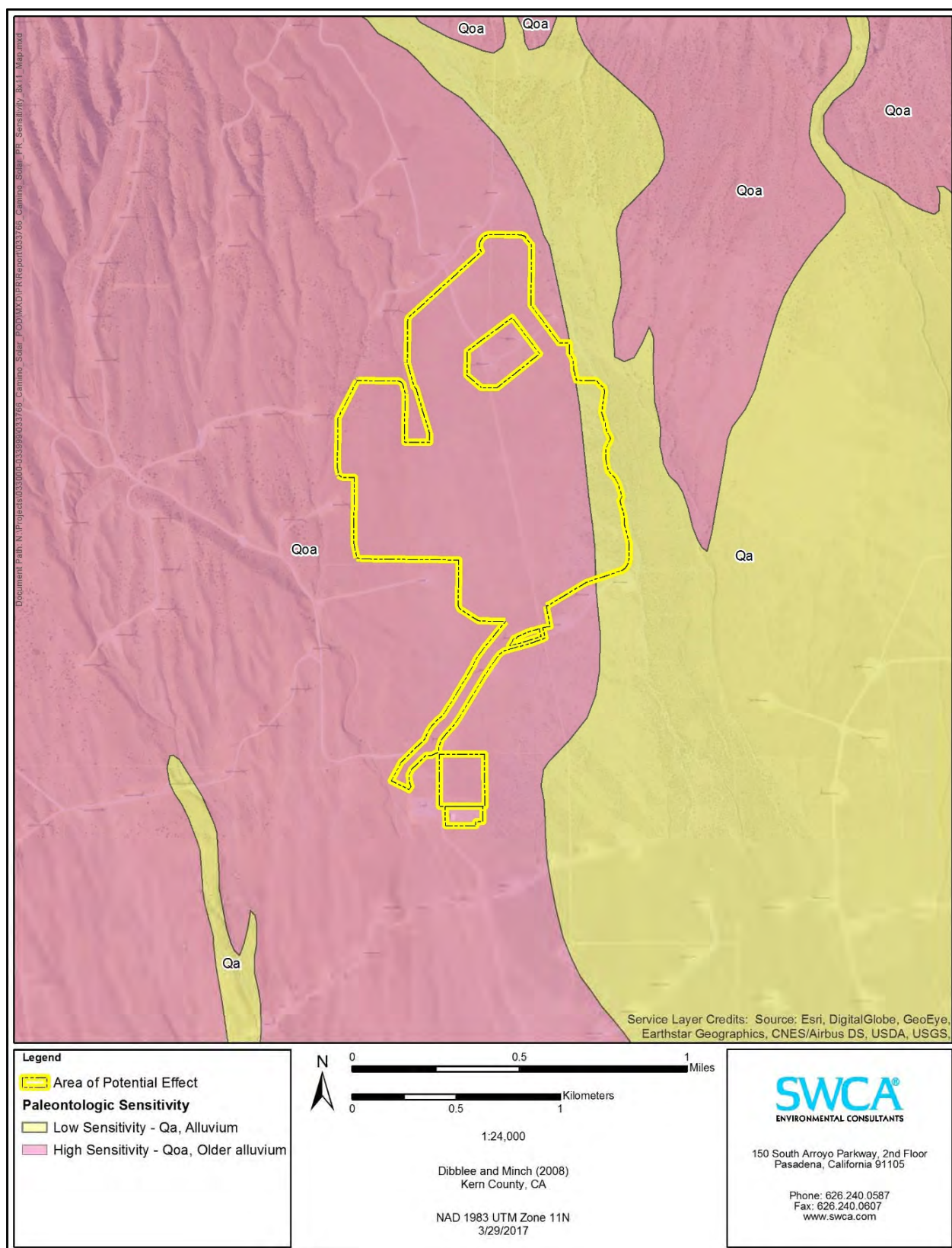


Figure 8. Paleontological Sensitivity Map

RECOMMENDATIONS

SWCA observed two previously unidentified cultural resources in the survey area. One historic isolated artifact (33766-ISO-1002) and one prehistoric isolated artifact (33766-ISO-1001) were identified within the APE.

Considering that approximately 80 percent of the APE had previously been surveyed and did not identify the presence of cultural resources, and considering that the current study identified two isolated artifacts, the APE is unlikely to contain significant archaeological resources. Furthermore, although the depositional context of the area has the potential to contain partially or shallowly buried resources, the sparse vegetation provided excellent ground surface visibility to facilitate the identification of archaeological materials if they were present. Though it is impossible to completely rule out subsurface deposits, the evidence presented here indicates that it is unlikely.

The isolated artifacts identified within the APE are not considered eligible for the NRHP or the CRHR. For this reason, no further actions are necessary for the APE. Cultural studies are complete and the proposed project will result in no effect to historic properties.

In the event that cultural resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified archaeologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the NHPA or CEQA, additional work such as testing or data recovery may be warranted.

The discovery of human remains is always a possibility during ground disturbances. State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The county coroner must be notified of the find immediately. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 24 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

The literature and LACM records searches indicate the majority of the surficial sediments in the APE have high paleontological sensitivity, while the small area of low sensitivity surficial sediments are likely underlain at an unknown depth by high sensitivity sediments. In order to avoid negative impacts to fossil resources, it is recommended that a qualified paleontologist (as established by the Society of Vertebrate Paleontology 2010) develop a paleontological resource monitoring and mitigation plan (PRMMP). The PRMMP should include the following: worker training, paleontological monitoring of ground disturbing activities in sediments with high paleontological sensitivity (whether present at the surface or in the subsurface underlying low-sensitivity sediments), guidelines to follow in the event of a fossil discovery, and a plan for the salvage and curation of any significant fossils discovered with an accredited repository.

LITERATURE CITED

Advisory Council of Historic Preservation (ACHP)

- 2000 Part II: Advisory Council on Historic Preservation 36 CFR Part 800 Protection of Historic Properties; Final Rule. Federal Register Vol. 65, No. 239. December 12, 2000. Available at: <http://www.achp.gov/regs12-00.pdf>. Accessed July 2016.

Antevs, Ernest

- 1955 Geologic-Climatic Dating in the West. *American Antiquity* 20:317–335.

Bancroft, Hubert Howe

- 1886 *History of California, Volume 1, 1542–1800*. History Company Publishers, San Francisco.

Bean, Lowell John, and Charles R. Smith

- 1978 Gabrielino. In *Handbook of North American Indians*, Volume 8: *California*, edited by R.F. Heizer, pp. 538–549. William C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

Blackburn, T. C., and L. J. Bean

- 1978 Kitanemuk. In *Handbook of North American Indians*, Volume 8: *California*, edited by R.F. Heizer, pp. 564–569. William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Brewer, Chris

- 2001 *Historic Kern County: An Illustrated History of Bakersfield and Kern County*. Historical Publishing Network, San Antonio, Texas.

Burmeister, Eugene

- 1977 *The Golden Empire: Kern County, California*. Autograph Press Beverly Hills, California.

Byrd, Brian F., and L. Mark Raab

- 2007 Prehistory of the Southern Bight: Models for a New Millennium. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 215–227. AltaMira Press, New York.

California Office of Historic Preservation (OHP)

- 1995 *Instructions for Recording Historical Resources*. Department of Parks and Recreation, Office of Historic Preservation, Sacramento.
- 2013 Kern County California Historical Landmarks, No. 130, Willow Springs. Available at http://ohp.parks.ca.gov/?page_id=21423. Accessed on February 25, 2015.

California Surveyor's General Office

- 1856a Map of Township No. IX North, Range No. XIII West, San Bernardino Meridian, Ralph W. Norris, draftsman, February 19th, 1856. California Surveyor's General Office, San Francisco. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.

- 1856b Map of Township No. X North, Range No. XIV West, San Bernardino Meridian, Ralph W. Norris, draftsman, February 19th, 1856. California Surveyor's General Office, San Francisco. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.
- 1873 Map of Township No. 10 North, Range No. 15 West, San Bernardino Meridian, Geo. S. Collins, draftsman and W. H. Norway, draftsman, July 10th, 1873. California Surveyor's General Office, San Francisco. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.
- 1881 Map of Township No. 10 North, Range No. 15 West, San Bernardino Meridian, Ralph W. Norris, draftsman and G. H. Thompson, draftsman, May 11th, 1881. California Surveyor's General Office, San Francisco. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.
- 1882 Map of Township No. X North, Range No. XIV West, San Bernardino Meridian, February 27th, 1882. California Surveyor's General Office, San Francisco. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.
- 1935 Dependent Resurvey of Township No. 10 North, Range No. 14 West, San Bernardino Meridian, California, December 10, 1935. Department of the Interior General Land Office, Washington, D.C. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.
- 1936 Dependent Resurvey of Township No. 10 North, Range No. 15 West, San Bernardino Meridian, California, July 14, 1936. Department of the Interior General Land Office, Washington, D.C. Courtesy of the U.S. Department of the Interior, Bureau of Land Management, General Land Office Records. Available at: <http://www.glorerecords.blm.gov/default.aspx>. Accessed July 2016.

City of Los Angeles Water Department

- 1908 *Topographic Map of the Los Angeles Aqueduct and Adjacent Territory*. On file, Library of Congress, Geography and Map Division. Available at: <http://hdl.loc.gov/loc.gmd/g4361n.ct001798>. Accessed July 12, 2016.

Cook, Sherburne

- 1955 The Aboriginal Population of the San Joaquin Valley, California. *University of California Anthropological Records* 16(2):31–80. University of California Press, Berkeley.

Costello, Julia, and Judith Marvin

- 1992 Supplemental Archaeological Survey Report and Historic Study for the Highway 395 Alabama Gates Four Lane Project, Inyo County, California. Document on file with Caltrans District 9, Bishop, California.

Department of Public Service of the City of Los Angeles

- 1916 Complete Report on Construction of the Los Angeles Aqueduct. The Standard Printing Company, Los Angeles.

Dibblee, T. and J. Minch

- 2008 Geologic map of the Neenach & Willow Springs 15 minute quadrangles, Kern & Los Angeles Counties, California. Dibblee Geological Foundation Map DF-383, scale 1: 62,500.

Earle, D.

- 1997 *Ethnohistoric Overview of the Edwards Air Force Base Region and the Western Mojave Desert*. Prepared for AFFTC/EMXR, Edwards Air Force Base, California. Earle and Associates, Palmdale, California.

Giambastiani, Mark, Sinéad Ní Ghabhláin, Micah Hale, Andres Catacora, Dave Iversen, and Mark Becker

- 2007 Final Phase II Cultural Resource Evaluations at 21 Sites Along the West and Northwestern Boundaries, Edwards AFB, Kern and Los Angeles Counties, California. Prepared for Edwards Air Force Base. ASM Affiliates, Inc.

Golden Queen Mining Company

- 2013 Soledad Mountain Project, History. Available at: http://www.goldenqueen.com/s/Projects_Overview.asp. Accessed February 25, 2014.

Governor's Office of Planning and Research

- 1998 CEQA, California Environmental Quality Act Statutes and Guidelines. Governor's Office of Planning and Research, Sacramento, California. Available at: <http://ceres.ca.gov/ceqa/rev/approval>.

Gudde, Irwin G.

- 1998 *California Place Names*. University of California Press, Berkeley.

Gumprecht, Blake

- 1999 The Los Angeles River: Its Life, Death, and Possible Rebirth. Johns Hopkins University Press, Baltimore, Maryland.

Gunther, J. D.

- 1984 Riverside County, California, Place Names, Their Origins and Their Stories. Rubidoux Printing, Riverside, California.

Historic Aerials

- 2016 Aerial Photos of Kern County, California, 1963, 1974. Available at: <http://historicaerials.com/>. Accessed July 12, 2016.

Hoover, Mildred Brooke, Hero Eugene Rensch, Ethel Grace Rensch, William N. Abeloe, and Douglas E. Kyle

- 1990 *Historic Spots in California*. Stanford University Press, Stanford, California.

Hundley, N.

- 2001 *The Great Thirst: Californians and Water: A History*. University of California Press, Los Angeles.

Jefferson, G.T.

1989. Late Pleistocene and earliest Holocene fossil localities and vertebrate taxa from the western Mojave Desert. In *The West central Mojave Desert: Quaternary Studies Between Kramer and Afton Canyon*, edited by R.E. Reynolds, San Bernardino County Museum Association Special Publication, Redlands, California p. 27-40.

Kern County Planning Department

- 2009 Kern County General Plan. Electronic document. Available at: <http://pcd.kerndsa.com/planning/planning-documents/general-plans>. Accessed March 3, 2015.

Kielbasa, John R.

- 1998 *Historic Adobes of Los Angeles County*. Dorrance Publishing Co., Pittsburg.

Kimball, Monique

- 2011 *Guide to Historic Artifacts*. Unpublished reference.

Kroeber, Alfred L.

- 1976 *Handbook of the Indians of California*. Reprinted. Dover Publications, New York. Originally published 1925, Bureau of American Ethnology Bulletin 78. Government Printing Office, Washington D.C.

Lander, E. B, and Reynolds, R. E.

1985. Fossil Vertebrates from the Calico Mountains area, central Mojave Desert, San Bernardino County, California. San Bernardino County Museum publ. 1985, p. 153.

Langum, David J.

- 1987 Law and Community on the Mexican California Frontier: Anglo-American Expatriates and the Clash of Legal Traditions, 1821–1846. University of Oklahoma Press, Norman, Oklahoma.

Lee, G., and W. D. Hyder

- 1991 Prehistoric Rock Art as an Indicator of Cultural Interaction and Tribal Boundaries in Southcentral California. *Journal of California and Great Basin Anthropology* 13(1):15–28.

Los Angeles Times

- 1900 How Wealth Came to Ezra Hamilton. *Los Angeles Times* 12 December:II1. Los Angeles.

McLeod, S.

- 2017 Records search of the Natural History Museum of Los Angeles County, letter response to inquiry on March 22, 2017.

Mithun, M.

- 2006 *The Languages of Native North America*. Reprinted. Cambridge University Press, Cambridge, Massachusetts. Originally published 1999, Cambridge University Press, Cambridge, Massachusetts.

Moratto, Michael

- 1984 *California Archaeology*. Academic Press, Orlando.

Murphey, P.C., and D. Daitch.

2007. Paleontological overview of oil shale and tar sands areas in Colorado, Utah and Wyoming. U.S. Department of Energy, Argonne National Laboratory. Report prepared for the U.S. Department of Interior Bureau of Land Management. Scale 1:500,000.

Nevin, David

- 1974 *The Expressmen*. Time-Life Books, Alexandria, Virginia.

Panich, Lee, Stephanie Cimino, and John Holson

- 2010 *Supplemental Archaeological Survey Report #1, Tehachapi Renewable Transmission Project Segment 10, Kern County, California*. Prepared for Southern California Edison Company, Pacific Legacy, Inc. On file at Southern San Joaquin Valley Information Center, California State University, Bakersfield.

Robinson, William Wilcox

- 1948 *Land in California: The Story of Mission Lands, Ranchos, Squatters, Mining Claims, Railroad Grants, Land Scrip, Homesteads*. University of California Press, Berkeley.

Rock, Jim

- 1987 *A Brief Commentary on Cans*. Coyote Press, Salinas, California.

Rogers, Lynn

- 1948 Historic Willow Springs Visited by Times Scouts. *Los Angeles Times*. 31 October:E6. Los Angeles.

Sapphos Environmental, Inc. (Sapphos)

- 2006a *PDV Wind Energy Project – Cultural Resources Technical Report: Volume I*. Prepared for enXco Development Corporation. Sapphos Environmental, Inc.
- 2006b *PDV Wind Energy Project – Cultural Resources Technical Report: Volume II Technical Appendices*. Prepared for enXco Development Corporation. Sapphos Environmental, Inc.
- 2009 *Addendum to the Cultural Resources Technical Report for the PDV Wind Energy Infill Project*. Submitted to Kern County Planning Department. Prepared for enXco Development Corporation. Sapphos Environmental, Inc.
- 2010 *Memorandum for the Record: Supplemental Phase I Cultural Resources Evaluation for the Manzana Wind Energy Project*. Prepared for Iberdrola Renewables, Inc. Sapphos Environmental, Inc.
- 2012a *Manzana Wind Energy Project: Phase II Archaeological Evaluation Report*. Prepared for Iberdrola Renewables, Inc. Sapphos Environmental, Inc.
- 2012b *Manzana Wind Energy Project: Phase II Archaeological Evaluation Report For Site PWA 1H*. Prepared for Iberdrola Renewables, Inc. Sapphos Environmental, Inc.
- 2013 *Tylerhorse Wind Energy Project: Cultural Resources Technical Report*. Prepared for the Bureau of Land Management. Sapphos Environmental, Inc.

Sawer, J. O.

- 1994 (Draft) *Series Descriptions of California Vegetation*. California Native Plant Society, Sacramento, California.

Smith, D.

- 1974 70-Year Water Dispute: Fact, Fable Hard to Separate. *Los Angeles Times*. 1 December. Los Angeles.

Society of Vertebrate Paleontology (SVP).

1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines. Society of Vertebrate Paleontology News Bulletin 163:22–27.

———.

2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology. Available at: <http://vertpaleo.org/PDFS/8f/8fe02e8f-11a9-43b7-9953-cdcfaf4d69e3.pdf>. Accessed January 26, 2017.

Stein, Pat

- 1994 *Historic Trails in Arizona from Coronado to 1940*. Prepared for the Arizona State Historic Preservation Office, Phoenix. SWCA Environmental Consultants, Phoenix.

Steward, J. H.

- 1938 *Basin-Plateau Aboriginal Sociopolitical Groups*. Bureau of American Ethnology Bulletin 120. Smithsonian Institution Press, Washington, D.C.

Stewart, J.D., M. Williams, M. Hakel, and S. Musick.

2012. Was it washed in? New evidence for the genesis of Pleistocene fossil vertebrate remains in the Mojave Desert of southern California. Pages 140–143. In R.E. Reynolds (editor). *Searching for the Pliocene: Southern exposures*. The 2012 Desert Research Symposium. California State University Desert Studies Center.

Sutton, Mark Q.

- 1979 Some Thoughts of the Prehistory of the Antelope Valley. Paper presented at the 1979 Annual Meeting of the Society for California Archaeology, San Luis Obispo, California.
- 1987 Some Aspects of Kitanemuk Prehistory. In *Prehistory of the Antelope Valley, California: An Overview*. Antelope Valley Archaeological Society Occasional Paper No. 1, Lancaster, California.
- 1996 The Current Status of Archaeological Research in the Mojave Desert. *Journal of California and Great Basin Anthropology* 18(2):221–257.
- 2001 Excavations at Teddy Bear Cave (CA-KER-508), Tomo-Kahni State Park, Southern Sierra Nevada, California. *Pacific Coast Archaeological Society* 37(1):1–26.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen

- 2007 Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 229–245. AltaMira Press, New York.

Taşkıran, A., A. Graham, K. T. Doyle, J. Titus, and D. S. Komporlides

- 1997 *The Evaluation of Site CA-LAN-863, South Rogers Lake Area, Edwards Air Force Base, California*. Prepared for U.S. Army Corps of Engineers, Sacramento, California, and the Air Force Flight Test Center, Environmental Management Office, Edwards Air Force Base, California.

Thompson, David G.

- 1929 *The Mohave Desert Region, California: A Geographic, Geologic and Hydrologic Reconnaissance*. Water-Supply Paper No. 578. U.S. Department of the Interior, Geological Survey, Washington, D.C.

Tomo-Kahni State Historic Park

- 2005 The Kawaiisu Culture. Available at: http://www.parks.ca.gov/?page_id=24579. Accessed December 16, 2013.

Underwood, J.

- 2000 *Cultural Resources Survey of the All American Pipeline Conversion Project from Mettler, Kern County, California to Daggett, San Bernardino County, California*. KEA Environmental, Inc., San Diego, California.

United States Department of Agriculture (USDA)

- 2016 Soil Survey Geographic Database. Available at: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed July 11, 2016.

United States Geological Survey (USGS)

- 1915 Elizabeth Lake, California 30-minute topographical quadrangle map. Department of the Interior, Washington, D.C.
- 1943 Willow Springs, California 15-minute topographical quadrangle map. Department of the Interior, Washington, D.C.
- 1965 Tylerhorse Canyon, California 7.5-minute topographical quadrangle map. Department of the Interior, Washington, D.C.
- 1974 Tylerhorse Canyon, California 7.5-minute topographical quadrangle map. Department of the Interior, Washington, D.C.

Vasek, F. C., and M. G. Barbour

- 1977 Mojave Desert Scrub Vegetation. In *Terrestrial Vegetation of California*, edited by M. G. Barbour and J. Major, pp. 835–867. Wiley and Sons, New York.

Vredenburg, Larry M.

- 1991 A Brief Sketch of the Mining History of the Western Mojave Desert and Southern Sierra Nevada. Available at: http://vredenburg.org/mining_history/pages/west_mojave_desert.htm#MOJAVE. Accessed February 25, 2015.

Warren, Claude N.

- 1984 The Desert Region. In *California Archaeology*, edited by Michael J. Moratto, with contributions by David A. Fredrickson, Christopher Raven, and Claude N. Warren, pp. 339–430. Academic Press, New York.

Wynn, Marcia Rittenhouse

- 1951 When Ezra Hamilton Found Gold at Willow Springs. *Desert* (November).

Yenne, Bill

- 1985 *The History of the Southern Pacific*. Bison Books, University of Nebraska Press, Lincoln, Nebraska.

Zigmond, M. L.

- 1981 *Kawaiisu Ethnobotany*. University of Utah Press, Salt Lake City.
1986 Kawaiisu. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W.L.

**Appendix A.
State of California Department of Parks and
Recreation 523 Series Forms**

[Confidential]

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code

Reviewer

Date

Page 1 of 1

*Resource Name or #: 33766-ISO-1001

P1. Other Identifier:

***P2. Location:** ☒ Not for Publication ☐ Unrestricted

*a. County: Kern

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: Tylerhorse Canyon

Date: 1965

T 10N; R 15W; SW ¼ of SE ¼ of Sec 23; San Bernadino

c. Address: N/A

City: Rosamond

Zip: 93560

d. UTM: Zone: 11 ; 368026 mE/ 3867520 mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3,760 feet AMSL

From the Highway 14 in Rosamond, California, take the Rosamond Blvd exit. Turn left onto Rosamond Blvd and drive west, approximately 15.3 miles. Turn right onto 170th Street West, continue for approximately 2.9 miles. Turn left onto Aqueduct Road and drive approximately 0.4 miles, then turn right along an unnamed road and drive approximately 0.3 miles to the Iberdrola Manzana O&M building. Continue past the building along an unnamed dirt road, travelling north and northeast; the isolate is located approximately 23 meters east of the main dirt road.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The isolated artifact is a prehistoric modified chert flake with cortex on both sides. The incomplete flake is bifacially worked along the lateral margins with a hinged termination; it measures 45 × 20 × 5 millimeters. The isolate is situated on a south facing 5 to 10 degree slope of a small rise within an alluvial plain.

***P3b. Resource Attributes:** (List attributes and codes) AP16: Other/Isolate

***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☒ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)

Plan view of modified flake (scale in cm); SWCA P1020836; June 27, 2016

***P6. Date Constructed/Age and**

Sources: ☐ Historic

☒ Prehistoric ☐ Both

***P7. Owner and Address:**

Ronald Fry
8371 Charloma Drive
Downey, Ca. 90240

***P8. Recorded by:**

W. Kendig and A. Elzinga,
SWCA Environmental Consultants
150 S. Arroyo Parkway, 2nd Floor,
Pasadena, CA 91105

***P9. Date Recorded:**

June 27, 2016

***P10. Survey Type:**

Intensive survey

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

Retter, Michael J. (2016) *Cultural Resources Survey Report for the Camino Solar Project, Kern County, California*. Prepared for the Bureau of Land Management and Aurora Solar, LLC. Prepared by SWCA Environmental Consultants.

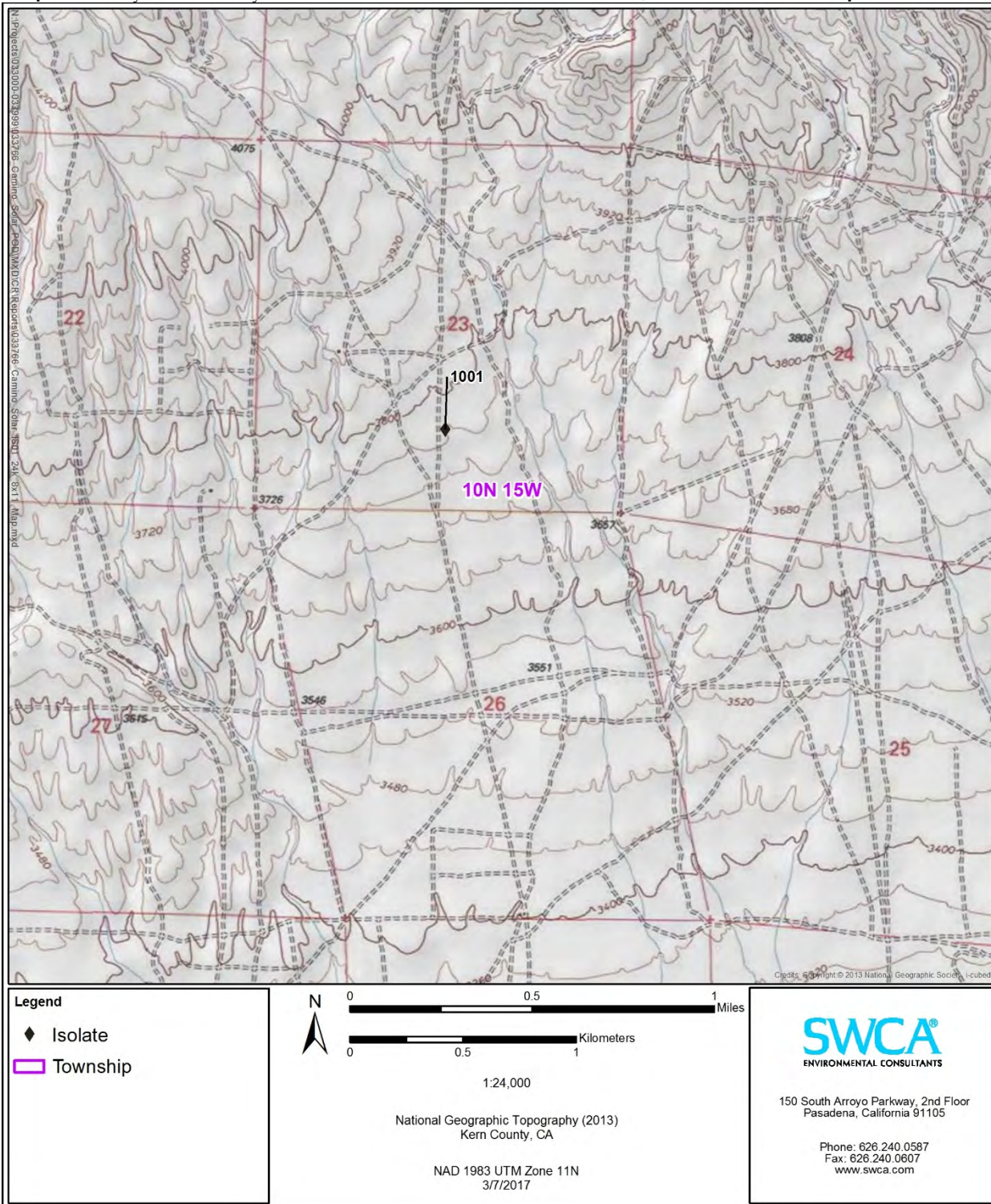
***Attachments:** ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☐ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List):

LOCATION MAP

*Map Name: Tylerhorse Canyon

*Scale: 1:24,000

*Date of Map: 1965



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code

Reviewer

Date

Page 1 of 2

*Resource Name or #: 33766-ISO-1002

P1. Other Identifier:

*P2. Location: ☒ Not for Publication ☐ Unrestricted

*a. County: Kern

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: Tylerhorse Canyon

Date: 1965 T 10N; R 15W; SW ¼ of SE ¼ of Sec 23; San Bernardino

c. Address: N/A

City: Rosamond

Zip: 93560

d. UTM: Zone: 11 ; 368277 mE/ 3867226 mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: 3,760 feet AMSL

From Highway 14 in Rosamond, California, take the Rosamond Blvd exit. Turn left onto Rosamond Blvd and drive west, approximately 15.3 miles. Turn right onto 170th Street West, continue for approximately 2.9 miles. Turn left onto Aqueduct Road and drive approximately 0.4 miles, then turn right along an unnamed road and drive approximately 0.3 miles to the Iberdrola Manzana O&M building. Continue past the building, north and northeast, along an unnamed road; the isolate is located approximately 292 meters east of the main dirt road.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The isolated artifact is a crushed small hole-in-top can with lap seams and stamped ends. This type of can dates to post-1900 and likely contained evaporated milk. The food can was identified on the southern slope of a small rise within an alluvial plain.

*P3b. Resource Attributes: (List attributes and codes) AP16: Other/Isolate

*P4. Resources Present: ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☒ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #)

Plan view; SWCA P1020855; June 27, 2016

*P6. Date Constructed/Age and Sources: ☒ Historic
☐ Prehistoric ☐ Both

*P7. Owner and Address:

Ronald Fry
8371 Charloma Drive
Downey, Ca. 90240

*P8. Recorded by:

W. Kendig and A. Elzinga,
SWCA Environmental Consultants
150 S. Arroyo Parkway, 2nd Floor,
Pasadena, CA 91105

*P9. Date Recorded:

June 27, 2016

*P10. Survey Type:

Intensive survey

*P11. Report Citation: (Cite survey report and other sources, or enter "none.")

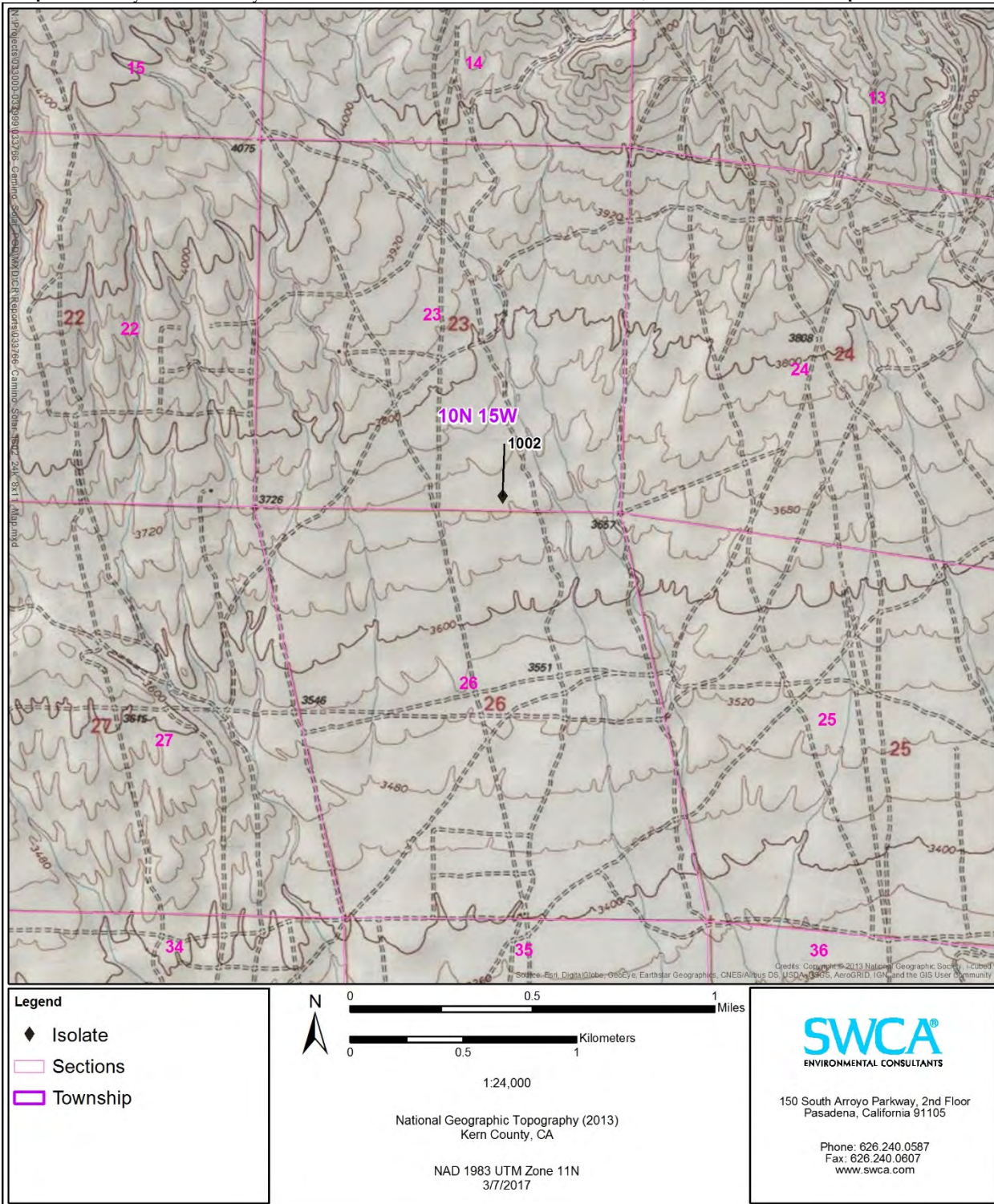
Retter, Michael J. (2016) *Cultural Resources Survey Report for the Camino Solar Project, Kern County, California*. Prepared for the Bureau of Land Management and Aurora Solar, LLC. Prepared by SWCA Environmental Consultants.

*Attachments: ☐ NONE ☒ Location Map ☐ Sketch Map ☐ Continuation Sheet ☐ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List):

*Map Name: Tylerhorse Canyon

*Scale: 1:24,000

*Date of Map: 1965



**Appendix B.
Confidential Figures:
Survey Results Map**



Appendix F

Camino Solar Energy Assessment



ENERGY CONSERVATION IMPACT ASSESSMENT

FOR THE PROPOSED

CAMINO SOLAR PROJECT

KERN COUNTY, CA

MAY 2019

PREPARED FOR:

SWCA Environmental Consultants
51 West Dayton Street
Pasadena, CA 91105

PREPARED BY:



612 12TH STREET, SUITE 201
PASO ROBLES, CA 93446

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INTRODUCTION

This report provides a description of the existing environment in the project area, presents the related regulatory framework, and identifies potential energy impacts associated with the proposed project.

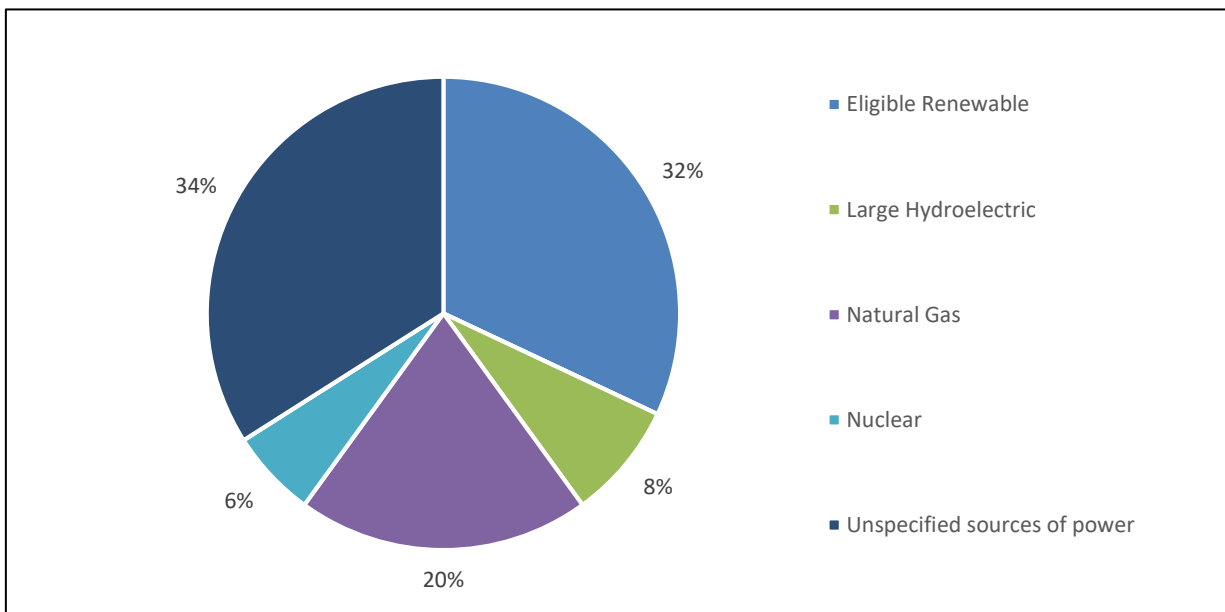
PROJECT DESCRIPTION SUMMARY

Aurora Solar, LLC proposes to construct and operate a solar energy generation facility with a generation output of up to 44 megawatts (MW) of renewable energy using photovoltaic (PV) technology. Supporting components will include a 34.5-kilovolt (kV) electrical collection system that will be located entirely on private land, and an inner-facility road network on both private and Bureau of Land Management lands. The collection line will connect with the existing Manzanita project substation transmission line. The project will interconnect with the Whirlwind substation using existing transmissions lines associated with the Manzanita project. No new above ground electrical lines are proposed, except for riser poles at the transition from underground collector line to the substation. An energy storage component will be incorporated next to the existing Manzanita substation on private lands. The energy storage unit will be composed of a series of batteries to store power generated at the facility, allowing the transfer of power to the electrical grid when needed. The energy storage infrastructure will be approximately 2 acres in size, entirely on private land. It will be sited within a 13-acre area north of the existing Manzanita operations and maintenance facility, allowing for the micro-siting to avoid sensitive resources. The project location is depicted in Figure 2.

EXISTING SETTING

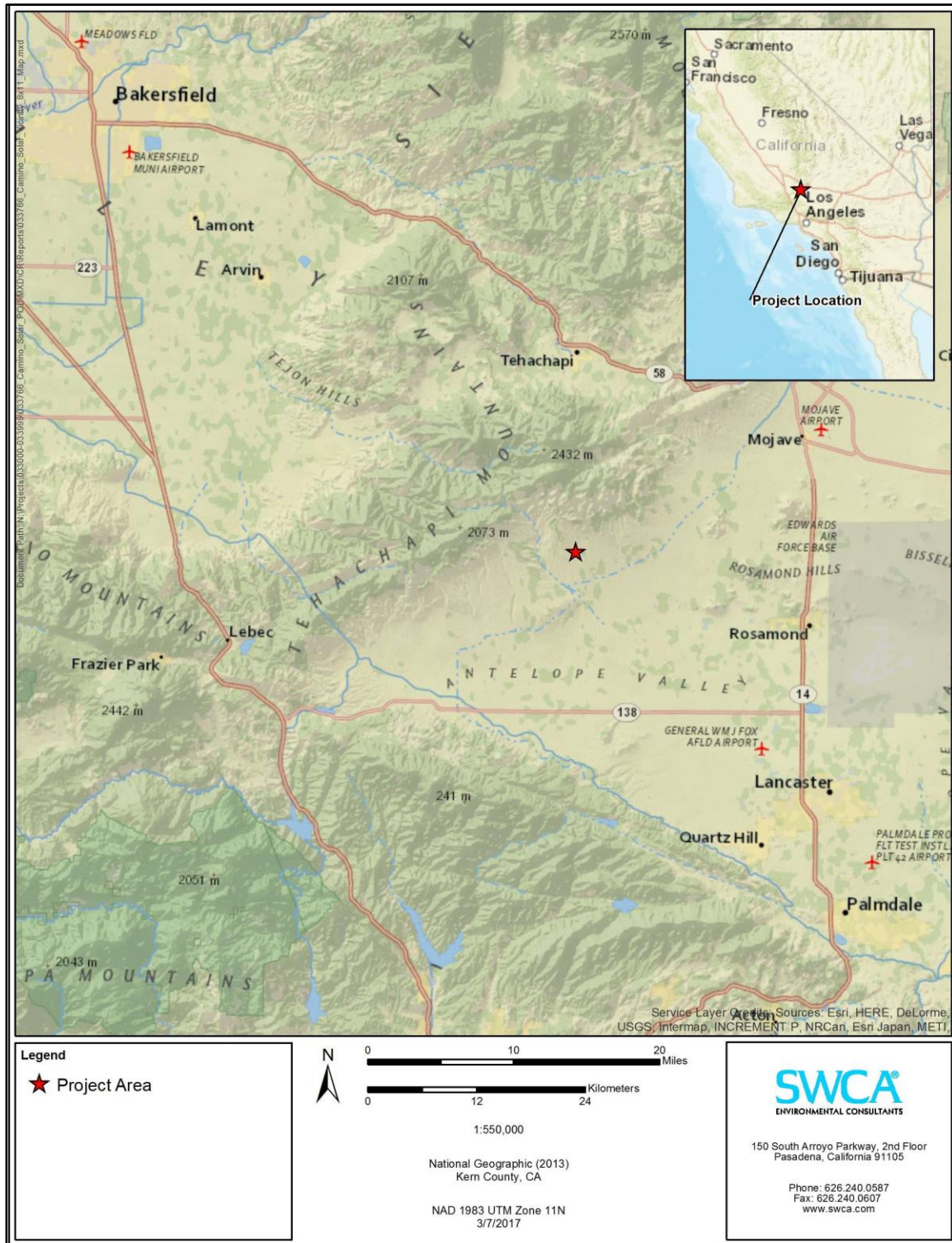
The project is located in Kern County and would be served by Southern California Edison (SCE) for electricity. SCE provides electricity services throughout a 50,000 square-mile service area that include the project site. Kern County generates renewable energy in the form of solar, wind, hydroelectric, geothermal, and biomass (Kern County, 2017). In 2016, 28.2% of SCE's power sources were generated by renewable energy (SCE, 2017). As shown in Figure 1, 32% of SCE's power mix was derived from renewable energy resources in 2017 (SCE, 2018).

Figure 1
SCE Power Mix 2017



Source: SCE, 2017

**Figure 2
Project Location Map**



Source: SWCA, 2017

REGULATORY FRAMEWORK

FEDERAL

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 established the first fuel economy standards for on-road motor vehicles in the U.S. Since 1990, the country's fuel economy for passenger cars and light-duty trucks has increased.

Energy Policy Act of 2005

The Energy Policy Act of 2005 sought to reduce the reliance on nonrenewable energy resources. The act provides tax credits for electricity generated by qualified energy sources. Along with tax incentives, grants, and loan guarantees for the production of clean renewable energy.

Passenger Cars and Trucks and Corporate Average Fuel Economy Standards

In 2012, the U.S. Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) issued rules to improve corporate average fuel economy (CAFE) standards for light-duty vehicles. The program is expected to increase fuel economy to 54.5 miles per gallon (mpg) for cars and light-duty trucks by 2025.

STATE

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030.

Senate Bill 1078: California Renewables Portfolio Standard Program

The California Renewables Portfolio Standard (RPS) Program was established in 2002 by Senate Bill (SB) 1078 (Sher, 2002) with the initial requirement that 20% of electricity retail sales must be served by renewable resources by 2017. The program was accelerated in 2006 under SB 107 (Simitian, 2006), which required that the 20% mandate be met by 2010. In April 2011, SB 2 (IX) (Simitian) was signed into law, which codified a 33% RPS requirement to be achieved by 2020. In 2015, SB 350 (de León, 2015) was signed into law, which mandated a 50% RPS by December 31, 2030. SB 350 includes interim annual RPS targets with three-year compliance periods. In addition, SB 350 requires 65% of RPS procurement must be derived from long-term contracts of 10 or more years. In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60% by 2030 and requires all state's electricity to come from carbon-free resources by 2045. SB 100 will take effect on January 1, 2019 (CPUC, 2019).

Construction Equipment Idling

California Air Resource Board (ARB) adopted a regulation (13 Cal. Code Regs. Section 2449 et seq.) that imposes idling limitations on off-road diesel vehicles. The regulation requires applicable off-road diesel vehicles to limit idling to a maximum of 5 minutes.

Assembly Bill 2076: Reducing Dependence on Petroleum

The CEC and ARB established the report in 2003. The report recommends an increase in alternative fuels to 20% of on-road transportation fuel use by 2020 and increases in the efficiency of motor vehicles.

Warren-Alquist Act

Warren-Alquist Act of 1975 established the California Energy Resources Conservation and Development Commission, known currently as the California Energy Commission (CEC). State policy was enacted to reduce wasteful, uneconomical, and unnecessary uses of energy. To enforce the policy, California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields.

Energy Action Plan

The first Energy Action Plan (EAP) was created in 2003. The state's three major energy policy agencies (CEC, CPUC, and the Consumer Power and Conservation Financing Authority) developed an approach to meeting California's electricity and natural gas needs and took into consideration the impacts on the environment.

Executive Order B-48-18: Zero Emission Vehicles

In January 2018, Governor Brown signed Executive Order B-48-18 which required all state entities to work with the private sector to put at least 5-million zero-emission vehicles on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 zero-emissions chargers by 2025.

KERN COUNTY

Kern County General Plan

The goal of the Kern County General Plan is to ensure that the county can accommodate anticipated future growth and development while maintaining a safe and healthful environment, and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services. Policy 1 of the Land Use, Conservation, and Open Space Element states "the County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality" (Kern County 2004).

IMPACT ASSESSMENT

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State California Environmental and Quality Act (CEQA) Guidelines, the proposed project would result in a potentially significant impact on energy use if it would:

1. result in the wasteful or inefficient use of energy as a result of project construction or operation; or
2. conflict, or create an inconsistency, with any applicable plan, policy, or regulation adopted for the purpose of avoiding or mitigating environmental effects related to energy use.

The CEQA Guidelines, Appendix F, requires environmental analyses to include a discussion of potential energy impacts associated with a proposed project. Where necessary, CEQA requires that mitigation measures be incorporated to reduce the inefficient, wasteful or unnecessary consumption of energy. This analysis includes an evaluation of electricity and natural gas usage requirements associated with future development, as well as, energy requirements associated with the use of on-road and off-road vehicles. The degree to which the proposed project would comply with existing energy standards, as well as, applicable regulatory requirements and policies related to energy conservation was also taken into consideration for the evaluation of project-related energy impacts.

Appendix F of the state CEQA Guidelines provides guidance for assessing the significance of energy conservation-related impacts of projects. The appendix identifies the following means to achieving the goal of energy conservation: decreasing overall per capita energy consumption; decreasing reliance on natural gas and oil; and increasing reliance on renewable energy sources.

METHODOLOGY

CONSTRUCTION

Regarding energy use (e.g., fuel use) during construction, it is assumed that only diesel fuel would be used in off-road construction equipment. On-road vehicles for construction workers and delivery trips are assumed to be solely powered by gasoline. Construction activity durations (refer to Table 1), off-road equipment (refer to Table 2), horsepower ratings, hours of use, and load factors were used to calculate construction-related fuel use, provided by the project applicant and default assumptions from California Emissions Estimator Model (CalEEMod), version 2016.3.1. The diesel fuel usage rate was based on a factor of 0.05 gallons of diesel fuel per horsepower-hour derived from the South Coast Air Quality Management District's (SCAQMD) CEQA Air Quality Handbook (SCAQMD, 1993). For comparison purposes, fuel use was also converted to million British Thermal Units (MMBTU). A BTU is a traditional unit of measure used to define the amount of heat content of fuels and energy sources. Refer to Appendix A for modeling assumptions and results.

On-road vehicle use assumed a one-way trip distance of 51 miles for workers and delivery trips. The trip distance was quantified based on the average distances to nearby communities assuming that 40 percent of the worker trips would come from the Palmdale/Lancaster area, 20 percent from the Santa Clarita/northern LA area, 20 percent from the Bakersfield metropolitan area, and 20 percent from the nearby communities of Mojave, Tehachapi, and Rosamond. Haul truck trips for the transport of equipment and solar structural and module components were quantified assuming an in-Basin travel distance of 51 miles/trip, based on the assumption that all materials would be imported through a western seaport (e.g., Port of Los Angeles/Long Beach complex).

Table 1
Summary of Construction Activity Durations

Activity	Duration (Days)
Move On	5
Site Preparation & Grading	50
Internal Roads Construction	50
Solar Array, Collector Lines & Battery Storage Construction	150
Battery Storage Construction	20
<i>Reflects estimated duration of major construction activities based on information provided by the project applicant and information derived from similar projects. Some activities may overlap.</i>	

OPERATIONS

Operational energy usage includes worker trips, haul truck trips, and facility maintenance associated with occasional washing of solar panels. It is expected that daily maintenance and operation workers travel 2.5-mile round trip, these workers would come from existing staff at the maintenance and operations facility located adjacent to the Manzanita substation. Furthermore, occasional washing of the solar panels assumes 5 mile round trips for workers and a 15 mile round trip for haul trucks. Transportation fuel-use estimates were calculated by vehicle miles traveled, vehicle fleet mix, and average fuel usage rates obtained from ARB's Emissions Factors (EMFAC) 2017 model, version 1.0.2. Solar panel washing would require the use of two pressure washers operating 8 hours per day, up to 9 days/year. Energy use for the pumping of water assumed an electricity intensity factor of 2,117 kWhr/Mgal, based on CalEEMod defaults for southern Kern County. For comparison purposes, fuel use was also converted to million British Thermal Units (MMBTU). Refer to Appendix A for modeling assumptions and results.

Table 2
Summary of Off-Road Equipment Required During Project Construction

Off-Road Equipment Type	Number of Pieces
Move On	
Graders	1
Off-Highway Trucks	2
Carts/ATVs	5
Rubber Tired Dozers	1
Scrapers	1
Tractors/Loaders/Backhoes	1
Site Preparation & Grading	
Grader	1
Roller	1
Scrapers	2
Rubber Tired Dozers	1
Off-Highway Trucks	3
Carts/ATVs	5
Tractors/Loaders/Backhoes	2
Internal Roads Construction	
Graders	2
Scrapers	1
Excavator	1
Rubber Tired Dozers	1
Off-Highway Trucks	3
Carts/ATVs	5
Rollers	1
Tractors/Loaders/Backhoes	3
Solar Array & Collector Line Construction	
Crane	1
Forklifts	1
Graders	1
Post Drivers	4
Off-Highway Trucks	2
Trencher	1
Other Construction Equipment	1
Excavator	1
Skid Steer	1
Carts/ATVs	5
Tractors/Loaders/Backhoes	2
Battery Storage Construction	
Forklifts	2
Grader	1
Rubber Tired Dozer	1
Off-Highway Trucks	1
Carts/ATVs	5
Tractors/Loaders/Backhoes	2
Trenchers	1
<i>Based on the information provided by the project applicant and information derived from similar projects. All equipment assumed to operate an average of 10 hours per day.</i>	

IMPACTS & MITIGATION MEASURES

IMPACT E-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction & Decommissioning

Construction and decommissioning of the new solar energy generation facility is expected to require the use of non-renewable resources in the form of diesel and gasoline to power off-road construction equipment and on-road vehicles. As shown in Table 3, construction activities are expected to consume approximately 124,994 gallons of diesel and 51,683 gallons of gasoline. The pumping of water used during project construction would total approximately 1,482,967 gallons per year. In total, construction of the proposed project would consume the equivalent of approximately 23,406.63 MMBTU per year. Energy consumptions associated with decommissioning activities are anticipated to be similar to construction activities. The consumption of fuels during construction and decommissioning would be irreversible. Although construction and decommissioning activities would be temporary, the proposed project could result in a wasteful, inefficient, or unnecessary consumption of energy resources if available control measures are not implemented. As a result, this impact would be **potentially significant**.

Table 3
Summary of Construction Energy Use

Energy Source	Annual Energy Use	Annual MMBTU
Off-Road Equipment Fuel (Diesel)	124,994 gallons	17,171.19
On-Road Vehicle Fuel (Gasoline)	51,683 gallons	6,224.13
Water Pumping (Electricity)	3,139 kWh	10.71
Total Energy Consumed:		23,406.63
<i>Includes fuel use associated with on-road vehicles and off-road equipment. Conservatively assumes electricity use for the pumping of water would be from non-renewable sources.</i> <i>kWh=Kilowatt Hour</i> <i>MMBTU=Million British Thermal Units</i> <i>Refer to Appendix A for modeling assumptions and results.</i>		

Mitigation Measure E-1: The following mitigation measures shall be implemented to reduce potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources generated by off-road equipment and on-road vehicles during project construction and decommissioning:

- Off-road equipment shall be maintained and properly tuned in accordance with the manufacturer recommendations.
- The owner/operator shall require that off-road diesel engines be shut off when not in use for more than five minutes to reduce fuel use from idling, to the extent possible.
- Alternatively-fueled equipment (e.g., electric, propane, etc.), in lieu of diesel- or gasoline-fueled equipment, shall be used whenever possible and to the extent available.
- The on-site idling of on-road diesel fueled trucks shall be restricted to no more than 5 minutes, per ARB engine idling limitations, excluding vehicles that need to idle as part of their operation, such as concrete mixer trucks.

Level of Significance After Mitigation

Implementation of Mitigation Measure E-1, would require the use of energy-efficient and alternatively-fueled equipment. Implementation of Mitigation Measure E-1 would also ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. Compliance with Title 13 would also help to reduce unnecessary fuel consumption during project

construction. With mitigation, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. With mitigation, this impact would be **less than significant**.

Operational

Non-renewable energy resources would be consumed during operation of the proposed project. However, the consumption of these resources would be minimal and predominantly associated with worker commute trips and occasional panel washing activities. Energy use associated with long-term operational activities is summarized in Table 4. As shown, operation of the proposed project would consume approximately 27 gallons of diesel fuel and 79 gallons of gasoline per year. In addition, the washing of solar panels is expected, and it would use approximately 1,201 gallons of water per year, which would result in the consumption of approximately 3 kWh/year of electricity. In total, operation of the proposed project would consume the equivalent of approximately 13.13 MMBTU per year. Natural gas would not be used during long-term operations.

Table 4
Summary of Operational Energy Use

Energy Source	Annual Energy Use	Annual MMBTU
Mobile Fuel (Diesel)	27 gallons	3.67
Mobile Fuel (Gasoline)	79 gallons	9.46
Water Pumping (Electricity)	3 kWh	0.01
Annual Energy Consumed:		13.13
Annual Renewable Energy Produced:		450,493.18
Net Renewable Energy Produced:		450,480.05
<i>Includes fuel use associated with on-road vehicles and off-road equipment. Conservatively assumes electricity use for the pumping of water would be from non-renewable sources.</i> <i>kWh=Kilowatt Hour</i> <i>MMBTU=Million British Thermal Units</i> <i>Refer to Appendix A for modeling assumptions and results.</i>		

The proposed project would produce approximately 44 MW of renewable solar energy per year, which would equate to approximately 450,493.18 MMBTU per year. The renewable energy generated by the proposed project would more than offset the amount of energy consumed. As a result, the project would decrease reliance on fossil fuels and increase the amount of energy originated from renewable energy sources. Both items achieve the goal of energy conservation as identified in Appendix F of the State CEQA Guidelines. Therefore, the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project operation. As a result, this impact would be **less than significant**.

IMPACT E-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The new solar energy generation facility is expected to generate approximate 44 MW of renewable solar energy per year. As a result, the facility would qualify as an eligible renewable energy resource as defined by the California PRC Section 25740 et seq. and would further assist SCE in meeting the RPS requirements of 33% renewable energy sales by 2020. As stated above, 32% of SCE's power mix originates from renewable energy resources as of 2017. Furthermore, the operational energy consumption of diesel and gasoline would be more than offset by the generation of renewable solar energy. The proposed project would coincide with the Energy Policy Act of 2005 given that the project would result in a reduced reliance on nonrenewable energy resources. This reduction in reliance on fossil fuels would also be consistent with Kern County General Plan policy pertaining to the development of solar facilities for the conservation of energy. Therefore, the proposed project would not result in a conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As a result, this impact would be **less than significant**.

CUMULATIVE IMPACT

The implementation of the new solar energy generation facility would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during operation. Energy use during construction would be short-term and would be more than offset by long-term operational activities. In addition, the proposed project would result in decreased reliance on fossil fuels associated with energy production, which would be a long-term beneficial impact of the proposed project. As a result, the proposed project would not conflict with or obstruct applicable plans or regulations pertaining to renewable energy or energy efficiency. For these reasons, the project would not cause a potentially significant cumulative impact. As a result, this impact would be **less than significant**.

REFERENCES

- County of Kern. June 15, 2004. *Kern County General Plan. Land Use, Open Space, and Conservation Element*.
- . 2017. *Renewable Energy Fact Sheet*. Available at:
https://www.drecp.org/counties/factsheets/Kern_county.pdf
- South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook, Table A9-11-A (1993) and ARB Guidance for Permitting of Electric Generating Technologies (2002)*.
- Southern California Edison (SCE). 2017. *California is set to hit its green-energy goals a decade early*. Available at: <https://www.engadget.com/2017/12/20/california-green-energy-goal-2020/>
- Southern California Edison (SCE). 2018. *2017 Power Content Label*. Available at:
https://www.sce.com/sites/default/files/inline-files/2017PCL_0.pdf
- Southern California Public Utilities Commission. 2019. *California Renewables Portfolio Standard (RPS)*. Available at: <http://www.cpuc.ca.gov/RPS/>
- SWCA Environmental Consultants. 2017. *Camino Solar Project Plan of Development*.

APPENDIX A

Energy Calculations

Energy Use Summary

Construction Energy Use

	Annual Energy	Annual MMBTU
Project Construction		
Off-Road Equipment Fuel (Diesel)	124,994 gallons	17,171.79
On-Road Vehicle Fuel (Gasoline)	51,683 gallons	6,224.13
Water Pumping	3,139 kWh	10.71
Total:		23,406.63

Operational Energy Use

	Annual Energy	Annual MMBTU
Proposed Project		
Mobile Fuel (Diesel)	27 gallons	3.67
Mobile Fuel (Gasoline)	79 gallons	9.46
Water Pumping	3 kWh	0.01
Total:		13.13

Energy Generation

Operational Energy Generation

	Annual Energy	Annual MMBTU
Proposed Project		
Solar Energy Generation Facility	132,032,000 kWh	450,493.18

Construction Fuel Use

OFF-ROAD EQUIPMENT FUEL USE

Primary Construction Activity	Activity Duration (Days)	Equipment Type	Size (hp)	Number of Pieces	Hours of Daily Use/Piece of Equipment	Total Days of Use	Load Factor	Fuel Usage Rate (g/bhph)	Total Fuel Diesel (Gallons)
Move On	5	Carts/ATVs	24	5	10	5	0.42	0.05	126
		Graders	187	1	10	5	0.41	0.05	192
		Off-Highway Trucks	402	2	10	5	0.38	0.05	764
		Rubber Tired Dozers	247	1	10	5	0.40	0.05	247
		Scrapers	367	1	10	5	0.48	0.05	440
		Tractors/Loaders/Backhoes	97	1	10	5	0.37	0.05	90
Site Preparation & Grading	50	Carts/ATVs	24	5	10	50	0.42	0.05	1260
		Graders	187	1	10	50	0.41	0.05	1917
		Off-Highway Trucks	402	3	10	50	0.38	0.05	11457
		Rollers	80	1	10	50	0.38	0.05	760
		Rubber Tired Dozers	247	1	10	50	0.40	0.05	2470
		Scrapers	367	2	10	50	0.48	0.05	8808
		Tractors/Loaders/Backhoes	97	2	10	50	0.37	0.05	1795
Internal Roads Construction	50	Carts/ATVs	24	5	10	50	0.42	0.05	1260
		Excavators	158	1	10	50	0.38	0.05	1501
		Graders	187	2	10	50	0.41	0.05	3834
		Off-Highway Trucks	402	3	10	50	0.38	0.05	11457
		Rollers	80	1	10	50	0.38	0.05	760
		Rubber Tired Dozers	247	1	10	50	0.40	0.05	2470
		Scrapers	367	1	10	50	0.48	0.05	4404
		Tractors/Loaders/Backhoes	97	3	10	50	0.37	0.05	2692

Solar Array & Collector Line Construction	150	Carts/ATVs	24	5	10	150	0.42	0.05	3780
		Cranes	231	1	10	150	0.29	0.05	5024
		Excavators	158	1	10	150	0.38	0.05	4503
		Forklifts	89	1	10	150	0.20	0.05	1335
		Graders	187	1	10	150	0.41	0.05	5750
		Off-Highway Trucks	402	2	10	150	0.38	0.05	22914
		Other Construction Equipment	50	1	10	150	0.42	0.05	1575
		Post Drivers	48	4	10	150	0.42	0.05	6048
		Skid Steer	65	1	10	150	0.37	0.05	1804
		Tractors/Loaders/B ackhoes	97	2	10	150	0.37	0.05	5384
		Trenchers	78	1	10	150	0.50	0.05	2925
Battery Storage Construction	20	Carts/ATVs	24	5	10	20	0.42	0.05	504
		Forklifts	89	2	10	20	0.20	0.05	356
		Graders	187	1	10	20	0.41	0.05	767
		Off-Highway Trucks	402	1	10	20	0.38	0.05	1528
		Rubber Tired Dozers	247	1	10	20	0.40	0.05	988
		Tractors/Loaders/B ackhoes	97	2	10	20	0.37	0.05	718
		Trenchers	78	1	10	20	0.50	0.05	390

Equipment usage assumptions based on information provided by the project applicant and default assumptions contained in CalEEMod.

Total Diesel Fuel Use (Gallons): 124994

Number of Construction Years: 2

Average Diesel Fuel Use/Year: 62497

ON-ROAD VEHICLE FUEL USE

CONSTRUCTION PHASE	NUMBER OF DAYS	DAILY WORKER TRIPS	DAILY VENDOR TRIPS	WORKER TRIP LENGTH (MILES)	VENDOR TRIP LENGTH (MILES)	TOTAL WORKER MILES TRAVELED	TOTAL VENDOR MILES TRAVELED	TOTAL FUEL GASOLINE (GALLONS)	TOTAL FUEL DIESEL (GALLONS)
Move On	5	106	0	51	7	27030	0	1,013	0
Site Preparation & Grading	50	106	0	51	7	270300	0	10,134	0
Internal Roads Construction	50	106	0	51	7	270300	0	10,134	0
Solar Array & Collector Line Construction	150	106	0	51	7	810900	0	30,402	0
Battery Storage Construction	20	0	0	51	7	0	0	0	0

Gallons per mile based on year 2021 conditions for Mojave Desert Air Basin. Derived from Emfac2017 (v1.0.2)

Emissions Inventory.

Vendor trips are assumed to be 100% diesel.

Worker tips are assumed to be 100% gasoline.

Construction schedules based on information from project applicant and vehicle trip assumptions are based on CalEEMod defaults.

Total Fuel Use (Gallons): 51,683 0

Number of Construction Years: 2 2

Average Fuel Use/Year: 25841 0

Fuel	Overall Fuel Use (Gallons)	BTU/Gallon*	BTU	MMBTU
Diesel	124994	137381	2E+10	17172
Gasoline	51,683	120429	6E+09	6224

*Energy coefficient derived from US EIA.

Total Energy Use: 23395.92

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

EMFAC2017 Fuel Rate Calculation		Fuel Consumption (1000 Gallons/Day)*		VMT (Miles/Day)**	
Vehicle Type	Diesel	Gasoline	Diesel	Gasoline	
LDA		750.904556		22958634.6	
LDT1		84.6899549		2212352.231	
LDT2		296.6771573		7126050.724	
MDV		288.4058045		5596406.119	
T7 single construction	8.385889		53549.40369		
T7 tractor construction	6.970424		44173.54351		
Total:		15.35631	1420.677473	97722.9472	37893443.67
Miles/Gallon:		6.363699	26.6727983		
Gallons/Mile:		0.157141	0.037491379		

*Fuel consumptions derived from EMFAC2017 (v1.0.2) for year 2021 conditons.

**VMT derived from EMFAC2017 (v1.0.2) for year 2021 conditons.

Fuel consumption and VMT based on the Mojave Desert Air Basin.

Operational Fuel Use

LAND USE	VMT
Camino Solar Project	2,365

Trips per day	Miles per trip	Miles per day	Days of trip	Miles per year
2 Workers	2.5	5	365	1825
6 Workers	5	30	9	270
2 Haul Trucks	15	30	9	270
Total:				2365

**Workers assumed to use LDA, LDT1, LDT2, and MDV. Haul trucks assumed to use T6 instate small.*

	VMT	Gallons/Mile*	Gallons	BTU/gallon**	BTU	MMBTU
Diesel	270	0.09885960	27	137381	3666986	3.67
Gasoline	2095	0.03749138	79	120429	9459028	9.46

**Gallons per mile based on year 2021 conditions for Mojave Desert Air Basin. Derived from Emfac2017 (v1.0.2) Emissions Inventory.*

***Energy coefficient derived from US EIA.*

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

EMFAC2017 Fuel Rate Calculation	Fuel Consumption (1000		VMT (Miles/Day)**	
Vehicle Type	Diesel	Gasoline	Diesel	Gasoline
LDA		750.904556		22958634.6
LDT1		84.6899549		2212352.231
LDT2		296.6771573		7126050.724
MDV		288.4058045		5596406.119
T6 instate small	10.98632282		111130.5661	
Total:	10.98632282	1420.677473	111130.5661	37893443.67
Miles/Gallon:	10.11535597	26.6727983		
Gallons/Mile:	0.098859596	0.037491379		
<i>*Fuel consumptions derived from EMFAC2017 (v1.0.2) for year 2021 conditons.</i> <i>**VMT derived from EMFAC2017 (v1.0.2) for year 2021 conditons.</i> Fuel consumption and VMT based on the Mojave Desert Air Basin.				

Water Energy Use

Construction

	WATER USE*		ELECTRIC INTENSITY FACTORS (kWh/Mgal)		ANNUAL ELECTRIC USE (kWh/Yr)		
	GAL/YR	MGAL/YR	INDOOR	OUTDOOR	INDOOR	OUTDOOR	TOTAL
ANNUAL INDOOR WATER USE	0	0	0		0		3,139
ANNUAL OUTDOOR WATER USE	1482967	1		2117		3139	

*Based on estimated water use derived from CalEEMod.

**Energy coefficient derived from US EIA.

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

BTU/kWh** 3412
 BTU: 10711773
 MMBTU: 10.71

Operational

	WATER USE*		ELECTRIC INTENSITY FACTORS (kWh/Mgal)		ANNUAL ELECTRIC USE (kWh/Yr)		
	GAL/YR	MGAL/YR	INDOOR	OUTDOOR	INDOOR	OUTDOOR	TOTAL
ANNUAL INDOOR WATER USE	0	0	0		0		3
ANNUAL OUTDOOR WATER USE	1201	0		2117		3	

*Based on estimated water use derived from CalEEMod.

**Energy coefficient derived from US EIA.

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

BTU/kWh** 3412
 BTU: 8675
 MMBTU: 0.01

Operational Electricity Generation

	MWh/day	MWh/Yr	Clear Days/Year	BTU/kWh*	BTU	MMBTU
Electricity	362	132032	208	3412	450493184000	450493.18

*Energy coefficient derived from US EIA.

https://www.eia.gov/energyexplained/index.php?page=about_energy_units

Appendix G

Camino Solar Project Desktop Study



Camino Solar Project

Desktop Study

Prepared for



August 2017

Camino Solar Project

Desktop Study

Prepared for



August 2017

Camino Solar Project

August 2017

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1.0 Executive Summary

The proposed Camino Solar Project is in the south central part of Kern County, on the south flank of the Tehachapi Mountains within the footprint of the Manzana wind power development (Figure 1). Figure 2 is a map of the site with an aerial photo base. The site is approximately 890 acres and is within the Mojave Desert physiographic province, a region where the basin-and-range province intersects with the San Andreas fault.

1.1 Foundation Design

Based on available geotechnical and geological information, the most likely foundation type will be a driven or vibrated steel pile foundation system. The piles and pile drivers in some or all portions of the site may need to be selected to account for the presence of cobbles and gravel which may be cemented as well as corrosivity.

1.2 Civil Design

The surface soils are predominantly a sandy loam, and the strength of the road subgrade expected with the onsite soils is good. The road section is likely to consist of 6 to 8 inches of crushed gravel over a geotextile fabric on top of the compacted subgrade. Gravel is available about 35 miles from the site.

1.3 Electrical Design

The low to moderate clay content and very low moisture content of the site soils suggests high electrical resistivity. There is a thick section of largely unconsolidated sediments under the site, so physical placement of grounding components should not be hindered.

The dry and granular nature of the soil also tends to increase the thermal resistivity. The geotechnical investigation for the Manzana wind project included laboratory tests of thermal resistivity, with an average of 497°C-cm/W, with a standard deviation of 49°C-cm/W.

1.4 Geotechnical Investigation

A preliminary investigation of limited scope would be beneficial for this project site. There are potential concerns related to the presence of possibly cemented cobble and gravel laden or restrictive soils, and moderately to highly corrosive soils with respect to the installation of preferred steel piles and grounding structures. Each of these issues can have significant impact on the cost of the project. A preliminary investigation would serve to better quantify these risks. Table 1-1 summarizes the key hazards likely present on site, mitigation options, and recommended preliminary investigation steps.

Table 1-1 Geological Hazard Summary

Hazard	Likelihood	Potentially Fatal Flaw	Significance	Potential Mitigation Measures	Recommended Next Steps	Timing	Cost
Flooding/debris flow	High for east side of site	No	Debris flows are infrequent but highly physically damaging	Avoid development in the affected area	Complete hydrologic review	Design phase	\$7,000
Seismicity	High	Possibly	Project structures will need to be designed to withstand seismic loading.	Design for seismicity	Complete preliminary design to evaluate cost implications	ASAP	\$5,000
Gravel and Cobbles	High	Possibly	Requires more robust materials and equipment for support piles	Plan for encountering gravel and cobbles during construction	Complete soil borings and test pits to evaluate the extent of restrictive soils	Preliminary or design phase	\$15,000
Ground rupture	Slight	No	Could disrupt the transmission connection.	Design for possible offset	Confirm location of fault Design transmission connection to account for possible offset	Design phase	\$10,000
Moderate Corrosion to Steel	High	Unlikely	Reduces functional life of metal components	Design for corrosion resistance	Test site soil for corrosivity	Design phase	\$1,000
Collapsible soil	High	No	Uneven settlement	Should not be necessary to mitigate for solar	Complete wetting front analysis	Design phase	\$10,000

2.0 Description of Proposed Development

The proposed Camino Solar Project is in the south central part of Kern County, on the south flank of the Tehachapi Mountains within the footprint of the Manzana wind power development (Figure 1). Figure 2 is a map of the site with an aerial photo base. Figure 3 is a topographic map of the site. The site is approximately 890 acres and is within the Mojave Desert physiographic province, a region where the basin-and-range province intersects with the San Andreas fault.

3.0 Purpose and Scope

The scope of the work is limited to review and assessment of readily available existing information. The goals of this report are to:

- Review readily available existing information, such as geologic maps and reports, geophysical reports, topographic maps, wetland maps, FEMA flood maps, proposed development maps, and aerial photographs.
- Prepare a short report which includes the following:
 - Summarize geologic/geotechnical conditions
 - Identify and qualify geologic/geotechnical risks
 - Identify seismic design parameters
 - Recommend a geotechnical investigation approach
 - Summarize soil conditions as it relates to electrical design parameters
 - Recommend whether or not a preliminary field investigation is warranted and, if so, recommend a scope
 - Address feasible foundation options and issues
 - Identify potential roadway issues

4.0 Site Geology

The site is within the Mojave Desert physiographic province, a region where the basin-and-range province intersects with the San Andreas fault. [Figure 4](#) is a geologic map of the site.

4.1 Regional Physiography and Geologic History

The tectonics of California are largely driven by the forces along the San Andreas fault, and before the San Andreas fault existed, the subduction of the Farallon oceanic plate beneath North America helped create much of California.

The geologic history of this area begins less than 100 million years ago. At that time, this area was ocean beyond the west coast of North America. A plate of oceanic crust, the Farallon plate, was being overridden by the North American plate, and sediments were accumulating in the trench between the two. The subduction of the ocean plate caused volcanism and placement of igneous rock, like today's Cascade Mountains further north. Eventually, the Farallon plate was fully overridden, and the North American plate came up against what had been a mid-ocean fault. This became the San Andreas fault. As the two crustal plates now moved laterally against each other, the forces began to create other faults and lift up blocks of land forming the mountains of California. One block of crust, including the Tehachapi Mountains, rotated and ended up oriented with a strong east-west orientation, and so is referred to as the Transverse Ranges. Many of these blocks were relatively light blocks of granite that were placed during the earlier subduction of the Farallon plate, and the relative lesser density allowed these granitic blocks to rise.

The Mojave Desert is an extension of the Basin and Range province that extends from the Wasatch Mountains in Utah to the Sierra Nevada in California, and from Mexico to Oregon. Shearing forces associated with the San Andreas Fault Zone created an east-west extension of the North American Plate. Broad valleys dropped down between the mountain blocks as the crust was pulled apart. In the Mojave Desert, there are small blocks of low mountains and hills.

4.2 Surficial Geology

The project site is on a section of slightly consolidated and incised coalesced alluvial fans extending out from the mountains. The alluvium in the fans likely consists of material derived from the Sierra Nevada granite and the Horned Toad Formation. The eastern part of the site is underlain by young alluvium and the rest of the site is underlain by older alluvium. The alluvial fan deposits are 10's to 100's of feet thick under the northern part of the project area, and thicken to the south.

All of the sediment was derived from the bedrock in the Tehachapi Mountains. The sediment in the alluvial fans tends to be deposited in pulses. Over time, soil accumulates in the mountains. Periodically, a major precipitation event washes the sediment down onto the alluvial fan, typically in a debris flow. The accumulated sediments tend to be coarse in the channels and near the mountains, and finer grained away from the channels and at the lower end of the fans.

4.3 Bedrock Geology

The bedrock exposed uphill of the project area is primarily Mesozoic and older granite and metamorphosed sediments and volcanics. Given the thickness of the alluvial soils, the nature of the bedrock is insignificant.

4.4 Faults

This region is very seismically active. The Garlock Fault zone, California's second largest fault after the San Andres, runs roughly east-west and is about 2 miles north of the northern edge of the project site (Figure 5). The Tylerhorse fault has been mapped just north of the site, and the Cottonwood fault is southwest of the site and crosses the southern extension of the site. Faults are further described in Section 5.

4.5 Soils

Figure 5 shows the mapped soil units. The site is underlain by the:

- Arizo gravelly loamy sand
- Cajon loamy sand
- Hanford coarse sandy loam and Hanford gravelly sandy loam
- Ramona sandy loams

Figure 6 shows the USCS soil classifications of the surficial soils, which are dominated by sandy silt.

4.6 Groundwater Hydrology

The State of California maintains a data base of hydrologic data, some that are available over the internet at <https://gis.water.ca.gov/app/gicima/> where water elevation data from select wells can be accessed. This data base does not include any wells in the project area. Nearby wells indicate depth to groundwater is on the order of 150 to 350 feet. Based on the geotechnical investigation for the Manzana wind project groundwater was not encountered in the geotechnical borings, which were typically drilled to about 50 feet.

4.7 Economic Geology

Mining in the area has included gold, borax, and limestone, the latter for cement used in projects such as the Los Angeles aqueduct and Hoover Dam (California Department of Conservation; Division of Mines and Geology, 1962). One mine (inactive based on maps from State of California web site) is noted on the USGS quad in T10N, R15W, Section 4.

Kern County accounts for about 10 percent of US domestic oil production. However, this production comes from the San Joaquin Valley on the north side of the Tehachapi Mountains.

Alluvial fan deposits are rich in sand and gravel. However, there is an abundance of alluvial fan deposits in the region, so the deposit at the site is not unique and its value is diminished.

Alluvial fans are often a source of groundwater. To date, there has not been significant use of this resource in the project area. There are no known development plans that would significantly change the degree of utilization.

In summary, mineral resources and economic geology do not appear to pose any risks to the project.

5.0 Geologic/Geotechnical Risks

Table 5-1 is a summary of geologic and geotechnical hazards for the site.

Table 5-1 Summary of Geologic Hazards

Hazard	Present at Site?	Comment
Flooding/High groundwater	Likely	The site is on an alluvial fan subject to periodic flooding and debris flows. The east side of the site appears to include an active channel. NRCS soil mapping indicates there is not a high water table. FEMA 100-year flood zone does not include the site (Figure 8). There are no reservoirs uphill of the site.
Slope failure	No	The site has low relief.
Subsidence – Pumping	No	Aerial imagery indicates there is no irrigation for agriculture in the area, and the site is essentially unpopulated. There is no known oil and gas development.
Subsidence – Mining	No	There are no known economically recoverable mineral resources.
Subsidence – Caves/Karst	No	The site is underlain by a thick sequence of alluvial fan deposits, which are not subject to dissolution.
Earthquake – Seismicity	Yes	The site is in a very seismically active area, adjacent to the Garlock fault, near to the San Andreas fault (Figure 5), and near to many other smaller active faults. (https://earthquake.usgs.gov/hazards/qfaults/map/#qfaults). Figure 9 shows the projected probability for peak ground acceleration.
Earthquake – Ground rupture	Possibly	The Cottonwood fault is the only fault that crosses the site and can cause ground rupture; this fault has been active in Quaternary time (https://earthquake.usgs.gov/hazards/qfaults/map/#qfaults).
Liquefaction	Unlikely	While the site is underlain by granular soil, and the area is seismically active, the water table is likely relatively deep.
Swelling/shrinking soil	No	The NRCS soil survey does not indicate that this is a risk at the site and the mapped soil units are generally not prone to shrinking or swelling.
Settlement	Possibly	See Collapsible soil below.
Seiche, tsunami	No	The site is on high ground in a desert.
Corrosive soil	Concrete– no Steel - moderate	See Figure 8 and Figure 9.
Made ground	Unlikely	There is no apparent made ground. Lack of mining and the rural nature of the site indicate low risk for made ground.
Collapsible soil	Possibly	Desert alluvial soils have the possibility of possessing high collapse potential. Collapse potential was evaluated for the Manzana wind project, and found to be tolerable. Seismically induced settlement may pose some risk.
Volcanic activity	No	No current volcanic action exists in the region.
Quick clay	No	Based on the site geologic history, there are no quick clays present.
Frost Action	No	The climate of the site is such that frost action is not a hazard.

The NRCS (USDA, 2016) cites the following risks for the soil units:

- Flooding along the Arizo soil unit, which coincides with the active channel on the east side of the project area
- Slope, for the Ramona sandy loam 9-30 percent slopes.

5.1 Stoney Soil

While not normally considered a geologic risk, the alluvial fan soils underlying the site are likely to contain gravel, cobbles, and even boulders. These can create significant impediments to installing the shallow piles typically used for solar array foundations. Publically available aerial imagery appears to show cobbles and boulders on the ground surface, which are an indication of the hazard. Table 5-2 shows the percentage of gravel and cobbles in each of the soil units shown on Figure 5.

Table 5-2 Gravel and Cobbles

Soil Unit	Percent Gravel 0.2 to 3 inches	Percent Cobbles 3-10 inches
Arizo	34	13
Cajon	9	0
Hanford	23	0
Ramona	9-26	0-2

5.2 Seismicity

The site is in a high seismicity area. It is about 3 miles south of the Garlock fault and about 15 miles northeast of the San Andreas fault. One of California's largest historic earthquakes was the Kern County earthquake of 1952 along the White Wolf fault about 20 miles north of the site.

Fault mapping from various sources is shown on Figure 4, Figure 9, Figure 12, and Figure 13. Figure 4 is the geologic map, and it shows mapping from the California Geological Survey and US Geological Survey, including the faults known or likely to have been active since Quaternary time.

Figure 9 shows the seismic shaking hazard potential. It appears that the seismic hazard is associated with the Garlock and San Andreas faults. Structures will need to be designed to account for seismic shaking. This map indicates that there is a 10% chance that in the next 50 years this area could be subject to seismic acceleration on the order of 40 to 50% of acceleration due to gravity.

Figure 12 shows the Alquist-Priolo fault mapping in the area. From the California Geologic Survey (<http://www.conservation.ca.gov/CGS/RGHM/AP/Pages/Index.aspx>):

"The Alquist-Priolo Earthquake Fault Zoning (AP) Act was passed into law following the destructive February 9, 1971, Mw=6.6 San Fernando earthquake. The AP Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the AP Act is to ensure public

safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep.”

Figure 13 shows the fault mapping provided by Kern County. This map shows several subsurface faults near the site. It appears that these subsurface faults were determined based on the oil and gas development.

Section 6 contains a summary of the seismic design factors for the site.

5.3 Debris Flows

The east side of the site, the area underlain by young alluvium, young fan, and alluvial wash (Figure 4), appears to be the most-recently active channel for sediment being washed off of the mountains. These channels are subject to debris flows, fast-moving short-lived floods with a very high solids content ranging up to boulders and capable of severe destruction.

5.4 Collapsible Soil/Hydrocompaction/Seismic Settlement

Soils in alluvial fans tend to be deposited quickly during periods of high intensity precipitation in the mountains as debris flows. These debris flows spread out across the fan, and dry quickly, often leaving a semi-stable fabric held together with dried clay. Upon becoming saturated and or being subjected to increased loading, the soil particles can be rearranged resulting in a loss of volume. Seismic events have the potential to induce shear strains that can lead to soil collapse. Hydrocompaction has been observed over large areas along the western side of the San Joaquin Valley, and portions of the California aqueduct were purposefully hydrocompacted to avoid later problems (<http://pubs.usgs.gov/ha/730b/report.pdf>). A portion of the east side of the site is underlain by young alluvial fan deposits, which may be subject to soil collapse. However, since solar development does not introduce water to the site, nor does it add an appreciable load, this risk is likely not significant except with respect to seismic settlement. The area of young alluvium is also the area likely most at risk from debris flows. Note that time generally reduces collapsibility, so older alluvium, such as that which underlies the remainder of the site, usually does not present such risk.

5.5 Kern County Hazards

Kern County addresses hazards through their General Plan, their Planning Department and in Emergency Preparedness. Figure 12 shows the faults mapped in the Kern County Seismic Atlas (<http://esps.kerndsa.com/maps/seismic-hazard-at>). Figure 13 shows hazard zones mapped near the site by the County in its General Plan (<http://pcd.kerndsa.com/planning/planning-documents>).

Kern County Planning and Development Department has a checklist for proposed projects to identify potentially significant environmental issues. There is overlap with the geologic hazards identified in this report. The Checklist calls for rating each risk along a five point scale from Potentially Significant Impact to No Impact.

Section VI of the Checklist addresses Geology and Soils. The checklist poses the questions posed in [Table 5-3](#).

Table 5-3 Kern County Planning Checklist Risks

Kern County Checklist	Barr's Assessment
<p>a. Would the project: Expose people/structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</p> <ul style="list-style-type: none"> 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 groundshaking? iii. Seismic-related ground failure, including liquefaction? iv. Landslides? 	<ul style="list-style-type: none"> i. Less than significant impact (Figure 9) based on Alquist-Priolo Earthquake Fault Map, but potentially significant based on the Cottonwood Fault (Figure 12) ii. Potentially significant impact (Figure 8) iii. Less than significant impact iv. Less than significant impact
<p>b. Would the project: Result in substantial soil erosion or the loss of topsoil?</p>	<p>Less than significant impact</p>
<p>c. Would the project: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?</p>	<p>Less than significant impact</p>
<p>d. Would the project: 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?</p>	<p>Less than significant impact</p>
<p>e. Would the project: Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?</p>	<p>No impact</p>

The Kern County Emergency Preparedness Plan also lists significant hazards that have been identified in the County (http://www.kerncountyfire.org/images/stories/emergency_preparedness/2a-c4risk.pdf). These are, in alphabetical order:

- Dam and Levee failure
- Drought
- Earthquakes
- Floods
- Insect hazards
 - Africanized Honey Bee
 - Glassy Winged Sharpshooter

-
- Mosquitoes
 - Pine Bark Beetle
 - Red Imported Fire Ant
 - Landslides
 - Natural health hazards
 - West Nile Virus
 - Valley Fever
 - Plague
 - Hanta Virus
 - Severe weather
 - Dust storms
 - Extreme temperatures
 - Fog
 - Severe thunderstorms/hail
 - Lightning
 - Tornadoes
 - Windstorm
 - Winter Storms
 - Soil Hazards
 - Land subsidence
 - Expansive soils
 - Erosion
 - Soil liquefaction
 - Radon
 - Volcanoes
 - Wildfire

Many of these (insects, weather, wildfire) are outside of the scope of this report. The remaining hazards have been addressed above, except for dam breaks and radon. The County General Planning hazard

zones (Figure 13) include areas potentially subject to flooding due to embankment failure caused by seismicity; this site is not so identified by the County. Radon is potentially an issue for enclosed and poorly ventilated occupied buildings. If any occupied building is proposed for the site, this hazard should be revisited.

6.0 Feasible Foundation Types

Feasible foundation types for the Camino Solar Project are selected, in part, based upon a combination of critical geotechnical, climatological, and mechanical factors which drive the foundation type selected.

- **Geotechnical Factors.** The soils at the project site are anticipated to consist of predominately fine to coarse-grained sand with gravel (34 percent or less) and occasional cobbles or boulders. The sandy soils on site can range from silty sand to clayey sand. The potential for swelling and shrinking may be considered low for most surficial soils. Shallow groundwater is not anticipated at the proposed site or expected to be a factor during construction. Soils on the site are expected to present moderate to low risk for corrosion of steel and concrete (Figure 8 and Figure 9). The site exhibits high seismicity and one active fault within the project site.
- **Climatological Factors.** Flooding across the site is not expected as the site appears to contain well-draining soils. Also, there is no evidence of shallow groundwater per NRCS Soil Data. Local monitoring well data indicates groundwater levels may be greater than 150 feet below existing ground (USGS, 1962). Frost action is not applicable for this site and so effects of frost heave can largely be neglected during design.
- **Mechanical Factors.** While the proposed solar system is unknown at this point, it is assumed to consist of photovoltaic panels supported by a racking system.

The following foundation types are feasible, though their area of appropriateness may be restricted, based on the combination of critical geotechnical, climatological, and mechanical factors identified:

- **Cast-in-Place/Precast Ballast Footing.** The soil deposits present at the site are typically suitable for support of a shallow spread footing foundation system. Swelling and shrinking of the soils may be considered low risk for most surficial soils. However, there may be isolated areas where potential for swelling soils may need to be addressed, particularly for lightly loaded foundations. Remedial options during construction for swelling soils consist of over-excavation and replacement of near-surface soils or chemical stabilization.
- **Helical Anchors/Screw Piles.** Helical anchors or screw pile installation at the site may be possible though the installation success of this foundation system would be largely depended on the quantity of gravel and cobbles present. These foundation options can be particularly useful in locations with high water and soft soils, neither of which are anticipated at this site. Ground screws or screw piles can also offer greater uplift resistance where swelling soils are present (not anticipated).
- **Steel Piles.** The soil deposits present at the site are generally suitable for the installation of a driven pile foundation system. Coarse gravel and cobbles may restrict or complicate installation across the site. Shallow refusal will likely be encountered during pile driving. Remedial options would include predrilling or excavation of restricting objects and replacement with engineered fill.

Frost action is not applicable for this site and so effects of frost heave can largely be neglected during design.

- **Drilled Caisson.** The soil deposits present at the site may be suitable for the construction of a drilled caisson foundation system. Coarse gravel and cobbles may restrict or complicate the installation of drilled caissons. The sand content of the soil is expected to be high. Therefore, casing or drilling fluid may be required to maintain open holes.

Driven or vibrated steel pile foundations are typically the most economical foundation type for solar projects such as this and it is expected that will remain the case for this project site. Pile depths are expected to range from 10 to 15 feet, but the depth is highly dependent on the racking system and design loads. Furthermore, the competency of the soils (low strength layers) and potential uplift forces from soil swell (unlikely) are not well known at this time. Restrictive layers such as cemented gravel or cobbles and boulders are likely to be present across the site and the potential for pile installation obstructions appears to be moderate to high based on this study. Additional measures such as predrilling may be required. In cases of shallow refusal during pile installation, remedial options to be considered include removal and/or extraction of the obstruction and replacement with compacted engineered fill and then re-driving the pile. While this remedial action for obstruction is not complex, frequent occurrence of obstructions can have substantial impact on project cost and schedule and should be evaluated based on site-specific field exploration results. Pile driving energy, and pile configuration (size, shape, tip, etc.) should also be carefully evaluated with respect to constructability based on site-specific results as well.

The corrosivity of the soil to steel may require corrosion protection such as galvanizing or the use of heavier steel piles. A recommended preliminary investigation scope to better refine the above risks and considerations is described further in [Section 9.0](#).

7.0 Electrical Design

The majority of the project site soils are moist sand and clay. In general, grounding should be typical, and soil thermal resistivity will be slightly higher than typical.

7.1 Soil Electrical Resistivity

For most engineering applications in soils, the motion of ions in the interstitial formation water is the dominant factor affecting the electrical resistivity. Ions in the formation water come from the dissociation of salts such as sodium chloride, magnesium chloride, etc. (Mooney, 1980). For water-bearing earth materials, the resistivity decreases with increasing:

- Fractional volume of the material occupied by water
- Salinity or free-ion content of the water
- Interconnection of the pore spaces (permeability)
- Temperature

The presence of clay minerals tends to decrease the resistivity because: (a) the clay minerals can combine with water; (b) the clay minerals can absorb cations in an exchangeable state on the surface; and (c) the clay minerals tend to ionize and contribute to the supply of free ions.

Climatic variables are important to note when comparing shallow soil electrical resistivity values at a humid continental site like Brenneman to studies from other climates (IEEE, 1983). The electrical resistivity of surficial soils will decrease when the soils are warm, increase when cold, and will be notably higher when soils are frozen. However, the bulk resistivity of soils through the depth of construction is not likely to be impacted by air temperature fluctuations.

Table 7-1 is summarized from the USDA NRCS-NCGC SSURGO database, and the estimates for electrical resistivity are based on soil clay content.

Table 7-1 Soil Type and Assumed Electrical Resistivity

% Clay	% of Area	Assumed Electrical Resistivity (Ωcm)
<20	88	>10,000
20-25	12	2,000-10,000
25-30	0	~2,000
>30	0	<2,000

The area receives an annual average precipitation of approximately 4.2 inches, the surface soils are silty and gravelly sand, and the water table is greater than 50 feet deep, so it is anticipated that the soils will

have very low moisture contents. The unconsolidated deposits are thick under the project area, so placement of grounding should not be restricted. Overall, electrical resistivity should be relatively high.

The American Petroleum Institute (API) provides guidance for the potential corrosivity of materials based upon resistivity measurements (API, 1996). Table 7-2 provides the General Classification of Resistivity reference adapted from API 651, Chapter 5.3.1.2, Table 1.

Table 7-2 Classification of Resistivity

Resistivity Range, Ωcm	Resistivity Range, Ωm	Resistivity Range, Ω feet	Potential Corrosion Activity
<500	<5	<16	Very Corrosive
500 – 1,000	5 – 10	16 – 33	Corrosive
1,000 – 2,000	10 – 20	33 – 66	Moderately Corrosive
2,000 – 10,000	20 – 100	66 – 330	Mildly Corrosive
>10,000	>100	>330	Progressively Less Corrosive

The predicted soil electrical resistivity suggests that most sites will have low corrosivity, whereas the NRCS soil mapping suggests moderate corrosivity (Figure 9).

Barr recommends an electrical resistivity survey be conducted in order to confirm grounding and cathodic protection design parameters. The work should be performed in accordance with ASTM method G57-06 “Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method” (equivalent to IEEE Std. 81) (ASTM, 2007). Testing should be conducted at a representative number of sites for each soil type and topographic setting and to provide spatial coverage across the site.

7.2 Soil Thermal Resistivity

The best approach with respect to thermal resistivity is to determine site-specific values during the geotechnical investigation phase. However, it is generally the case that the higher the moisture content, density, and quartz content in the soil, the better the thermal properties will be with respect to heat dissipation. At this site, the soil densities and quartz contents are moderate to high, and moisture contents are expected to be very low.

Based on data collected by Barr on several wind farms in the Upper Midwest, it was found there is a correlation between dry density and thermal resistivity. This lab data can be further compared with NRCS soil properties to estimate the relative range of thermal resistivity values. In these comparisons, only the dry density of a soil was used, since moisture content cannot be obtained from the NRCS. Figure 10 shows a 90% confidence interval applied for the thermal resistivity correlation to dry density at this site, which indicates a relatively low thermal resistivity. The geotechnical investigation for the Manzana wind project included laboratory tests of thermal resistivity, which indicate much higher values, with an average of 497 °C-cm/W, with a standard deviation of 49 °C-cm/W.

Site conditions suggest that underground electrical cables may need to be designed for above average soil thermal resistivity due to their below average density.

8.0 Civil Design

Available resources including USGS topographic maps, aerial photography, surface soil properties, and rainfall information were reviewed to identify construction limitations that may be present at the project site, as well as potential issues for long-term operation and maintenance. The information collected and analyzed for the civil design review is described in this section.

The northern portion of the site near the mountains has steep slopes greater than 7% with slopes becoming more gradual to approximately 4% in the southern portion of the project area. The site is sparsely populated and minimal clearing is expected to be required for site construction since no agriculture or oil and gas development are present. There is good access to the site from the south on the paved 170th Street approximately 1.3 miles to the south. Gravel roads to the southern portion and along the wind turbines are available for site access north of the paved 170th Street. The paved California State Route 138 runs east-west about 9.2 miles from the south edge of the end of pavement on 170th Street.

The average annual precipitation in the region is about 4.2 inches. The rainfall is slightly higher in the months November to April. The amount of rainfall, along with the predominance of granular soils on site, means the road subgrades can be assumed to generally be unsaturated during the life of the project. The site is outside of the Zone A floodplain based on effective flood insurance rate maps published by FEMA (Figure 12). The site is on an alluvial fan subject to periodic flooding and debris flows. The east side of the site appears to include an active channel.

The surface soils are sandy silt and gravel and sandy loam. The strength of the road subgrade expected with the on-site soils is fair to good. The site soils likely will be stable during construction operations. It is not expected that some means of subgrade stabilization to facilitate construction will be required.

Barr anticipates the method for constructing the gravel roads in the areas will be to strip off the upper layers of unsuitable soil, thoroughly compact the subgrade, and build operational roads with 6 to 8 inches of gravel or suitable road base material on a geotextile fabric. Gravel is available commercially approximately 35 miles from the site, and there is ample developable resource at the site. The gravel thickness and geotextile specification section will be determined after a geotechnical investigation is performed to determine the CBR values for final design. Drainage ditches are expected to be minimal to drain the site.

9.0 Geotechnical Investigation

Based on the potential geologic hazards identified in [Section 5.0](#), a preliminary investigation would serve to better understand the potential geologic hazards and to quantify the potential costs to the project. However, given the risks discussed and the size of the project, it may be cost-effective to forgo a preliminary investigation in favor of a full design phase investigation at the appropriate time. The following is a list of items that should be evaluated to determine the potential risks and costs associated with development of the site:

- Soil engineering properties
- Presence of large gravel, cobbles, and sand cementation
- Soil corrosion potential
- Soil electrical resistivity

The soil deposits present at the site are generally suitable for the installation of a driven pile foundation system based on the findings of this desktop study. There is some risk of other installation obstructions such as dense gravel and cobbles across the project site.

A typical final investigation includes tens of borings and a preliminary investigation substantially fewer. Typically, one test location per 20 acres is recommended for design phase investigations and preliminary investigation quantities are guided by the minimum number required to gain certainty about the different geologic hazards present at a site or to capture the different geologic conditions present at the site. It is difficult to precisely quantify all risk of obstructions pile support locations. Therefore, this risk will need to be clearly communicated to the construction contractor. Additionally, for driven piling, it is recommended that the foundation designer and/or contractor evaluate the results of site-specific geotechnical data with respect to pile drivability and energy required for driving.

9.1 Recommended Preliminary Investigation

As discussed above, there is potential for geotechnical conditions that could result in substantial construction cost impacts. It is recommended that these risks be further evaluated during a preliminary investigation. The recommended preliminary investigation is summarized below:

- Complete general site reconnaissance, in parallel with other work on site, focused on evaluating the following features within the project site boundary:
 - Surficial soil cover, topography and drainage features.
 - Presence of coarse grained material.
- Complete a limited test pit investigation to facilitate:

- Evaluation of subsurface conditions and lithology, specifically the depth and distribution of dense, coarse or stiff, hard soil layers.
- Collection of samples for soil index property testing to estimate engineering properties, including swell potential.
- Collection of samples for soil strength testing.
- Collection of bulk samples for thermal resistivity testing.

Estimated cost to perform the testing pitting concurrent with the site reconnaissance is approximately \$6,000-\$11,000. Approximately 10 test pits are recommended for the purposes of the preliminary investigation. Field work is expected to be completed in 1-2 days. It is assumed that the test pit locations can be accessed such that no additional clearing, grubbing, or grading is necessary to facilitate access and that site restoration will be limited to the backfilling of the test pits with the spoils.

- Complete field electrical resistivity testing to facilitate electrical design. Estimated cost to perform field electrical resistivity concurrent with the site reconnaissance task and test pits is approximately \$500-\$1,000. Two electrical resistivity tests are recommended for the purpose of the preliminary investigation.
- The recommended laboratory testing scope, as part of the preliminary investigation, includes the following:
 - Ten (10) soil moisture content tests
 - Two (2) moisture content and dry unit weight tests
 - Two (2) grain size distribution tests (sieve or sieve and hydrometer)
 - Two (2) Atterberg limits tests (liquid limit and plasticity index)
 - Five (5) soil pH and chemical content (soluble sulfate and chloride) tests
 - Two (2) standard Proctor compaction tests
 - Two (2) soil thermal resistivity tests

Estimated cost to perform this task is approximately \$2,000-\$4,000.

- Complete preliminary geotechnical report summarizing site reconnaissance, test pits, and limited laboratory testing at an estimated cost of approximately \$4,000. Though this would be a preliminary engineering phase, it will need to be a detailed evaluation of the key issues noted previously.

A summary of the estimated engineering fees for a preliminary geotechnical investigation are provided in the table below.

Table 9-1 Estimated Costs of Preliminary Geotechnical Investigation

Description of Tasks	Fee	Basis
Test Pitting and Site Reconnaissance	\$6,000-\$11,000	Lump sum
Electrical Resistivity Testing	\$500-\$1000	Lump sum
Laboratory Testing	\$2,000-\$4,000	Lump sum
Preliminary Geotechnical Analysis, Engineering and Reporting	\$4,000	Lump sum
Total Lump Sum Fee	\$12,500-\$20,000	Lump Sum

9.2 Design Phase Geotechnical Investigation

Prior to final foundation design and construction, a design phase geotechnical engineering program is required. Depending on a number of factors including the risks discussed in the study, as well as internal development constraints and considerations, a preliminary investigation such as that described in [Section 9.1](#) may or may not precede the design phase.

Based on the findings of this report and the general project size/area, the following provides a brief approximation of a design phase investigation scope. This scope should be considered conceptual and an actual design phase scope will differ based on refined project layout versions, findings from a preliminary investigation, and planned infrastructure.

- Site review for geotechnical/geological hazards (if not performed in a preliminary phase or if layout changes are substantial).
- Soil borings to depths on the order of 20 feet across the project site. An estimated frequency of borings is one per 15 to 20 acres of development. Due to the potential presence of restrictive layers or bedrock, soil borings on a grid pattern are recommended throughout the proposed development to facilitate design of the foundation system.
- General soil laboratory testing, including index properties and strength.
- Soil chemical content laboratory testing.
- California Bearing Ratio (CBR) testing to evaluate subgrade strength related to roads and laydown areas.
- Field soil electrical resistivity testing in support of electrical design.
- Laboratory soil thermal resistivity testing in support of electrical design.

If a pile foundation system is selected for use, consideration should also be given to performing pile load testing. Pile load testing can be performed concurrent with the design phase investigation. Pile load testing following a design phase investigation allows for selection of test locations based on site-specific

data, while load testing concurrent with the investigation allows for a more accelerated overall schedule. However, it is generally recommended that this occur after the final geotechnical investigation has been completed to allow for the benefit of additional information to better refine the scope of pile load testing. Pile load testing should include testing at a sufficient number of diverse locations within the project site. It should also include axial (tension/pullout) and lateral testing, as those generally control the foundation design due to the shear and uplift forces that develop during wind loading. It should be noted that this scope item is critical to the final foundation design, as load testing provides information regarding actual pile performance driving criteria. It is important that a preliminary or planned foundation system is known prior to pile load testing, such that test pile sections and loading criteria are properly selected.

The final testing program for each discipline (geotechnical, structural, and electrical) should be determined or reviewed by their respective design engineers.

10.0 Limitations

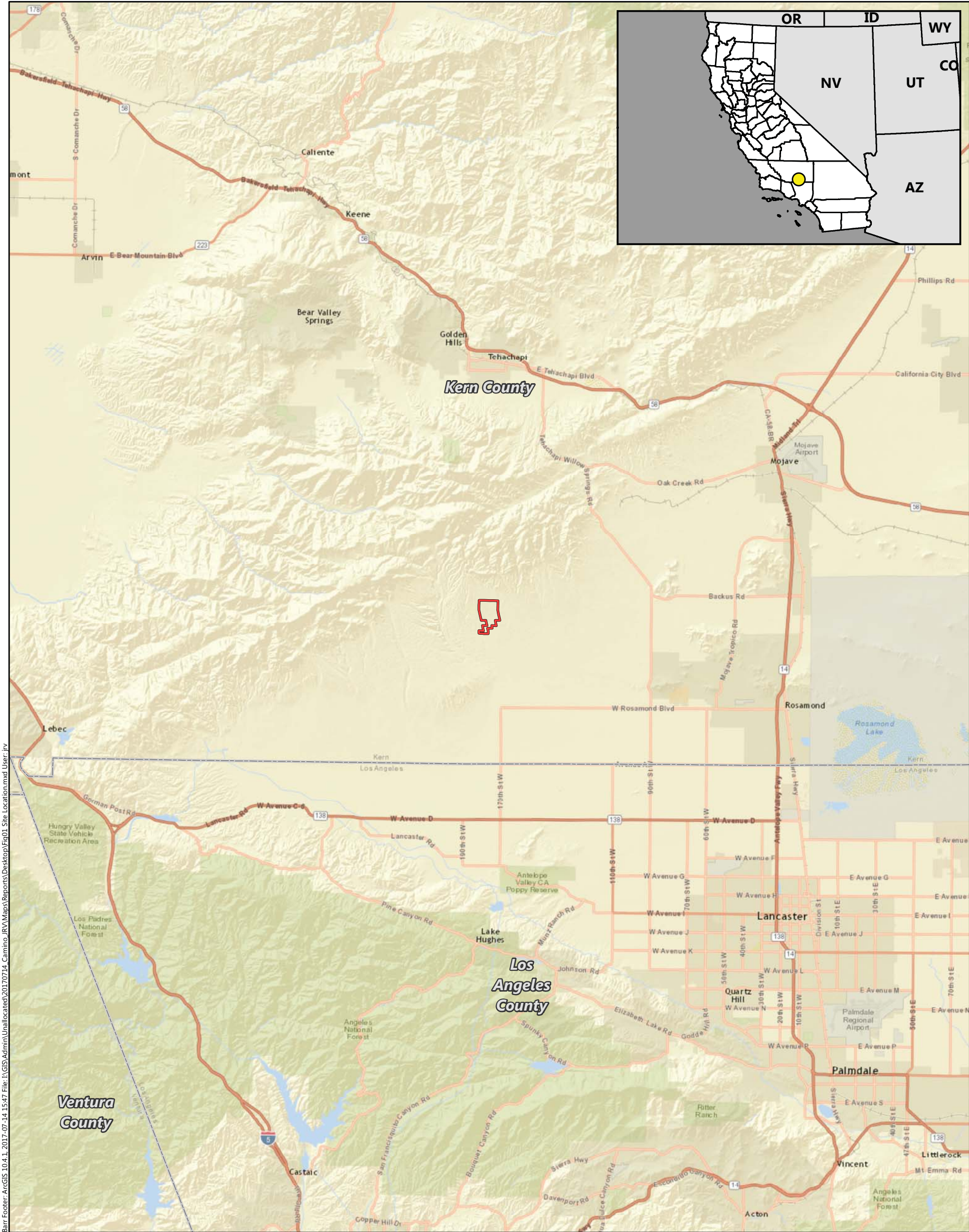
The opinions and probable costs provided in this report are made on the basis of Barr's experience and qualifications and represents our best judgment as experienced and qualified professionals familiar with the project. The cost opinion is based on project-related information available to Barr at this time. The opinion of cost may change as more information becomes available. In addition, since we have no control over the cost of labor, materials, equipment, or services furnished by others, or over the contractor's methods of determining prices, or over competitive bidding or market conditions, Barr cannot and does not guarantee that proposals, bids, or actual costs will not vary from the opinion of probable cost prepared by Barr. If Avangrid wishes greater assurance as to probable cost, Avangrid should wait until further information is available.

11.0 References



- American Petroleum Institute, May 1996. Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems, API recommended practice 1632, Third Edition.
- American Petroleum Institute, 1997. Cathodic Protection of Aboveground Petroleum Storage Tanks.
- American Society for Testing and Materials, November 2007. Designation G 57-06 : Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method, ASTM, West Conshohocken, PA.
- California Department of Conservation; Division of Mines and Geology, 1962. Mines and mineral resources of Kern County, California.
- California Department of Natural Resources, 1956. Summary of Operations, California Oil Fields. (ftp://ftp.consrv.ca.gov/pub/oil/Summary_of_Operations/1956/Vol42No2.pdf)
- FEMA Flood maps. Accessed at <https://msc.fema.gov/portal/advanceSearch>
- Institute of Electrical and Electronics Engineers, Inc., (IEEE). 1983. ANSI / IEEE Std 81-1983: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System. IEEE, New York.
- Lancaster, JT, JL Hernandez, WD Hayden, TE Dawson, and CA Hayhurst, 2012. Geologic Map of Quaternary Surficial Deposits in Southern California, Lancaster 30' x 60' Quadrangle. California Geological Survey Special Report 217 Plate 22.
- Mooney, Harold M. 1980. Handbook of Engineering Geophysics Volume 2: Electrical Resistivity. Bison Instruments, Inc., Minneapolis, pp. 1-5.
- Smith, Arthur R., compiler. 1964. Geologic Map of California – Bakersfield Sheet. 1:250,000. California Department of Conservation; Division of Mines and Geology
- United States Department of Agriculture (USDA). Accessed March 2016, NRCS-NCGC SSURGO, Soil Database. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- United States Department of Agriculture (USDA), 2013. Web Soil Survey, <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, accessed December 2016
- United States Geological Survey (USGS) 2015. Groundwater Watch, <http://groundwaterwatch.usgs.gov/countymap.asp?sa=TX&cc=117>, accessed December 2016
- United States Geological Survey (USGS), 2016. Interactive Fault Map <http://earthquake.usgs.gov/hazards/qfaults/map/>, accessed December 2016
- United States Geological Survey, Mineral Resources On-Line Spatial Data. Accessed at <http://tin.er.usgs.gov/mrds/>

United States Geological Survey (USGS) Website, Accessed August 2014. US Seismic Design Maps Tool.
<http://earthquake.usgs.gov/designmaps/us/application.php>

Figures



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-  Project Area
-  County Boundaries

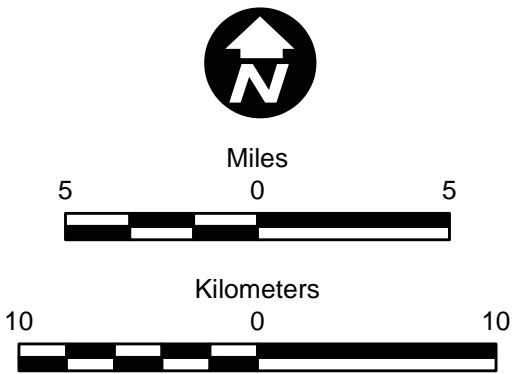
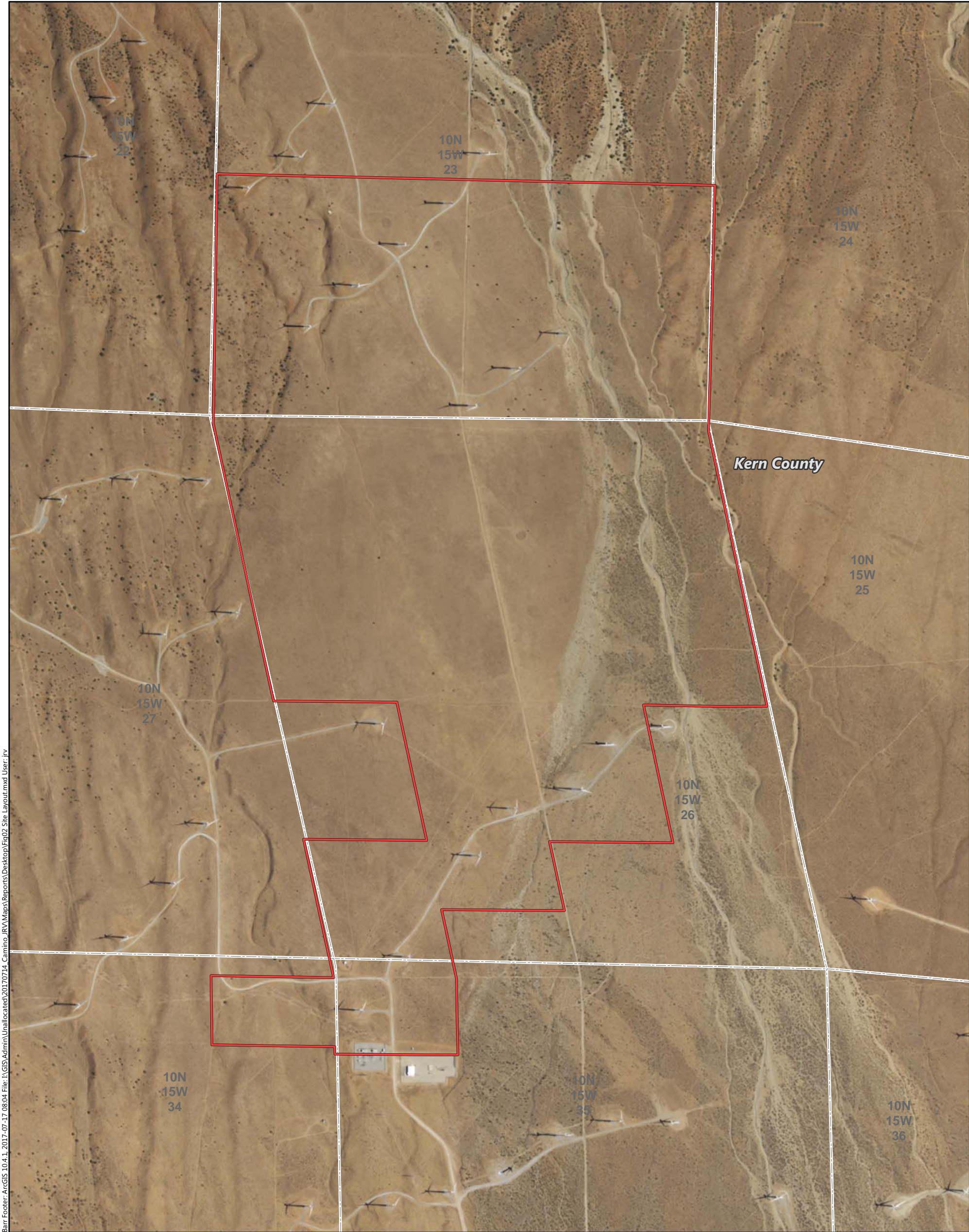





Figure 1

SITE LOCATION
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California



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-  Project Area
-  PLSS Sections
-  County Boundaries

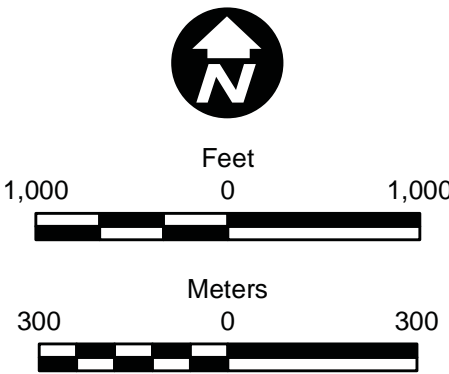
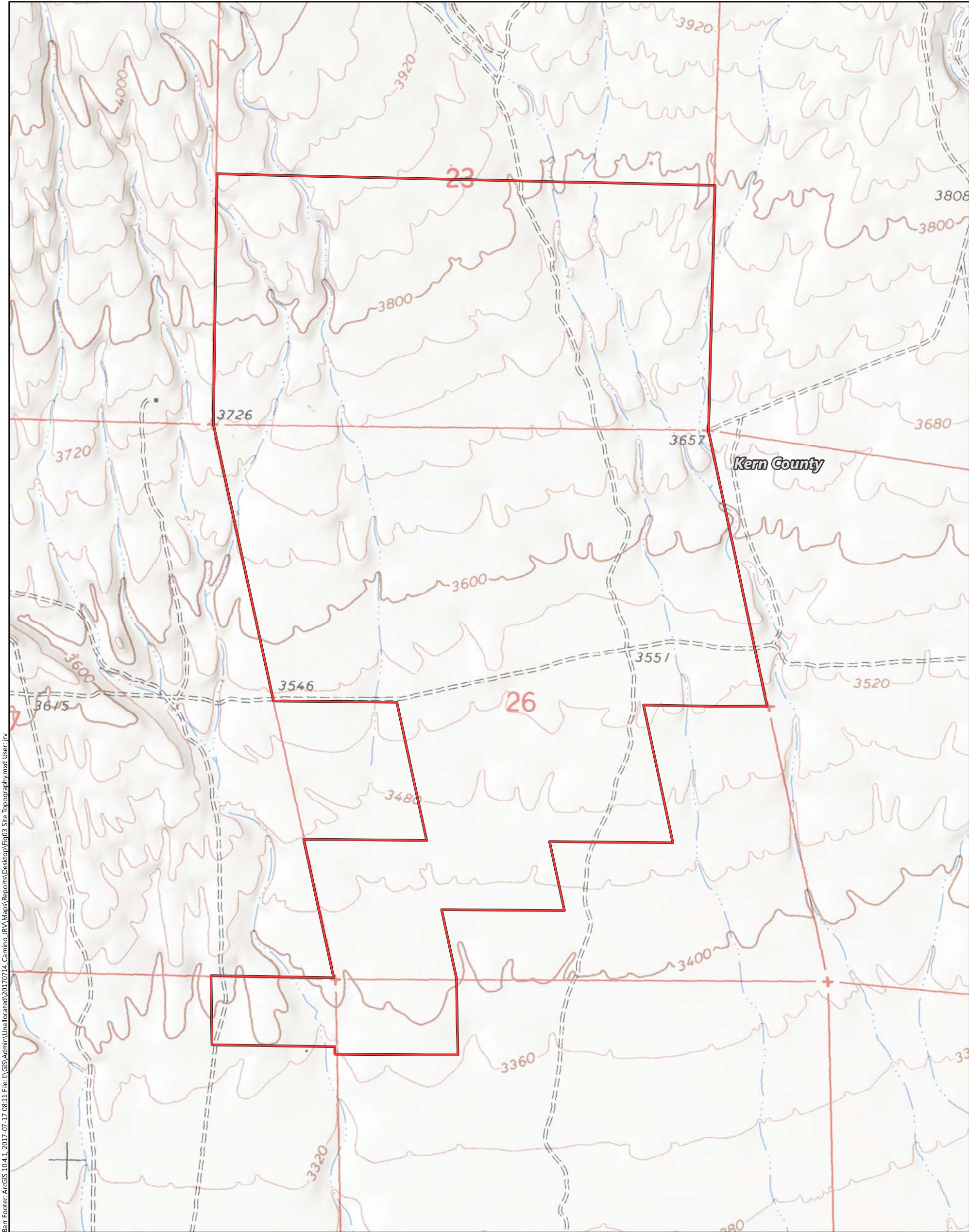




Figure 2

SITE LAYOUT
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California



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-  Project Area
-  County Boundaries

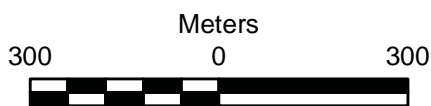
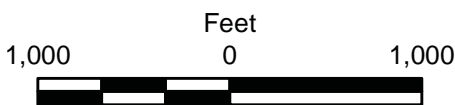
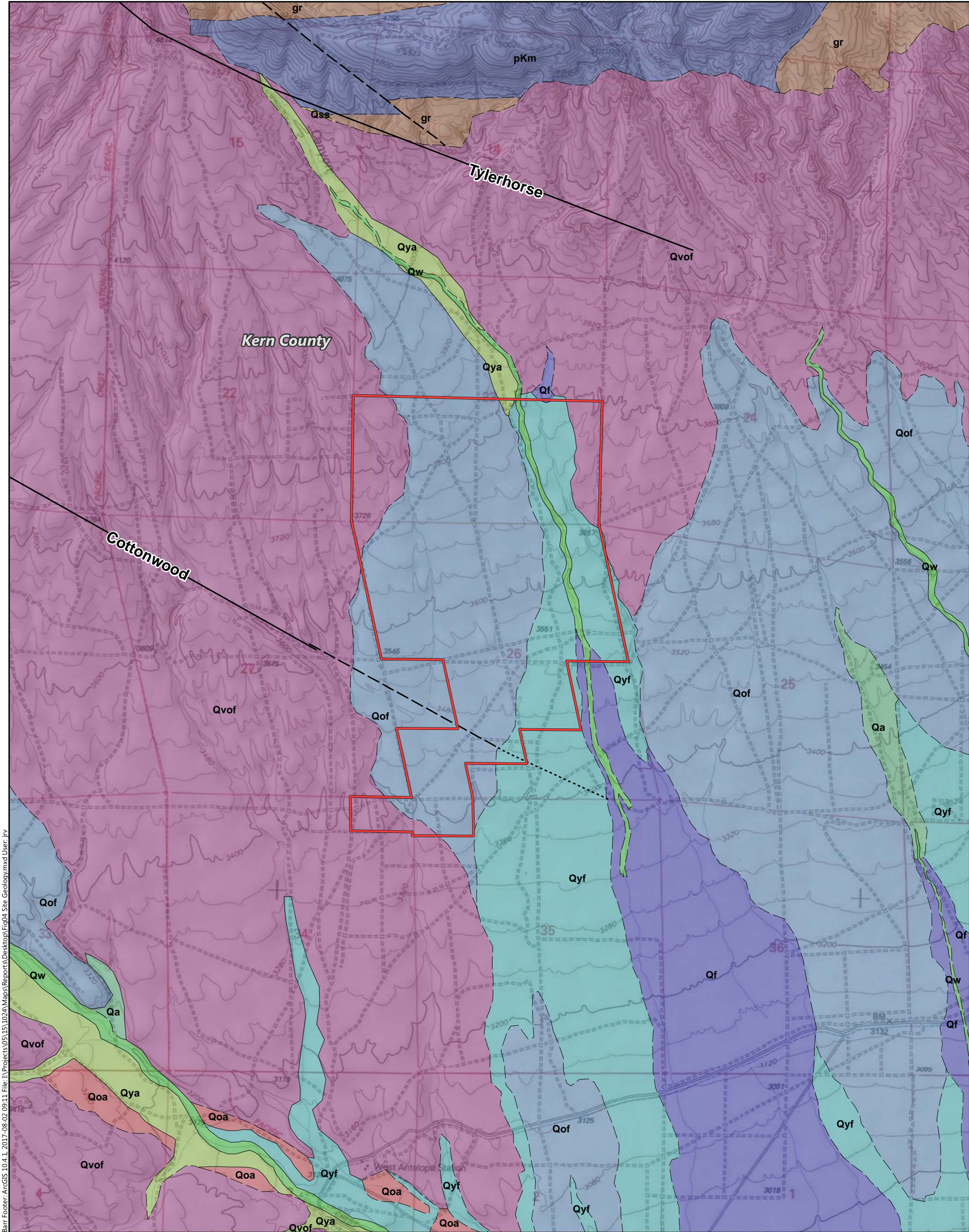



Figure 3


SITE TOPOGRAPHY


Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California





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
-  Project Area



 County Boundaries


 contact, identity and existence certain, location accurate


 contact, identity and existence certain, location approximate


 fault, identity and existence certain, location accurate


 fault, identity and existence certain, location approximate



 fault, identity and existence certain, location concealed
-  Qa - Alluvial Valley Deposits


 Qf - Alluvial Fan Deposits


 Qoa - Old Alluvial Valley Deposits


 Qof - Old Alluvial Fan Deposits

 Qss - Coarse-grained formations of Pleistocene age and younger; primarily sandstone and conglomerate

 Qvof - Very Old Alluvial Fan Deposits
-  Qw - Alluvial Wash Deposits

 Qya - Young Alluvial Valley Deposits

 Qyf - Young Alluvial Fan Deposits

 gr - Granitic and other intrusive crystalline rocks of all ages


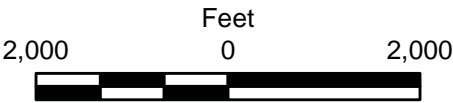
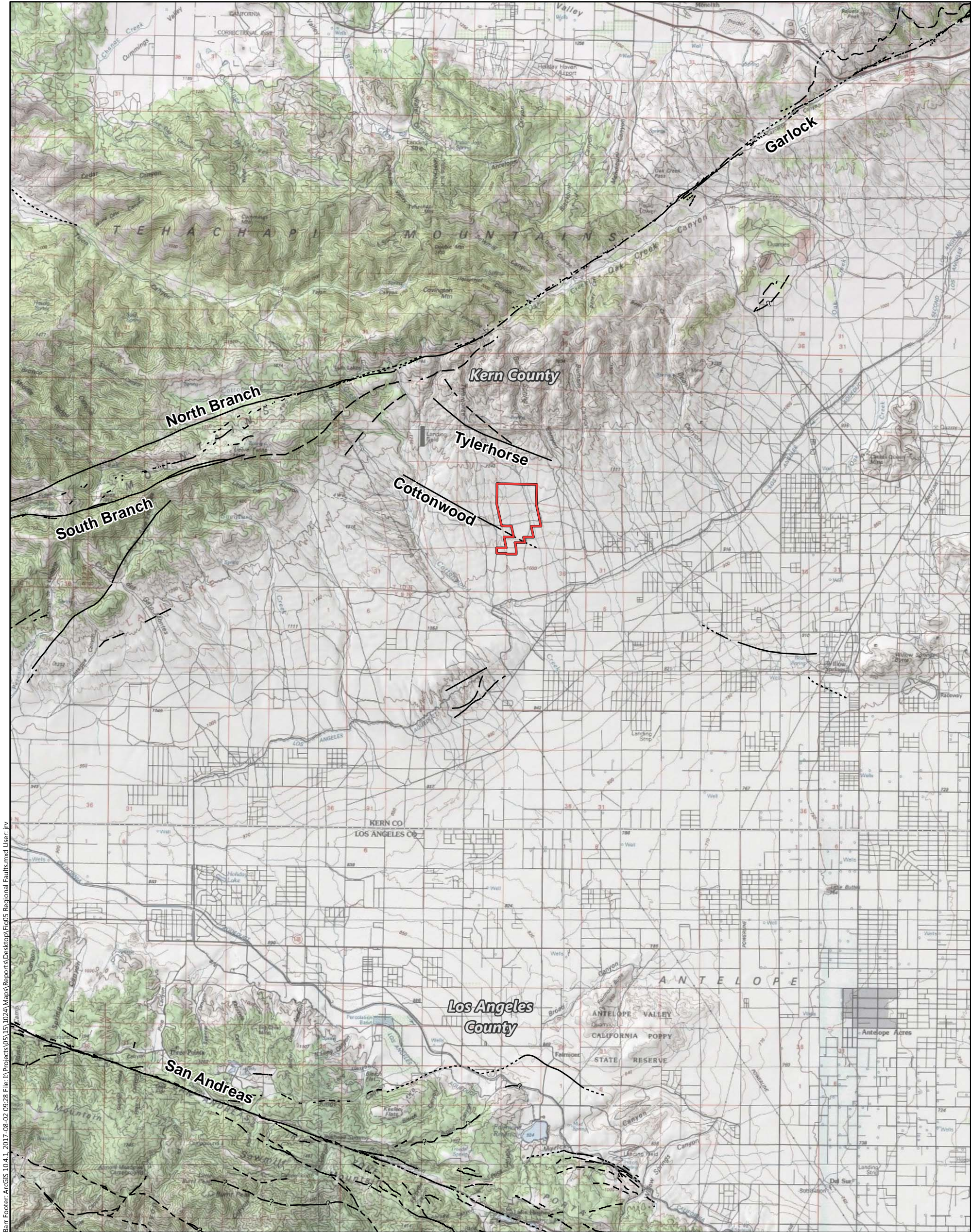
 pKm - Cretaceous and Pre-Cretaceous metamorphic formations of sedimentary and volcanic origin

Figure 4

SITE GEOLOGY
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California





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


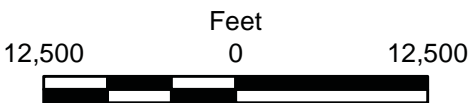
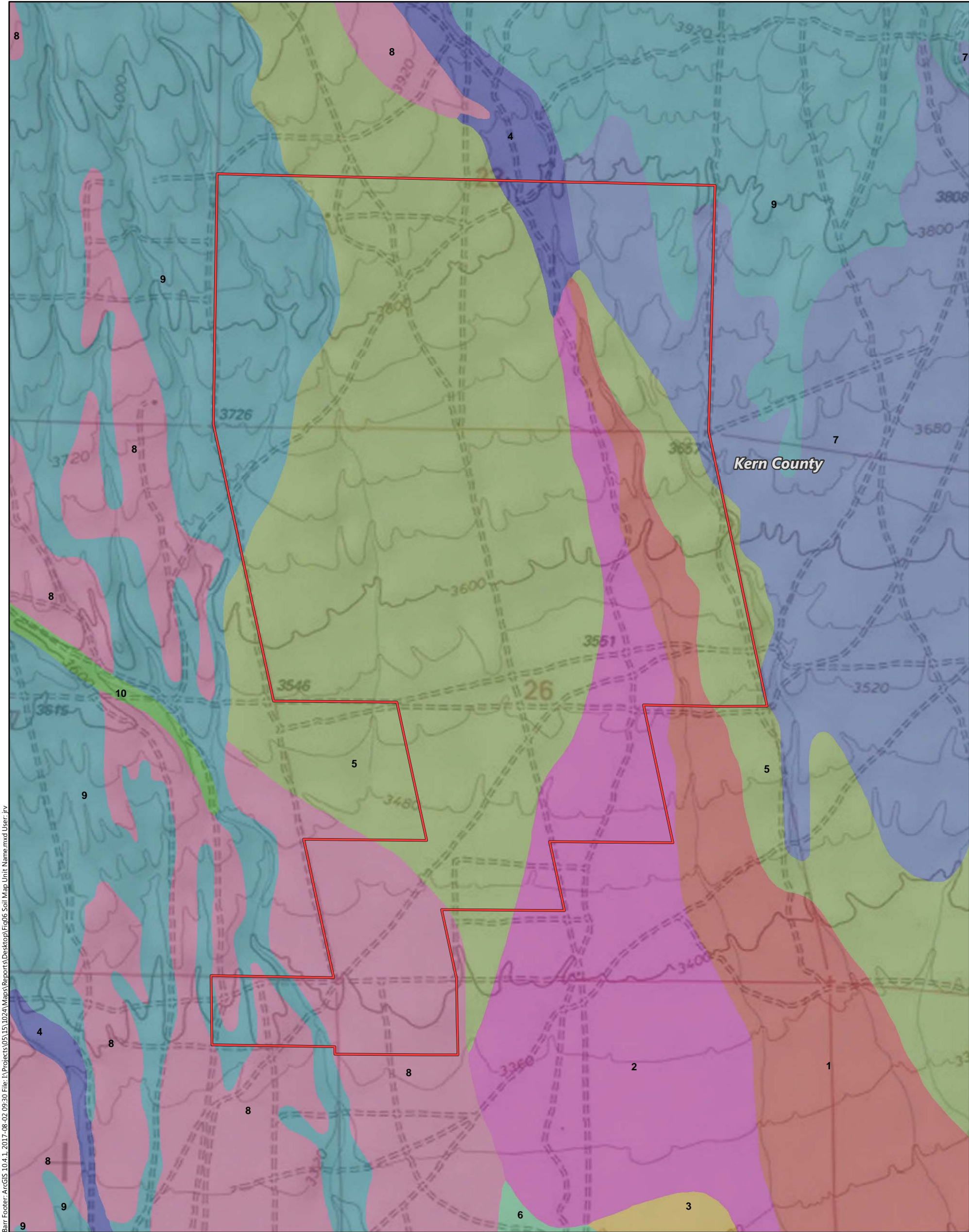












- | | | | |
|--|---|---|---|
|  | Project Area |  | fault, identity and existence certain, location inferred |
|  | County Boundaries |  | fault, identity or existence questionable, location approximate |
|  | fault, identity and existence certain, location accurate |  | fault, identity or existence questionable, location concealed |
|  | fault, identity and existence certain, location approximate |  | fault, identity or existence questionable, location inferred |
|  | fault, identity and existence certain, location concealed | | |

Figure 5

REGIONAL FAULTS
 Desktop Study
 Camino Solar Project
 Avangrid Renewables
 Kern County, California





-  Project Area
-  County Boundaries
- Soil Map Unit Name
-  1 - Arizo gravelly loamy sand, 0 to 5 percent slopes
-  2 - Cajon loamy sand, 2 to 9 percent slopes
-  3- Greenfield sandy loam, 2 to 9 percent slopes
-  4 - Hanford coarse sandy loam, 2 to 9 percent slopes
-  5 - Hanford gravelly sandy loam, 2 to 9 percent slopes
-  6 - Ramona coarse sandy loam, 2 to 5 percent slopes
-  7 - Ramona coarse sandy loam, 5 to 9 percent slopes
-  8 - Ramona gravelly sandy loam, 2 to 9 percent slopes
-  9 - Ramona sandy loam, 9 to 30 percent slopes, eroded
-  10 - Terrace escarpments

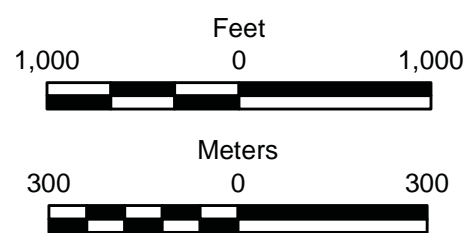
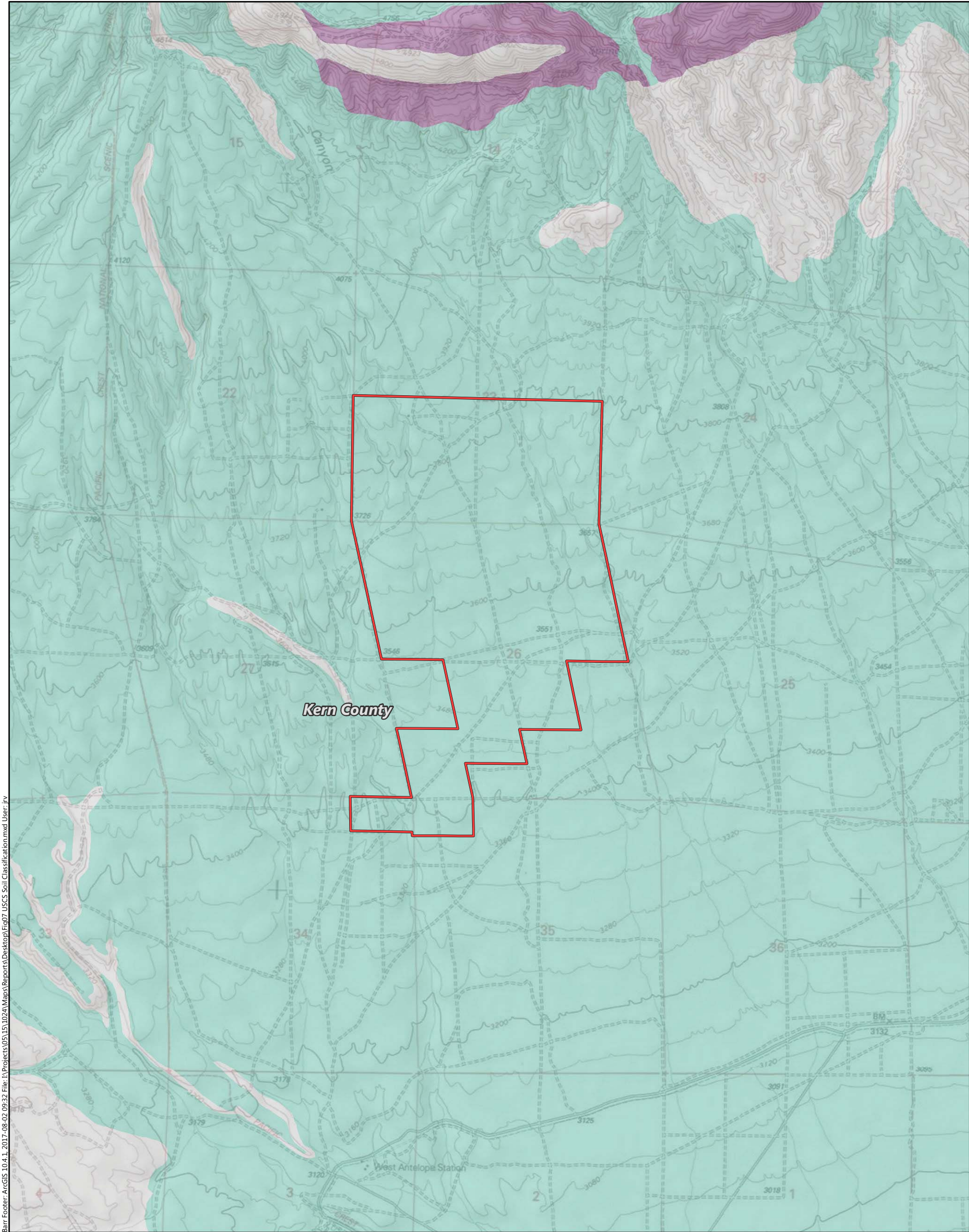


Figure 6

SOIL MAP UNIT NAME
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California








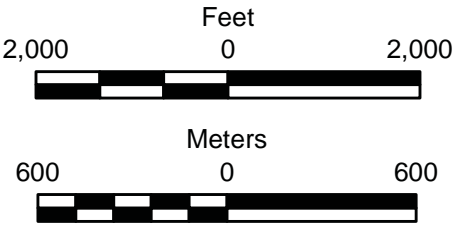
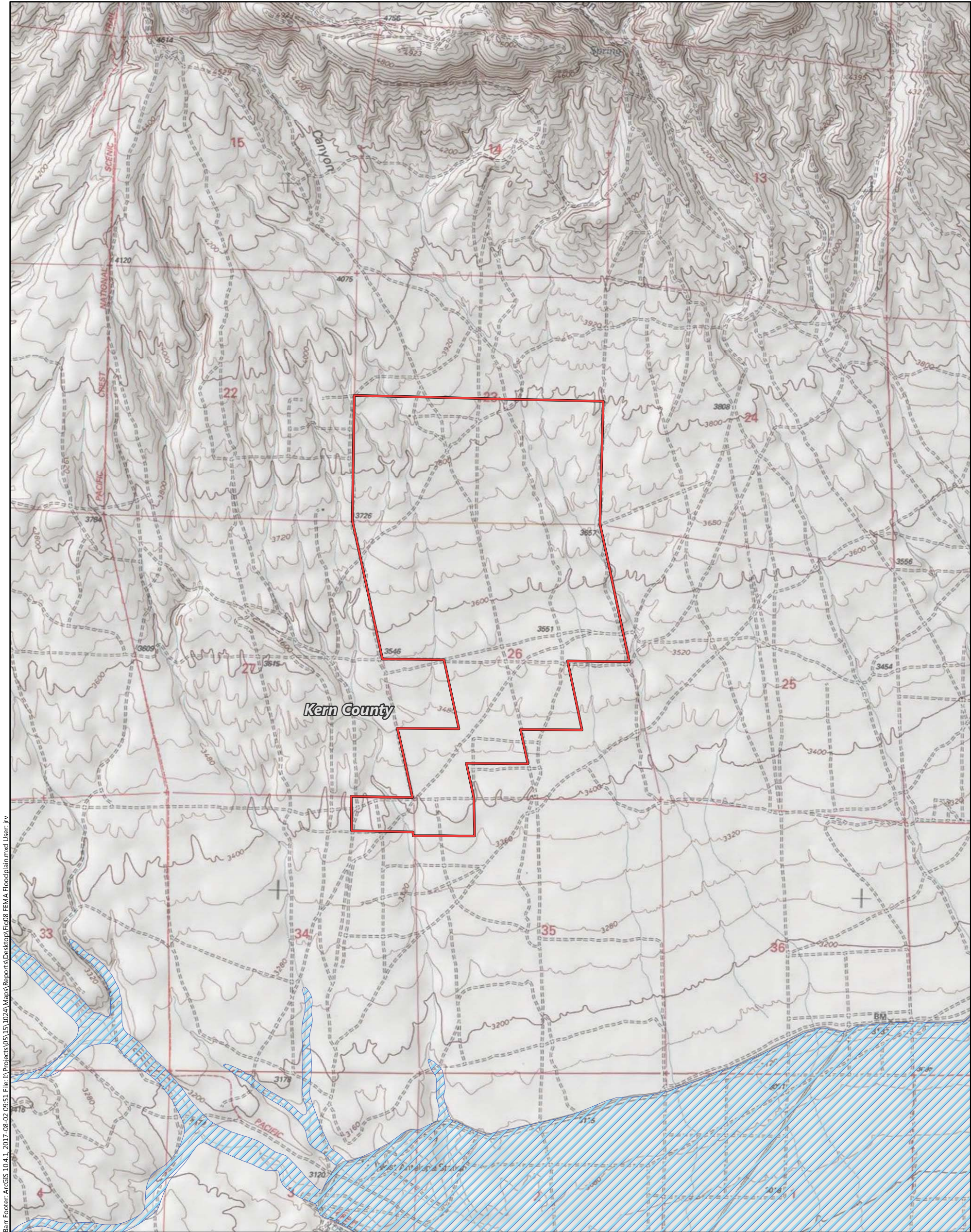
-  Project Area
-  County Boundaries
- USCS_Soil_Classification
 -  Not rated or not available
 -  ML - Lean Silt
 -  SM - Sandy Silt

Figure 7

USCS SOIL CLASSIFICATION
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California



Soil Survey Staff, NRCS, USDA. Soil Survey Geographic (SSURGO) Database. Available online at: <https://sdmdataaccess.sc.egov.usda.gov>. Accessed 7/17/2017.



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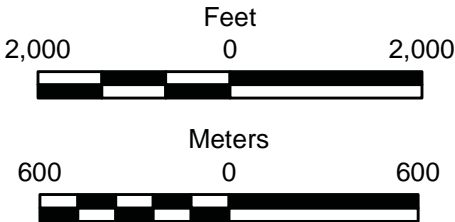
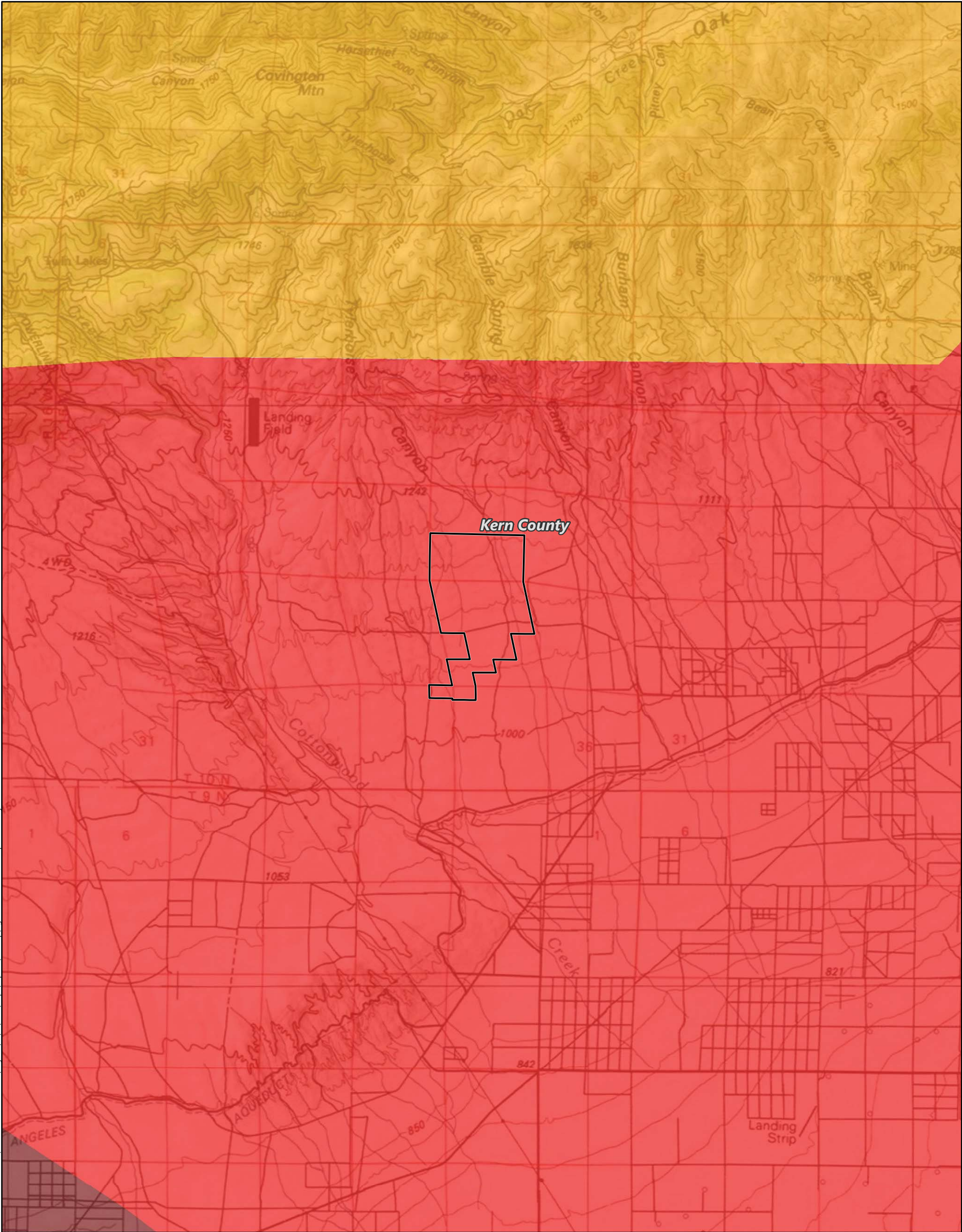
-  Project Area
-  County Boundaries
-  FEMA 100-Year Flood Zone (Flood Zone A)



Figure 8

FEMA FLOODPLAIN
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California





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-  Project Area
-  County Boundaries

Shaking (%g)

PGA (10 percent chance of peak ground acceleration exceeding X% g within the next 50 years)

-  30 - 40%
-  40 - 50%
-  50 - 60%

The unit "g" is acceleration of gravity.

Seismic Shaking Hazard Data Source:
Based on the USGS/CGS Probabilistic
Seismic Hazards Assessment (PSHA)
Model, 2002 (revised April 2003).



Miles



Kilometers

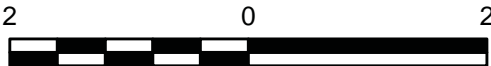
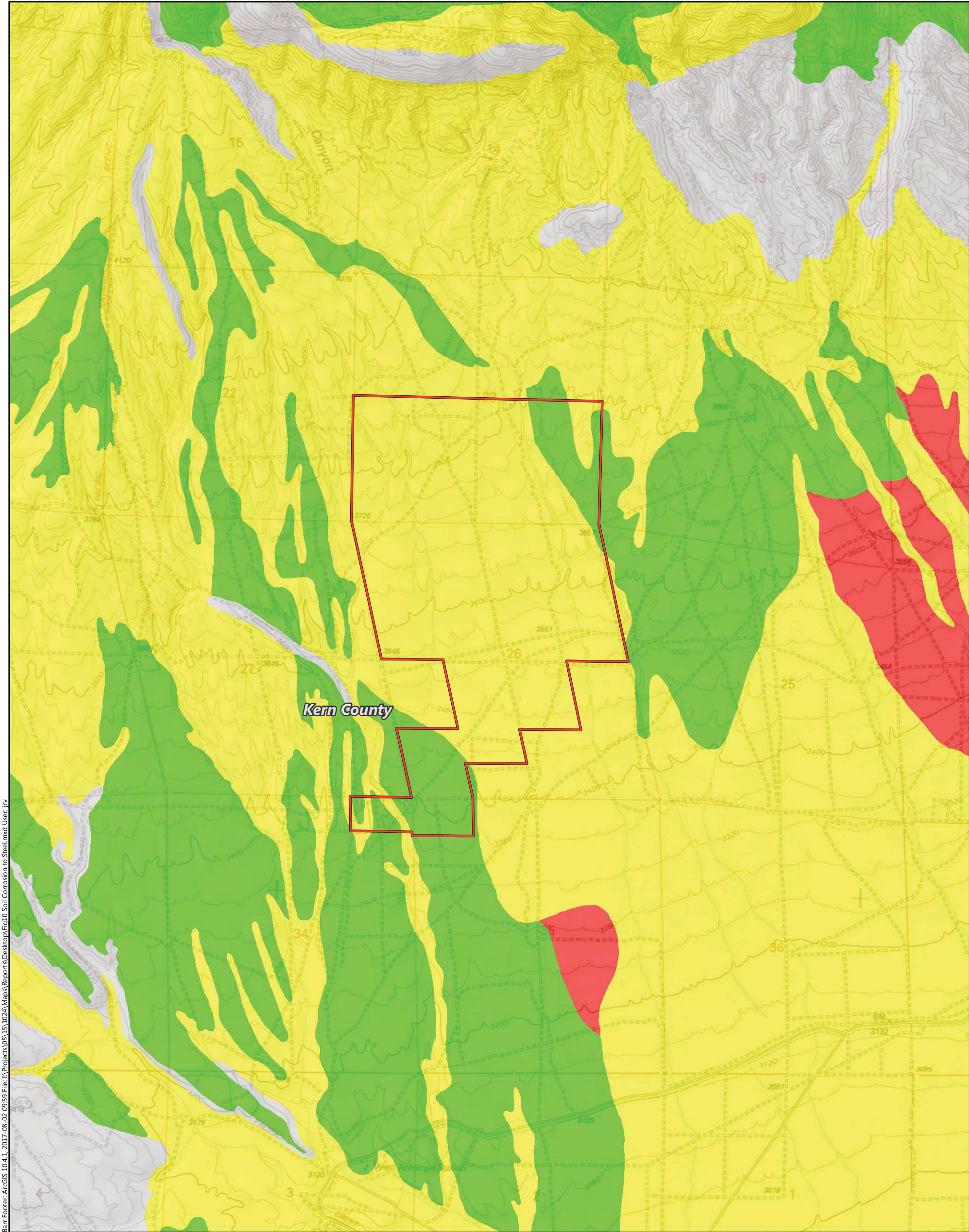








Figure 9

SEISMIC HAZARD MAP
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California



Barr Footer: ArcGIS 10.4.1, 2017-08-02 09:59 File: I:\Projects\05151024\Maps\Reports\Desktop\Fig10_Soil Corrosion to Steel.mxd User: jrv

-  Project Area
-  County Boundaries
- Soil_Corrosion_to_Steel
 -  High
 -  Moderate
 -  Low
 -  Not rated or not available

Soil Survey Staff, NRCS, USDA. Soil Survey Geographic (SSURGO) Database. Available online at: <https://sdmdataaccess.sc.egov.usda.gov>. Accessed 7/17/2017.

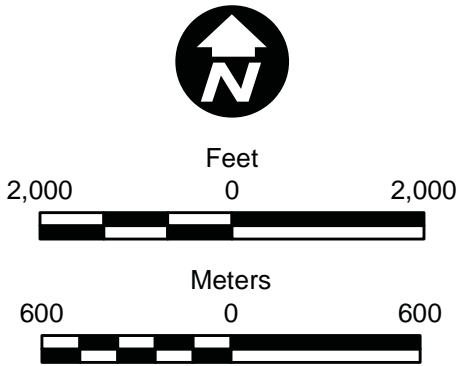
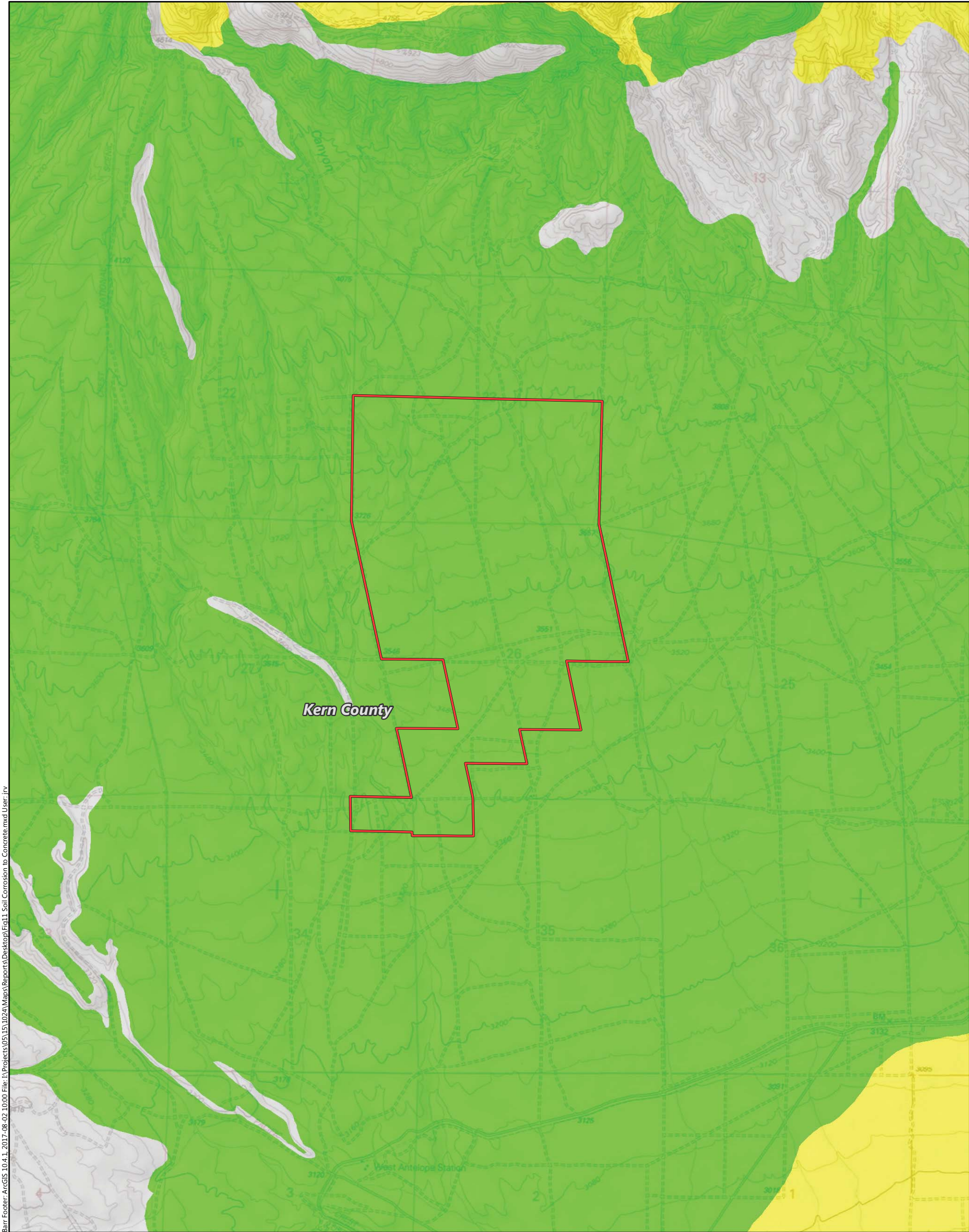


Figure 10

SOIL CORROSION TO STEEL
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California



Barr Footer-ArcGIS 10.4.1, 2017-08-02 10:00 File: I:\Projects\05151024\Maps\Reports\Desktop\Fig11 Soil Corrosion to Concrete.mxd User: jrv






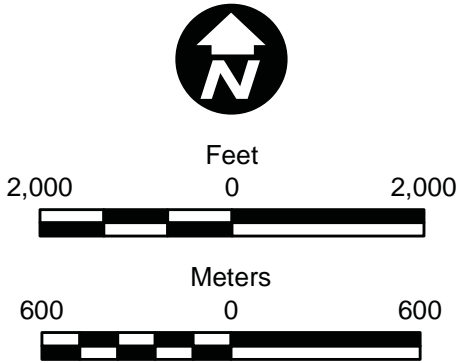
-  Project Area
-  County Boundaries
- Soil Corrosion to Concrete
 -  Moderate
 -  Low
 -  Not rated or not available

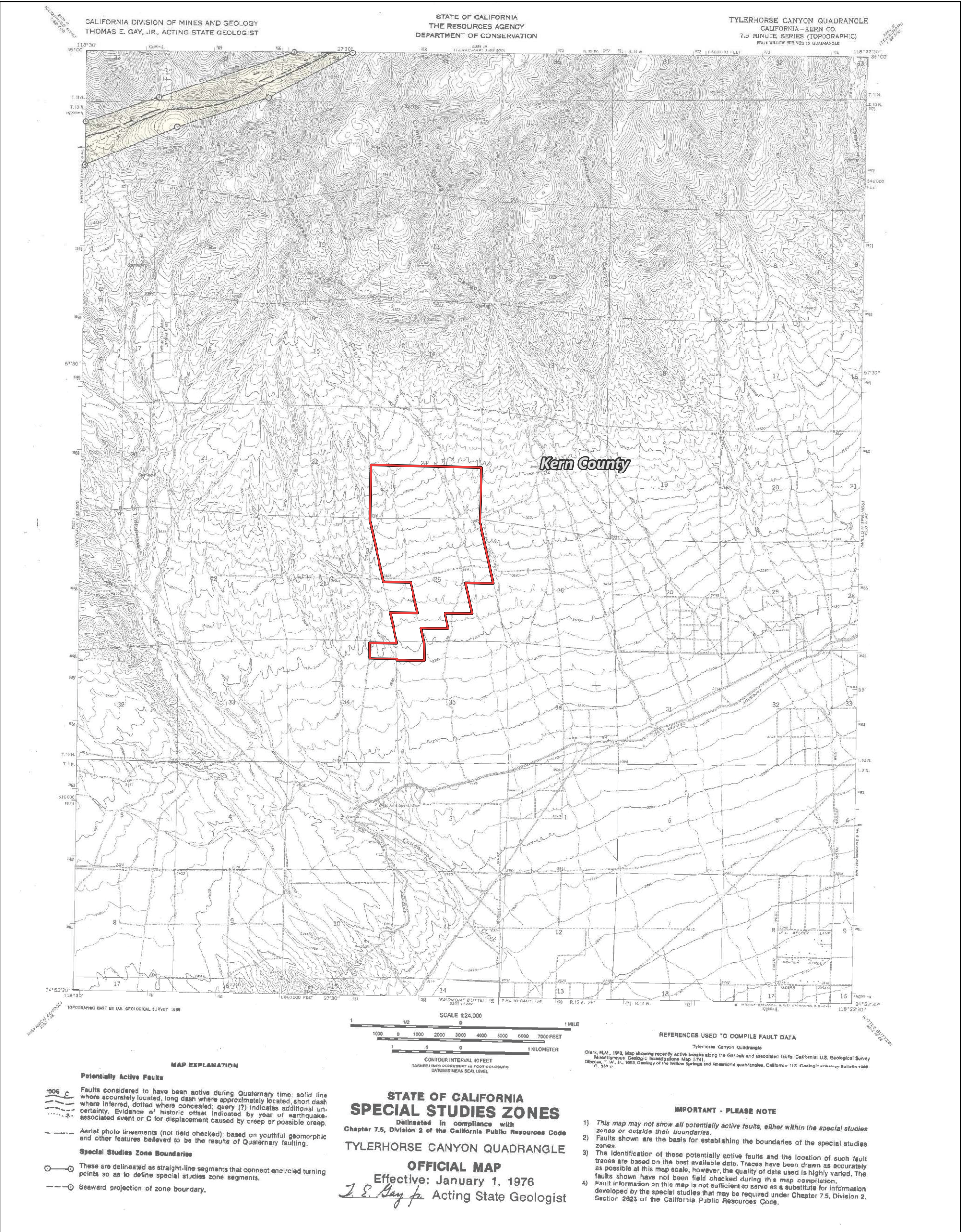
Figure 11

SOIL CORROSION TO CONCRETE
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California

Soil Survey Staff, NRCS, USDA. Soil Survey Geographic (SSURGO) Database. Available online at: <https://sdmdataaccess.sc.egov.usda.gov>. Accessed 7/17/2017.



Barr Footer ArcGIS 10.4.1, 2017-08-02 10:03 File: I:\Projects\05151024\Maps\Reports\Desktop\Fig12 Alquist Priolo Faults.mxd User: jrv



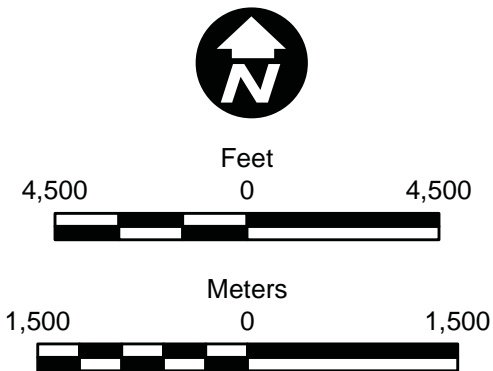
Project Area

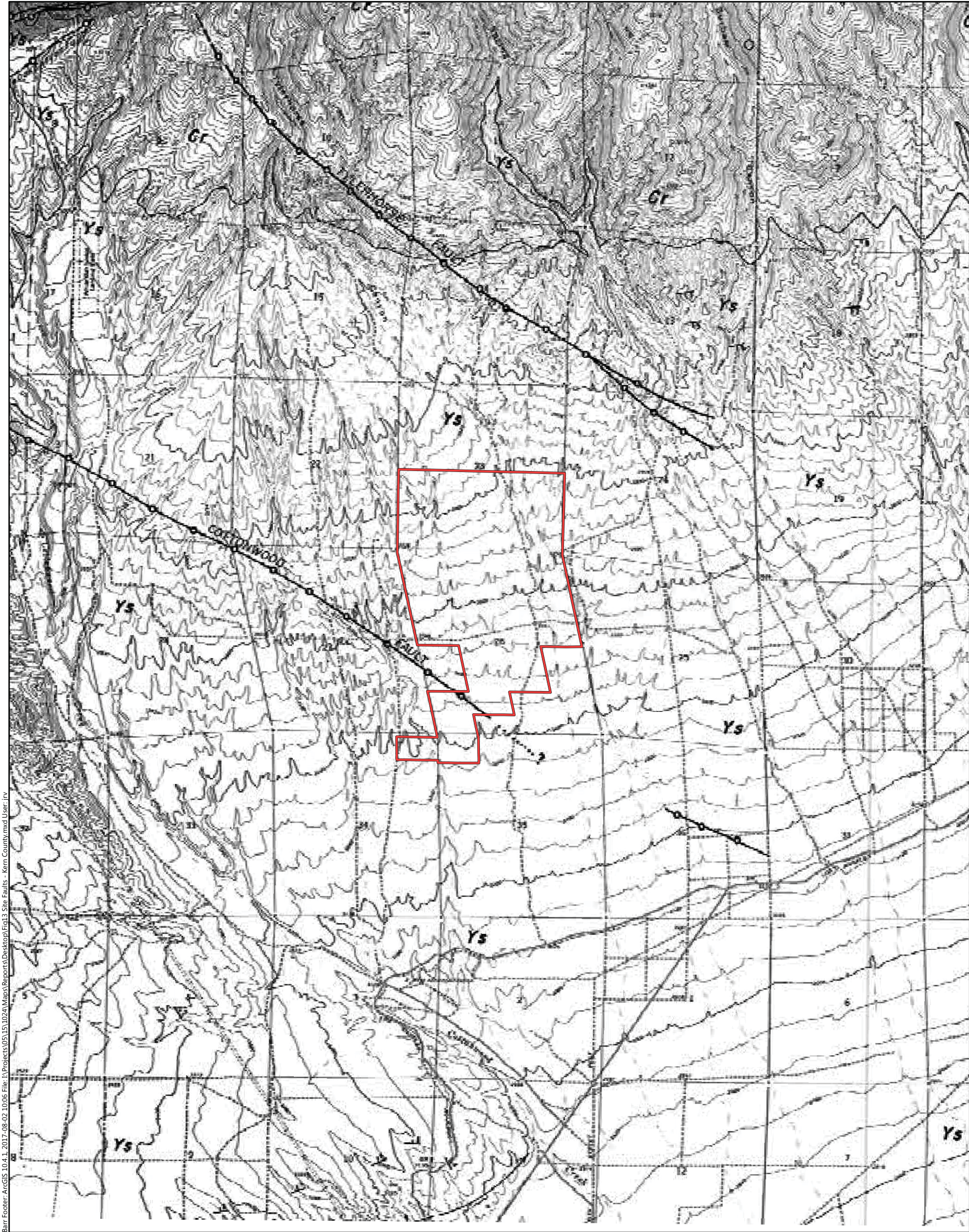


County Boundaries

Figure 12

ALQUIST PRIOLO FAULTS
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California





Barr Footer ArcGIS 10.4.1, 2017-08-02 10:06 File: I:\Projects\05151024\Maps\Reports\Desktop\Fig13_Site_Faults - Kern County.mxd User: rrv

 Project Area

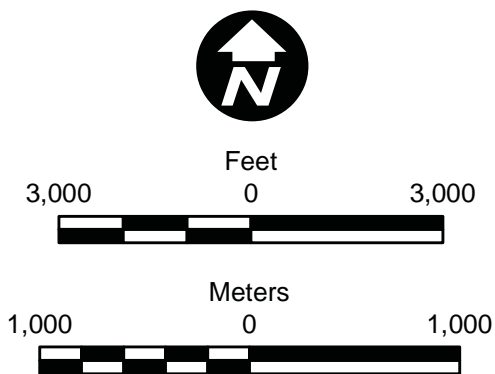











Figure 13

**SITE FAULTS -
KERN COUNTY**
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California



Barr Footer ArcGIS 10.4.1, 2017-08-02 10:08 File: \\Projects\\05151024\\Maps\\Reports\\Desktop\\Fig14 Kern County Hazards.mxd User: jiv

-  Project Area
-  County Boundaries
- Hazard Zones**
-  Erosion Hazard
-  Erosion Hazard/Military Flight Operations (60db)
-  Landslide
-  Military Flight Operations (60db)
-  Military Flight Operations (65db)
-  Seismic Hazard
-  Steep Slope



Miles



Kilometers



Figure 14

KERN COUNTY HAZARDS
Desktop Study
Camino Solar Project
Avangrid Renewables
Kern County, California

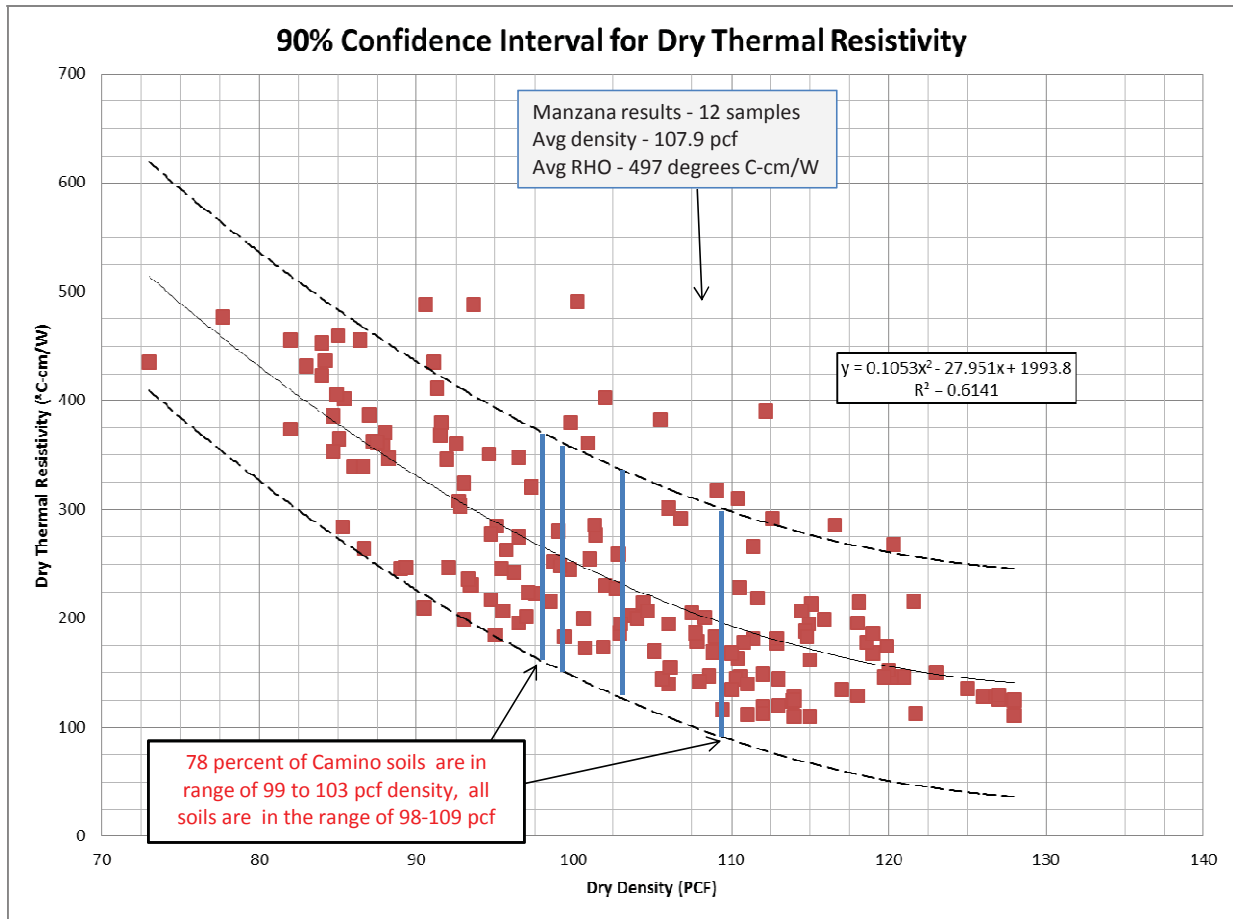


Figure 15
90% Confidence Interval for Dry Thermal Resistivity - Camino

Appendix H
**Phase 1 Environmental Site
Assessment prepared for
Camino Solar Project**





Phase I Environmental Site Assessment

Camino Solar Project

17890 Champagne Avenue

Rosamond, California

July 31, 2017

Prepared for:

Aurora Solar LLC
1125 NW Couch Street, Suite 700
Portland, OR 97209

Prepared by:

HDR Engineering, Inc.
905 Plum Street SE, Suite 200
Town Square 3
Olympia, WA 98501

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Appendix B. Photographic Documentation

Appendix C. EDR Report 4850460

Appendix D. Historical Aerial Photographs

Appendix E. Property Deeds

Acronyms

AAI	All Appropriate Inquires
AMSL	above mean sea level
AST	aboveground storage tank
ASTM	ASTM International, Inc, (formerly American Society for Testing and Materials)
AUL	Activity and Use Limitation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CREC	Controlled Recognized Environmental Condition
EDR	Environmental Data Resources, Inc.
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
HDR	HDR Engineering, Inc.
HREC	Historical Recognized Environmental Condition
PCB	Polychlorinated Biphenyls
REC	Recognized Environmental Condition
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound

Note: An additional acronym list is located in Appendix C.

Executive Summary

HDR Engineering, Inc. (HDR) conducted a Phase I Environmental Site Assessment (Phase I ESA) of the Camino Solar Project site, located at and in the vicinity of 17890 Champagne Avenue in Rosamond, Kern County, California. The Phase I ESA has been prepared for Aurora Solar, LLC, an Oregon limited liability company (Aurora Solar), which is a subsidiary of Avangrid Renewables, LLC, an Oregon limited liability company (Avangrid), prior to the proposed site acquisition.

The Camino Solar Project site, referenced herein as the “Subject Property”, consists of an irregularly shaped property made up of 17 contiguous parcels totaling approximately 421.5 acres. The properties are located on rural, generally undeveloped land, adjacent to the Manzana Wind Power Project. An operations and maintenance (O&M) building and laydown yard are located on the southernmost portion of the Subject Property. A substation associated with the Manzana Wind Power Project is located adjacent to the southernmost portion of the Subject Property.

Figures depicting the location of Subject Property and surrounding area can be found in Appendix A. Photographic documentation of the Subject Property is included in Appendix B.

The Subject Property is bound to the north, south, west, and east by undeveloped land and portions of the Manzana Wind Power Project. Unimproved gravel roads are located throughout the Subject Property and surrounding area.

This Phase I ESA identifies Recognized Environmental Conditions (RECs) that may adversely affect the Subject Property, and was conducted in accordance with the scope and limitations of the ASTM International, Inc. (ASTM) Practice E1527-13. This report includes a summary of the site reconnaissance conducted June 1, 2017, a review of environmental databases, and a review of historical data sources. Any exceptions to or deletions from these ASTM practices are described later in this report.

Findings

The general findings of this assessment include the following:

- The Subject Property elevation ranges from approximately 3,350 feet above mean sea level (amsl) to approximately 3,800 feet amsl, and topography generally slopes downward to the south. The Subject Property is generally undeveloped. The southern portion of the Subject Property includes an O&M building and a laydown area, including a water storage tank, aboveground propane tanks, electrical transformers, and shipping containers. The surrounding area includes the Manzana Wind Power Project turbines and associated substation, a small structure, and undeveloped land.
- The Subject Property is located in the Mojave Desert geomorphic province of California, which is a broad interior region of isolated mountain ranges, separated by expanses of desert plains, and is characterized by both a prominent northwest fault trend and a secondary east-west fault trend. Sedimentary deposits at the

Subject Property consist of Quaternary sedimentary deposits of coarse sand, gravel, and cobble fanglomerate. The alluvium forms a dissected fan of detritus derived from nearby crystalline rocks of the Tehachapi Mountains.

- Soils in the Subject Property consist of Ramona gravelly sandy loam, Hanford gravelly sandy loam, Cajon loamy sand, and Ramona sandy loam. These soils are well drained or excessively drained loams with moderate to high infiltration rates.
- The Environmental Data Resources, Inc. (EDR) report included two listings for the Subject Property. Blattner Energy, Inc was listed at the Subject Property in the HAZNET database. The listing is associated with the storage, bulking and transferring of organic solids and unspecified sludge wastes for offsite disposal. No onsite treatment or recovery of waste is associated with this listing. Manzana was listed at the Subject Property in the FINDS database. The FINDS database is a “pointer” to other databases that have been otherwise identified. No other listings were reported within the requested search radius.
- Sanborn Fire Insurance Maps do not exist for the Subject Property.
- City directory coverage exists for the vicinity of the Subject Property, but did not include the Subject Property specifically.
- The historical aerial photographs depict the Subject Property and surrounding properties as generally undeveloped prior to 2010, with unimproved gravel roads on the Subject Property and surrounding area. Structures associated with the Manzana Wind Power project were present on the Subject Property and surrounding area in the 2012 aerial photograph.
- Historical topographic maps depicted the Subject Property and surrounding area as generally undeveloped, with several unimproved roads noted throughout the area.
- A site reconnaissance was conducted on June 1, 2017. An O&M building and laydown yard were located at the south end of the Subject Property. The O&M building contains the administrative offices, technicians’ locker rooms, maintenance vehicle parking, equipment storage, and hazardous materials/waste storage area. The hazardous materials/waste storage area contained cleaning products, dielectric solvent, anti-freeze, lubricating oil, and spent lubricating oil. The site reconnaissance for the remainder of the Subject Property was completed from unpaved access roads used primarily by maintenance vehicles to repair and maintain the wind turbines. The Subject Property consisted of undeveloped land with power generating wind turbines and maintenance access roads. No issues of concern were noted for the Subject Property. No sites of concern were noted adjacent to, or in the vicinity of, the Subject Property.
- HDR interviewed Mr. David Schwind, Plant Manager with Avangrid Renewables, LLC, on June 1, 2017. Mr. Schwind stated the Subject Property and surrounding area were developed as a wind power facility starting in 2008, and went into operation in 2012. Mr. Schwind also stated the Subject Property was undeveloped prior to 2008. Mr. Schwind confirmed that the only hazardous waste

present at the site was spent lubricant for the turbines, which was collected in 55-gallon drums and disposed of regularly.

Opinions

HDR has reviewed the stated data sources, which are part of the ASTM E 1527-13 assessment protocol. Based upon the review of the data, HDR has developed the following professional opinions:

- No indications of contamination were noted on the Subject Property.
- Based on the lack of significant volatile organic compound (VOC) sources in the area, VOCs in the subsurface are unlikely to present a vapor intrusion risk to the Subject Property.

Conclusions

HDR has not identified RECs for the Subject Property, as described in the Findings section above. The following statement is required by ASTM E 1527-13 as a positive declaration of whether REC(s) were found:

HDR has performed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-13 of the Camino Solar Project site, located at 17890 Champagne Avenue in Rosamond, Kern County, California (Subject Property). Any exceptions to or deletions from these practices are described in previous sections of this report. This report has revealed no indication of RECs in connection with the Subject Property.

Recommendations

Recommendations included in this report were developed through the investigative procedures described in Section 1.4 Scope of Services, Significant Assumptions, and Limitations. These findings should be reviewed within the context of the limitations provided in the Limitations section (Section 1.4).

Based on the stated Findings and Conclusions, HDR makes the following recommendations:

Recommendation 1

HDR recommends that construction contractors should be instructed to immediately stop all subsurface activities in the event that previously unidentified, potentially hazardous materials are encountered, or significantly stained soil is found during construction. Contractors should be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process.

Recommendation 2

HDR recommends that Aurora Solar consider the “shelf life” of Phase I documents in determining risk. ASTM E 1527-13 states that a conforming “Phase I” report is valid for a period of 180 days, and may be updated during the 180-day to 1-year timeframe. The

report is valid for use in any of the CERCLA defenses ONLY if it is updated within this time frame. If more than 1 year passes from the final report date, the Phase I effort would need to be repeated to remain in compliance with ASTM and the “All Appropriate Inquiry” protections.

1 Introduction

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) is to document the evaluation of the Subject Property (Camino Solar Project site) for indications of recognized environmental conditions (RECs). The ASTM International (ASTM) Practice E 1527-13 defines the following categories of REC:

REC: The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

Historical REC (HREC): A past release of any hazardous substances or petroleum products that has occurred in connection with the property, and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Controlled REC (CREC): A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Additional conditions that are not included under the definitions of a REC, but are defined by ASTM Practice 1527-13 include:

De minimis: A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions.

Business Environmental Risk: A risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real

estate, not necessarily limited to those environmental issues required to be investigated in this practice.

Consideration of business environmental risk issues may involve addressing one or more non-scope considerations.

1.2 Report Users

HDR Engineering, Inc. (HDR) received authorization from Aurora Solar, LLC, an Oregon limited liability company (Aurora Solar), which is a subsidiary of Avangrid Renewables, LLC, an Oregon limited liability company (Avangrid) to conduct a Phase I ESA of the Camino Solar Project site, located at and in the vicinity of 17890 Champagne Avenue in Rosamond, Kern County, California. This Phase I ESA has been prepared for Aurora Solar and Avangrid, and only Aurora Solar and Avangrid have the right to rely on the contents of this Phase I ESA without written authorization.

1.3 Scope of Services, Significant Assumptions, and Limitations

The services provided for this project consisted of the following:

- Provide a description of the Subject Property including current land uses (Sections 2.2 and 5.1)
- Provide a general description of the topography, soils, geology, and groundwater flow (Section 2.4)
- Review reasonably ascertainable and reviewable regulatory information published by federal, state, local, tribal, health, and/or environmental agencies pertaining to the Subject Property (Section 4.1)
- Review historical data sources for the Subject Property, including aerial photographs, topographic maps, fire insurance maps, city directories, and other readily available development data (Section 4.3)
- Conduct an area reconnaissance and an environmental review—including a visual review of adjoining properties—with a focus on indications of hazardous substances, petroleum products, polychlorinated biphenyls (PCBs), wells, storage tanks, solid waste disposal pits and sumps, and utilities (Section 5.1)
- Interview current owner and/or operator of the Subject Property and interview other persons with knowledge of the development history of the Subject Property (Section 5.2)
- Determine data gaps in the information obtained and comment on their significance in identifying RECs for the Subject Property (Section 6)
- Prepare a written report of methods, findings, opinions, and conclusions (Section 7)

The goal in providing these services was to assist the user in identifying conditions in the project area that may indicate risks regarding hazardous materials storage, disposal,

releases or other impacts. The resulting report may support the user's assertion of and relief from liabilities under one of the three "defenses" identified in the 2002 Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 9607 (All Appropriate Inquiry subsections). These three defenses include:

1. The "innocent landowner" defense under 42 United States Code [USC] §9607(b)(3)
2. The "contiguous property owner" defense pursuant to 42 USC §9607(q)
3. The "bona fide prospective purchaser" defense pursuant to 42 USC §§ 9601(40), 9607(r)

Federal law 42 USC §9601(35)(A), (40) & (B), §9607(b)(3), §9607(q); and §9607(r), and regulations promulgated by the EPA (40 Code of Federal Regulations [CFR] Part 312), provide that, to qualify for these three defenses, AAI must be performed. Those inquiries are documented by Phase I reports or ESAs. The EPA has agreed that ASTM Practice E1527-13 may be used to comply with the requirements set forth in its AAI regulations, 40 CFR Part 312.

A user is defined by ASTM Practice E1527-13 as the party seeking to use Practice E1527 to complete an ESA of the project area and may include a potential purchaser of land in the project area, a potential tenant of the project area, an owner of land in the project area, a lender, or a project area manager. Investigative areas not included in the standard ASTM ESA scope include asbestos, lead-based paint, lead in drinking water, radon or urea formaldehyde, wetland issues, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, and high-voltage power lines.

Indoor air quality from sources such as mold and asbestos is not included in the ASTM standard, except to the extent that indoor air impacts are related to a Superfund site release and/or caused by releases of hazardous substances into subsurface soil or groundwater (vapor intrusion).

The potential for vapor encroachment or intrusion into structures in the project area is considered and identified from onsite or offsite sources based on the experience of the Environmental Professional.

The scope of services for the Phase I ESA also does not include the completion of soil borings, the installation of groundwater monitoring wells, or the collection of soil or groundwater samples.

HDR has made certain assumptions in preparing the scope of this assessment:

- Data gathered from public information sources (i.e., libraries or public regulatory agencies) are accurate and reliable.
- Site operations reflect site conditions relative to potential releases and no intentional concealment of environmental conditions or releases has occurred.
- Interview information is directly reported as gathered by the assessor and is limited by the accuracy of the interviewee's recollection and experience.

- Published geologic information and site observations made by the Environmental Professional are used to estimate likely contaminant migration pathways in the subsurface. These estimates by the Environmental Professional are limited in accuracy and are generally cross-referenced with existing information about similar sites and environmental releases in the area.
- Regulatory information is limited to sites identified after the late 1980s because reliable records were not kept by regulatory agencies prior to that time frame.

The findings and conclusions presented in this report are based on the procedures described in ASTM Practice E1527-13, informal discussions with various agencies, a review of the available literature cited in this report, interviews, information provided by Aurora Solar, conditions noted at the time of this Phase I ESA, and HDR's interpretation of the information obtained as part of this Phase I ESA. The findings and conclusions are limited to the specific project and properties described in this report, and by the accuracy and completeness of the information provided by others.

A Phase I ESA cannot entirely eliminate uncertainty regarding the potential for RECs. Conducting this assessment is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a project area within reasonable limits of time and cost. In conducting its services, HDR used a degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same locality. This Phase I ESA conforms to the level of documentation required in ASTM Practice E1527-13. However, HDR may omit discussion of certain records (i.e., sources deemed, in HDR's professional opinion, to be inapplicable, or of limited value to the specific needs of this client). In accordance with ASTM, however, if the lack of available documentation results in a data gap, this data gap is identified herein and its significance is discussed.

2 Site Description

2.1 Location and Legal Description

The Camino Solar Project site, referenced herein as the Subject Property, is located at and in the vicinity of 17890 Champagne Avenue in Rosamond, Kern County, California. The Subject Property consists of 17 contiguous parcels totally approximately 421.5 acres.

2.2 Site and Vicinity Characteristics

The topography of the Subject Property generally slopes to the south, with elevation ranging from approximately 3,350 feet above mean sea level (amsl) to approximately 3,800 feet amsl. The Subject Property is generally undeveloped. The southern portion of the Subject Property includes an operation and maintenance (O&M) building and a laydown yard, including a water storage tank, aboveground propane tanks, electrical transformers, and storage containers. The Subject Property is bound to the north, south, east, and west by undeveloped land and portions of the Manzana Wind Power Project, including a substation and unimproved gravel roads. Figures depicting the location of the

Subject Property can be found in Appendix A. Photographic documentation of the Subject Property is included in Appendix B.

2.3 Description of Structures, Roads, and other Site Improvements

The Subject Property and surrounding area are generally undeveloped land, with turbines associated with the Manzana Wind Power Project and unimproved gravel roads interspersed throughout the area. The southern portion of the Subject Property includes an office/warehouse building and a laydown area associated with the Manzana Wind Power Project, including a water storage tank, aboveground propane tanks, shipping containers, and electrical transformers.

2.4 Area Geology and Hydrogeology

The Subject Property is located within the Mojave Desert Geomorphic Province of California. The Mojave Desert province is a broad interior region of isolated mountain ranges separated by expanses of desert plains (California Department of Conservation, 2002). The Garlock Fault, a northwest fault trend, is located along the northern boundary of the province, and a secondary east-west fault trend, the San Andreas Fault, is located along the southern boundary. The province is characterized by sedimentary layers and underlying metamorphic rock, deformed by Cenozoic Era fault movement.

Sedimentary deposits at the Subject Property consist of Quaternary sedimentary deposits of coarse sand, gravel, and cobble conglomerate. The alluvium forms a dissected fan of detritus derived from nearby crystalline rocks of the Tehachapi Mountains. At its upper edge, this fan overlies the crystalline rocks of the mountains, and thickens toward the south-southeast. In Cottonwood Creek, located approximately two miles west of the Subject Property, this unit is exposed and is composed of well-sorted, stratified cobbles and pebbly gravels.

The United States Department of Agriculture Soil Conservation Service, National Cooperative Soil Survey classifies soils on the Subject Property as Ramona gravelly sandy loam, Hanford gravelly sandy loam, Cajon loamy sand, and Ramona sandy loam. These soils are well drained or excessively drained loams with moderate to high infiltration rates.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, and characteristics of the soil and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. The groundwater flow direction in the vicinity of the Subject Property is assumed to be to the south, mirroring surface topography. Site personnel stated groundwater was believed to occur at approximately 450 feet below ground surface in a domestic well located on the southern portion of the Subject Property. Confirmation of groundwater depth has not been received to date.

The California Department of Conservation Division of Oil, Gas & Geothermal Resources Well Finder online database (DOGGR), and the EDR Well Search Report (Appendix C) were reviewed to locate potential oil and gas wells near the Subject Property. Based on the review, and verified during the site reconnaissance, no oil and gas wells are located at, or in the vicinity of, the Subject Property.

3 User-Provided Information

The user provided a map of the Subject Property and a description of the project site boundaries. In addition, in response to a request for information on the Subject Property, the user of the report stated that it:

- is unaware of any environmental cleanup liens against the property
- has no knowledge of past uses of the property other than for agricultural use
- has no knowledge of any chemicals that are, or were, present on the property
- has no knowledge of any spills or chemical releases on the property
- has no knowledge of any environmental cleanups that may have taken place on the property
- has no knowledge of the presence of contamination on the property

4 Records Review

4.1 Environmental Records Review

Environmental Data Resources, Inc. (EDR) was contracted by HDR to complete a database search, which included a buffer zone of 1.5 miles from the Subject Property boundary. The database search was produced by EDR on May 31, 2017, and included federal, state, local, and tribal databases, as well as EDR proprietary databases, as defined by ASTM E1527-013. The results of the database search are summarized in the following table and paragraphs. Table 4-1 includes databases that returned results. A complete copy of the EDR Environmental Database Report is included in Appendix C.

Table 4-1. Summary of Environmental Database Search

Database	Description	Sites Listed in Search Radius	Listings of concern to the Project
Haznet	Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.	1	1

FINDS	Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).	1	1
Total Listings		2	2

4.2 Summary of Listed Records

The EDR report included two listings associated with the Subject Property:

- Blattner Energy, Inc – 17890 Champagne Avenue (Haznet). The listing is associated with the storage, bulking, and transferring of organic solids and unspecified sludge wastes for offsite disposal. No onsite treatment or recovery of waste is associated with this listing.
- Manzana – 17890 Champagne Avenue (FINDS). The FINDS database is a “pointer” to other databases that have been otherwise identified. This site was listed in the “State Master” database, which is an environmental interest/information system. The database listed Iberdrola Renewables as the property owner of the Manzana Wind Energy Plant. The listing was created in March 2014 and last updated in October 2015.

No other listings were reported within the requested search radius.

A review of the Orphan Summary (unmappable sites due to insufficient address information) did not note any orphan sites within 1.5 miles of the Subject Property.

4.3 Historical Use Information

The objective of reviewing historical use information is to develop a history of previous land uses in the vicinity of the Subject Property, and to assess these uses for potential hazardous materials impacts that may affect the project. HDR reviewed those historical sources that were readily available and reviewable and likely to provide useful information, given the time and cost constraints inherent in ESA projects.

4.3.1 Fire Insurance Maps

A Sanborn® Fire Insurance Maps search was conducted by EDR, and the results of that search are included in Appendix C. The Subject Property was not included in the Sanborn Fire Insurance Maps coverage area.

4.3.2 City Directory Information

A search of available city directories was conducted by EDR, and is included in Appendix C. The city directory search included addresses along Champagne Avenue for the years 1992, 1995, 1999, 2003, 2008, and 2013. The Subject Property was not listed in the available city directories.

4.3.3 Historical Aerial Photographs

Historical aerial photographs, as described in Table 4-2, are valuable for the environmental assessor to review features of the Subject Property and surrounding properties over a long period. HDR reviewed historical aerial photographs (Appendix D) for the following years: 1963, 1974, 1977, 1986, 1989, 2005, 2009, 2010, and 2012.

Table 4-2. Description of Aerial Photographs

Year	Description of Aerial Photograph
1963	The Subject Property and surrounding area were undeveloped. Unimproved roads were noted in the surrounding area.
1974	The Subject Property and surrounding area was relatively unchanged. Additional unimproved roads were noted on the Subject Property and the surrounding area.
1977	The Subject Property and surrounding area were relatively unchanged.
1986	A well-defined north-south unimproved road was located in the central portion of the Subject Property. The remainder of the Subject Property and surrounding area were relatively unchanged. Two small structures were noted west and north of the northern portion of the Subject Property.
1989	The Subject Property and surrounding area were relatively unchanged.
2005	The Subject was relatively unchanged. A structure was visible adjacent to the southern portion of the Subject Property.
2009	The Subject Property and surrounding area were unchanged.
2010	The Subject Property and surrounding area were unchanged.
2012	The O&M building and water storage tank had been constructed in the southern portion of the Subject Property. Wind turbines and the substation associated with the Manzana Wind Power Project were noted in the surrounding area.

4.3.4 Historical Topographic Maps

Historical topographic maps provide an overview of the area relative to potential previous land uses. HDR reviewed historical topographic maps of the Subject Property provided by EDR. The USGS 30-minute series topographic maps (Elizabeth Lake, dated 1915 and 1917), 15-minute series topographic maps (Willow Springs, dated 1943 and 1947), and 7.5-minute series topographic maps (Tylerhorse Canyon, dated 1965, 1995, and 2012) are provided in Appendix C. These maps served to augment and verify information that was gathered in the historic aerial photograph review. The Subject Property and

surrounding area were depicted as generally undeveloped, with several unimproved roads noted throughout the area.

4.4 Environmental Liens and Additional Information

No information regarding the chain-of-title ownership history or environmental liens recorded against facilities located within the Subject Property was provided by the user. Environmental lien searches were not conducted as part of the scope of work for this project. HDR reviewed available property deeds associated with the Subject Property (Appendix E). No environmental liens or other activity and use limitations (AULs) were found for parcels associated with the Subject Property.

4.5 Summary of Previous Environmental Investigations

No previous environmental investigations were provided or reviewed during preparation of this report.

5 Site Reconnaissance and Interviews

5.1 Site Reconnaissance and Site Descriptions

On June 1, 2017, HDR personnel conducted site reconnaissance activities at the Subject Property and surrounding area. Photographs of the site reconnaissance are included in Appendix B.

An O&M building and laydown yard were located at the south end of the Subject Property. The office building contains the administrative offices, technicians' locker rooms, maintenance vehicle parking, equipment storage, and hazardous materials/waste storage area. The hazardous materials/waste storage area contained cleaning products, dielectric solvent, anti-freeze, lubricating oil, and spent lubricating oil. A propane aboveground storage tank (AST) was located on the northern side of the laydown yard. Pavement in and around the office building was intact, with no surface staining.

The site reconnaissance for the remainder of the Subject Property was completed from unpaved access roads used primarily by maintenance vehicles to repair and maintain the wind turbines. Surface drainage was to the east and west, where seasonal creeks flow to the south. The Subject Property consisted of undeveloped land with power generating wind turbines and maintenance access roads. Additional wind turbines were located to the north, west, and south. Undeveloped land and wind turbines were located to the east.

An electrical power substation (associated with the Manzana Project) was located to the west of the office building and laydown yard. A propane AST was located on the northern side of the substation site. The ground cover surrounding the substation was gravel, and no staining was noted.

No issues of concern were noted during the site reconnaissance. No pits, ponds, lagoons, disturbed soil, large-scale dumping of waste, or surface staining was noted during the site reconnaissance.

5.2 Site Interviews

On June 1, 2017, David Schwind, Plant Manager with Avangrid Renewables, LLC was interviewed by HDR personnel regarding the Subject Property's current operations and environmental history. The Subject Property was developed as a wind power facility starting in 2008, and went into operation in 2012. Mr. Schwind confirmed that the only hazardous waste present at the site was spent lubricant for the turbines, which was collected in 55-gallon drums and disposed of regularly. A domestic well provides water to the office building. Mr. Schwind also stated that the Subject Property has been undeveloped prior to 2008, with the possible exception of a few oil drilling attempts made prior to the 1940s. The property was not developed as a productive oil field.

5.3 Utilities and PCBs

No indication of subsurface utilities was noted. Several transformers were present in the laydown yard on the southern-most portion of the Subject Property. However, PCBs are unlikely due to the age of the transformers. Overhead transmission lines associated with the Manzana Project substation on the adjacent property were present.

5.4 Vapor Intrusion Potential

According to EPA guidance, vapor intrusion is the general term for the migration of the vapor phase of volatile organic compounds (VOCs) from any subsurface contaminant source, such as contaminated soil or groundwater, through the soil and into an overlying building. The two general classes of VOCs that account for a large number of soil and groundwater contamination sites in the United States are petroleum hydrocarbons and non-petroleum hydrocarbon fuel additives, and chlorinated solvents.

The potential for vapor intrusion was evaluated for the Subject Property. Based on the rural nature of the Subject Property and the lack of VOC sources in the immediate vicinity, vapor intrusion is not considered to be a concern for the Subject Property.

6 Data Gap Analysis

The ASTM E 1527-13 standards require a listing of "data gaps," including data failure, encountered during the investigative process that may affect the validity of the conclusions drawn by the Environmental Professional. The ASTM E 1527-13: 12.7 standard also requires that the Environmental Professional estimate the relative importance of the data gaps. Generally, gaps in available data are related to the availability of historical data sources for specific sites of concern.

The Environmental Professional uses multiple historical data sources as a method to provide coverage for data gaps. Historical information is collected on a recurring basis, and the passage of time between data sets may or may not constitute a significant gap in data coverage. For this project, the following items may constitute a data gap as defined by ASTM:

- A search for environmental liens and AULs was not conducted by the User

- Absence of Sanborn Fire Insurance Maps coverage
- Lack of city directory coverage

The lack of an environmental lien search conducted by the User is not a significant data gap based on available information in the property deeds. The absence of fire insurance maps and lack of city directory coverage do not present significant data gaps, because of the presence of other supporting historical information, including historical aerial photographs and topographic maps, as well as owner-provided information and interviews.

7 Findings, Opinions, and Conclusions

HDR has conducted a Phase I Environmental Site Assessment (Phase I ESA) of the Camino Solar Project site, located at and in the vicinity of 17890 Champagne Avenue in Rosamond, Kern County, California. The Phase I ESA has been prepared for Aurora Solar, prior to the proposed site acquisition.

The Phase I ESA was performed in accordance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described previously in this report. Included in this Phase I ESA are a summary of the site reconnaissance conducted on June 1, 2017 the review of the environmental database search report, historical data sources, and other records.

7.1 Findings

The general findings of this assessment include the following:

- The Subject Property elevation ranges from approximately 3,350 feet amsl to approximately 3,800 feet amsl, and topography generally slopes downward to the south. The Subject Property is generally undeveloped. The southern portion of the Subject Property includes an O&M building and a laydown area, including a water storage tank, aboveground propane tank, electrical transformers, and shipping containers. The surrounding area includes the Manzana Wind Power Project turbines and associated substation, a small structure, and undeveloped land.
- The Subject Property is located in the Mojave Desert geomorphic province of California, which is a broad interior region of isolated mountain ranges, separated by expanses of desert plains, and is characterized by both a prominent northwest fault trend and a secondary east-west fault trend. Sedimentary deposits at the Subject Property consist of Quaternary sedimentary deposits of coarse sand, gravel, and cobble conglomerate. The alluvium forms a dissected fan of detritus derived from nearby crystalline rocks of the Tehachapi Mountains.
- Soils in the Subject Property consist of Ramona gravelly sandy loam, Hanford gravelly sandy loam, Cajon loamy sand, and Ramona sandy loam. These soils are well drained or excessively drained loams with moderate to high infiltration rates.

- The EDR report included two listings for the Subject Property. Blattner Energy, Inc was listed at the Subject Property in the HAZNET database. The listing is associated with the storage, bulking and transferring of organic solids and unspecified sludge wastes for offsite disposal. No onsite treatment or recovery of waste is associated with this listing. Manzana was listed at the Subject Property in the FINDS database. The FINDS database is a “pointer” to other databases that have been otherwise identified. No other listings were reported within the requested search radius.
- Sanborn Fire Insurance Maps do not exist for the Subject Property.
- City directory coverage exists for the vicinity of the Subject Property, but did not include the Subject Property specifically.
- The historical aerial photographs depict the Subject Property and surrounding properties as generally undeveloped prior to 2010, with unimproved gravel roads on the Subject Property and surrounding area. Structures associated with the Manzana Wind Power project were present on the Subject Property and surrounding area in the 2012 aerial photograph.
- Historical topographic maps depicted the Subject Property and surrounding area as generally undeveloped, with several unimproved roads noted throughout the area.
- A site reconnaissance was conducted on June 1, 2017. An O&M building and laydown yard were located at the south end of the Subject Property. The O&M building contains the administrative offices, technicians’ locker rooms, maintenance vehicle parking, equipment storage, and hazardous materials/waste storage area. The hazardous materials/waste storage area contained cleaning products, dielectric solvent, anti-freeze, lubricating oil, and spent lubricating oil. The site reconnaissance for the remainder of the Subject Property was completed from unpaved access roads used primarily by maintenance vehicles to repair and maintain the wind turbines. The Subject Property consisted of undeveloped land with power generating wind turbines and maintenance access roads. No issues of concern were noted for the Subject Property. No sites of concern were noted adjacent to, or in the vicinity of, the Subject Property.
- HDR interviewed Mr. David Schwind, Plant Manager with Avangrid Renewables, LLC, on June 1, 2017. Mr. Schwind stated the Subject Property and surrounding area were developed as a wind power facility starting in 2008, and went into operation in 2012. Mr. Schwind also stated the Subject Property was undeveloped prior to 2008. Mr. Schwind confirmed that the only hazardous waste present at the site was spent lubricant for the turbines, which was collected in 55-gallon drums and disposed of regularly.

7.2 Opinions

HDR has reviewed the stated data sources, which are part of the ASTM E 1527-13 assessment protocol. Based upon the review of the data, HDR has developed the following professional opinions:

- No indications of contamination were noted on the Subject Property.
- Based on the lack of significant VOC sources in the area, VOCs in the subsurface are unlikely to present a vapor intrusion risk to the Subject Property.

7.3 Conclusions

HDR has not identified RECs for the Subject Property, as described in the Findings section above. The following statement is required by ASTM E 1527-13 as a positive declaration of whether REC(s) were found:

HDR has performed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-13 of the Camino Solar Project site, located at 17890 Champagne Avenue in Rosamond, Kern County, California (Subject Property). Any exceptions to or deletions from these practices are described in previous sections of this report. This report has revealed no indication of RECs in connection with the Subject Property.

8 Recommendations

Recommendations included in this report were developed through the investigative procedures described in Section 1.4 Scope of Services, Significant Assumptions, and Limitations. These findings should be reviewed within the context of the limitations provided in the Limitations section (Section 1.4).

Based on the stated Findings and Conclusions, HDR makes the following recommendations:

8.1 Recommendation 1

HDR recommends that construction contractors should be instructed to immediately stop all subsurface activities in the event that previously unidentified, potentially hazardous materials are encountered, or significantly stained soil is found during construction. Contractors should be instructed to follow all applicable regulations regarding discovery and response for hazardous materials encountered during the construction process.

8.2 Recommendation 2

HDR recommends that Aurora Solar consider the “shelf life” of Phase I documents in determining risk. ASTM E 1527-13 states that a conforming “Phase I” report is valid for a period of 180 days, and may be updated during the 180-day to 1-year timeframe. The report is valid for use in any of the CERCLA defenses ONLY if it is updated within this time frame. If more than 1 year passes from the final report date, the Phase I effort would need to be repeated to remain in compliance with ASTM and the “All Appropriate Inquiry” protections.

9 Qualifications of Environmental Professionals

9.1 Signatures and Qualifications

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 Code of Federal Regulations [C.F.R.] Part 312.

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the appropriate inquiries in conformance with standards and practices set forth in 40 CFR Part 312.

The preceding report has been prepared in general conformance with standard industry practice for performance of ESAs, and includes the applicable portions of the investigation procedures codified in ASTM E 1527-13, Standard Practice for Environmental Site Assessments: Environmental Site Assessment Process. The end user of this report may rely on the contents, findings, and conclusions to be accurate within the limitations stated in this report and in the ASTM standard. The report also complies with specific requirements supplied by the client.



Kimberly Hawkins
Environmental Professional



Hong Spores, CPG
Environmental Professional
Senior Hydrogeologist

9.1.1 Qualifications of Environmental Professionals

This Phase I ESA was performed by the following HDR personnel:

Kim Hawkins is an environmental scientist with over 16 years of experience in environmental assessments and investigations. She has conducted the hazardous materials evaluations associated with Environmental Impact Statements Environmental Assessments (EA), Phase I and Phase II ESA, and Environmental Baseline Surveys (EBS) throughout Washington, Oregon, Alaska, and Canada. Kim has conducted extensive sampling of environmental media, including soil, groundwater, surface water, sediment, and air, as well as asbestos and lead-based paint (LBP). She has overseen underground storage tank removals and assessments, and has developed mitigation plans for contaminated media.

9.1.2 Qualifications of QA/QC Review Professionals

Quality Assurance / Quality Control was performed by the following HDR Personnel:

Ms. Hong T. Spores, CPG, is a qualified environmental professional, as defined by ASTM Practice E 1527-13, and has 15 years of experience in the assessment and remediation of impacted properties and compliance with environmental regulations. She has a BS in Geology from the University of Minnesota and an MBA from the University of St. Thomas. Ms. Spores specializes in investigations of hazardous materials-impacted properties for public and private sector clients. She is highly knowledgeable of federal, state, and local environmental regulations and standards, along with environmental due diligence relating to real estate transactions. Her experience covers assessments ranging from agricultural properties to industrial facilities located in more than 20 states.

10 References

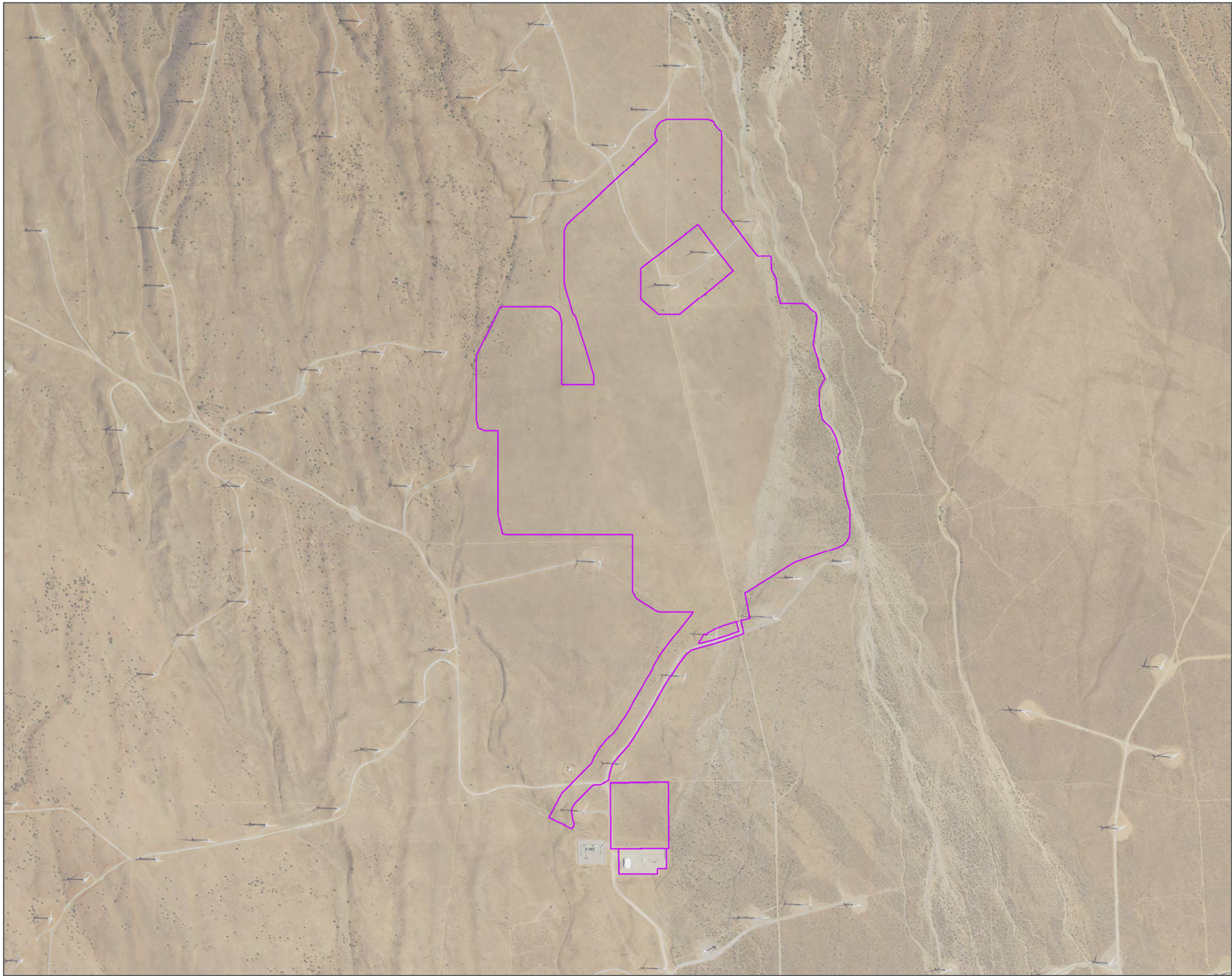
ASTM Practice E 1527-13. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

California Department of Conservation, California Geological Survey. 2002. California Geomorphic Provinces, Note 36. December, 2002.

Environmental Data Resources, Inc., 2017. Camino Solar, 17890 Champagne Avenue Rosamond, California 93560, Inquiry Number 4952767.3; EDR Radius Map Report with GeoCheck, Certified Sanborn Map Report, EDR-City Directory Image Report, EDR Aerial Photo Decade Package, EDR Historical Topo Map Report, and EDR Environmental Lien and AUL Search. May 31, 2017.



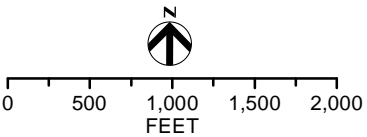
Appendix A. Figures



LEGEND

Proposed Project Location

CAMINO SOLAR PROJECT
SITE DETAIL MAP
FIGURE 2





Appendix B. Photographic Documentation



Photograph 1: Warehouse on the southern portion of Subject Property.



Photograph 2: Hazardous materials storage area in warehouse on Subject Property.



Photograph 3: Aboveground propane tanks and water storage tank on southern portion of Subject Property.



Photograph 4: Storage containers and transformers located on southern portion of Subject Property.



Photograph 5: Substation located adjacent to southern portion of Subject Property



Photograph 6: Northern extent of Subject Property. View is to the east.



Photograph 7: Northern extent of Subject Property. View is to the north.



Photograph 8: Northern extent of Subject Property. View is to the south.



Photograph 9: Northern extent of Subject Property. View is to the west.



Appendix C. EDR Report 4850460

Camino Solar

17890 Champagne Ave
Rosamond, CA 93560

Inquiry Number: 4952767.2s
May 31, 2017

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

17890 CHAMPAGNE AVE
ROSAMOND, CA 93560

COORDINATES

Latitude (North):	34.9199550 - 34° 55' 11.83"
Longitude (West):	118.4466690 - 118° 26' 48.00"
Universal Transverse Mercator:	Zone 11
UTM X (Meters):	367852.7
UTM Y (Meters):	3864924.2
Elevation:	3378 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630787 TYLERHORSE CANYON, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140705, 20140514
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
17890 CHAMPAGNE AVE
ROSAMOND, CA 93560

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	BLATTNER ENERGY INC	17890 CHAMPAGNE AVE	HAZNET		TP
A2	MANZANA	17890 CHAMPAGNE AVE	FINDS		TP

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
BLATTNER ENERGY INC 17890 CHAMPAGNE AVE ROSEMEAD, CA 93560	HAZNET GEPAID: CAL000380464 GEPAID: CAC002684282	N/A
MANZANA 17890 CHAMPAGNE AVE ROSAMOND, CA 93560	FINDS Registry ID:: 110058251216	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

EXECUTIVE SUMMARY

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

EXECUTIVE SUMMARY

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT.....	Waste Management Unit Database
SWRCY.....	Recycler Database
HAULERS.....	Registered Waste Tire Haulers Listing
INDIAN ODI.....	Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9.....	Torres Martinez Reservation Illegal Dump Site Locations
ODI.....	Open Dump Inventory
IHS OPEN DUMPS.....	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL.....	Delisted National Clandestine Laboratory Register
HIST Cal-Sites.....	Historical Calsites Database
SCH.....	School Property Evaluation Program
CDL.....	Clandestine Drug Labs
Toxic Pits.....	Toxic Pits Cleanup Act Sites
US CDL.....	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST.....	SWEEPS UST Listing
HIST UST.....	Hazardous Substance Storage Container Database
CA FID UST.....	Facility Inventory Database

Local Land Records

LIENS.....	Environmental Liens Listing
LIENS 2.....	CERCLA Lien Information
DEED.....	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS.....	Hazardous Materials Information Reporting System
CHMIRS.....	California Hazardous Material Incident Report System
LDS.....	Land Disposal Sites Listing
MCS.....	Military Cleanup Sites Listing
SPILLS 90.....	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR.....	RCRA - Non Generators / No Longer Regulated
FUDS.....	Formerly Used Defense Sites
DOD.....	Department of Defense Sites
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR.....	Financial Assurance Information
EPA WATCH LIST.....	EPA WATCH LIST
2020 COR ACTION.....	2020 Corrective Action Program List
TSCA.....	Toxic Substances Control Act
TRIS.....	Toxic Chemical Release Inventory System
SSTS.....	Section 7 Tracking Systems
ROD.....	Records Of Decision
RMP.....	Risk Management Plans
RAATS.....	RCRA Administrative Action Tracking System

EXECUTIVE SUMMARY

PRP.....	Potentially Responsible Parties
PADS.....	PCB Activity Database System
ICIS.....	Integrated Compliance Information System
FTTS.....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS.....	Material Licensing Tracking System
COAL ASH DOE.....	Steam-Electric Plant Operation Data
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database
RADINFO.....	Radiation Information Database
HIST FTTS.....	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS.....	Incident and Accident Data
CONSENT.....	Superfund (CERCLA) Consent Decrees
INDIAN RESERV.....	Indian Reservations
FUSRAP.....	Formerly Utilized Sites Remedial Action Program
UMTRA.....	Uranium Mill Tailings Sites
LEAD SMELTERS.....	Lead Smelter Sites
US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
US MINES.....	Mines Master Index File
ABANDONED MINES.....	Abandoned Mines
UXO.....	Unexploded Ordnance Sites
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
ECHO.....	Enforcement & Compliance History Information
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings.....	CUPA Resources List
DRYCLEANERS.....	Cleaner Facilities
EMI.....	Emissions Inventory Data
ENF.....	Enforcement Action Listing
Financial Assurance.....	Financial Assurance Information Listing
HIST CORTESE.....	Hazardous Waste & Substance Site List
HWP.....	EnviroStor Permitted Facilities Listing
HWT.....	Registered Hazardous Waste Transporter Database
MINES.....	Mines Site Location Listing
MWMP.....	Medical Waste Management Program Listing
NPDES.....	NPDES Permits Listing
PEST LIC.....	Pesticide Regulation Licenses Listing
PROC.....	Certified Processors Database
Notify 65.....	Proposition 65 Records
UIC.....	UIC Listing
WASTEWATER PITS.....	Oil Wastewater Pits Listing
WDS.....	Waste Discharge System
WIP.....	Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historic Gas Stations
EDR Hist Cleaner.....	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF.....	Recovered Government Archive Solid Waste Facilities List
-------------	--

EXECUTIVE SUMMARY

RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

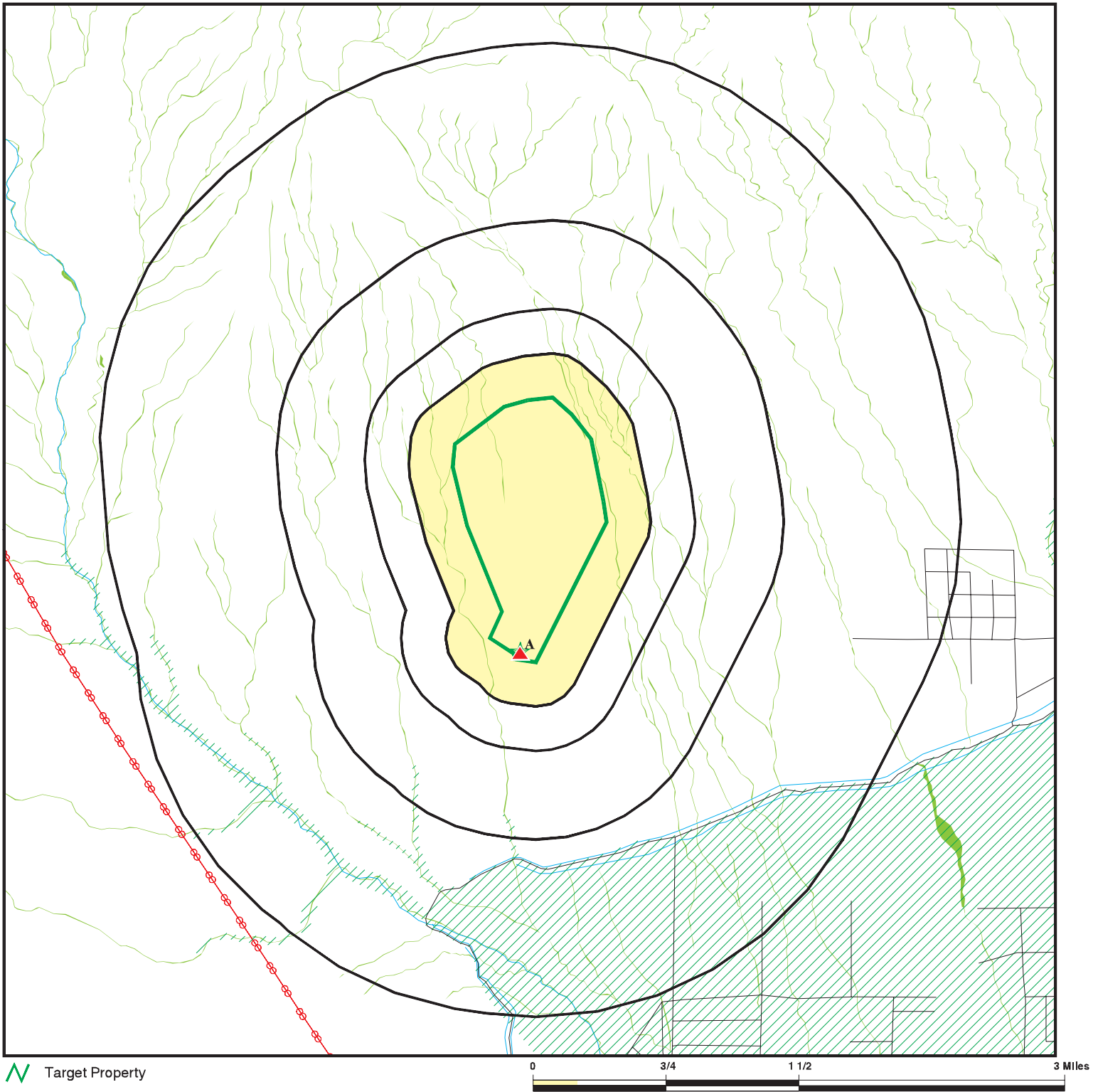
Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 4952767.2S



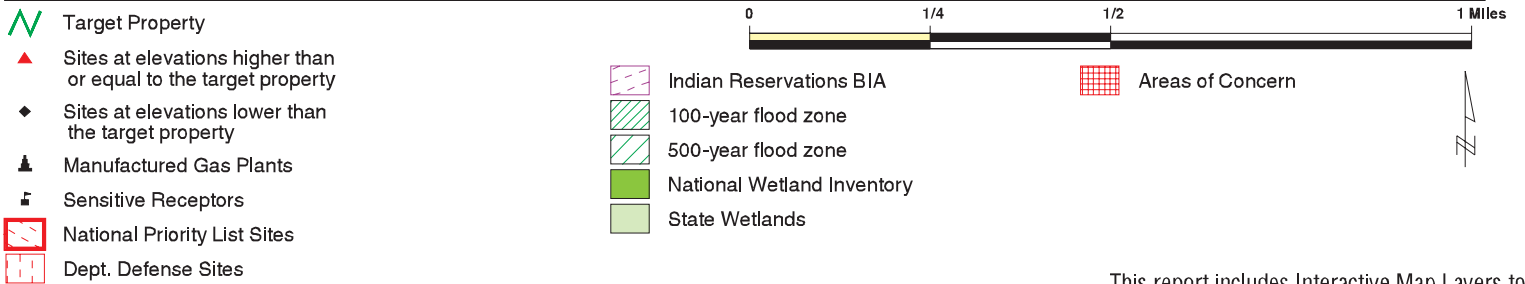
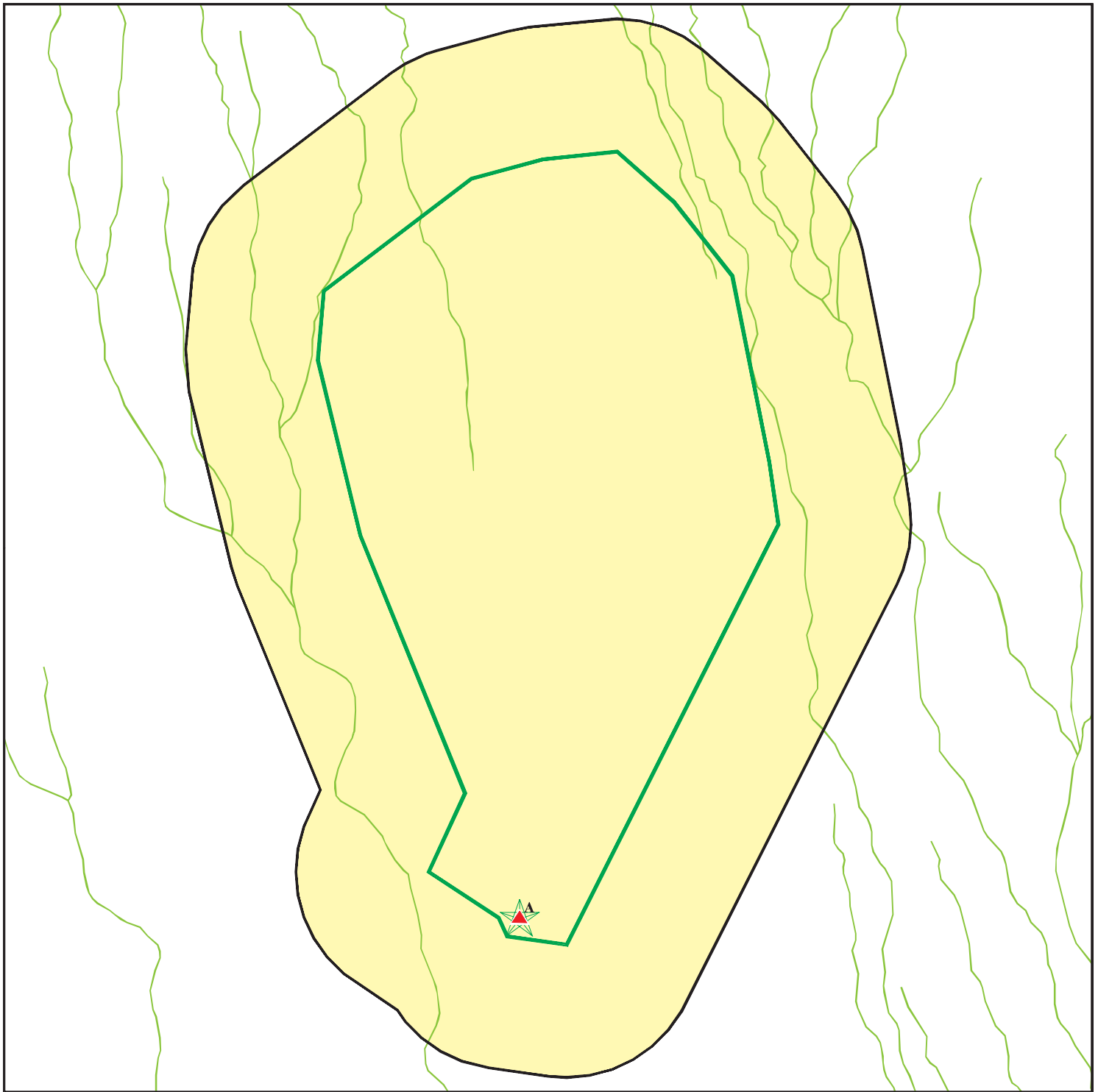
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Camino Solar
 ADDRESS: 17890 Champagne Ave
 Rosamond CA 93560
 LAT/LONG: 34.919955 / 118.446669

CLIENT: HDR
 CONTACT: Kim Hawkins
 INQUIRY #: 4952767.2s
 DATE: May 31, 2017 7:18 pm

DETAIL MAP - 4952767.2S



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Camino Solar
 ADDRESS: 17890 Champagne Ave
 Rosamond CA 93560
 LAT/LONG: 34.919955 / 118.446669

CLIENT: HDR
 CONTACT: Kim Hawkins
 INQUIRY #: 4952767.2s
 DATE: May 31, 2017 7:21 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.500		0	0	0	0	0	0
Proposed NPL	1.500		0	0	0	0	0	0
NPL LIENS	0.500		0	0	0	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.500		0	0	0	0	0	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
SEMS	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	1.000		0	0	0	0	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.500		0	0	0	0	0	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	1.000		0	0	0	0	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.750		0	0	0	0	NR	0
RCRA-SQG	0.750		0	0	0	0	NR	0
RCRA-CESQG	0.750		0	0	0	0	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	1.000		0	0	0	0	NR	0
US ENG CONTROLS	1.000		0	0	0	0	NR	0
US INST CONTROL	1.000		0	0	0	0	NR	0
<i>Federal ERNS list</i>								
ERNS	0.500		0	0	0	NR	NR	0
<i>State- and tribal - equivalent NPL</i>								
RESPONSE	1.500		0	0	0	0	0	0
<i>State- and tribal - equivalent CERCLIS</i>								
ENVIROSTOR	1.500		0	0	0	0	0	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	1.000		0	0	0	0	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	1.000		0	0	0	0	NR	0
SLIC	1.000		0	0	0	0	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.750		0	0	0	0	NR	0
UST	0.750		0	0	0	0	NR	0
AST	0.750		0	0	0	0	NR	0
INDIAN UST	0.750		0	0	0	0	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	1.000		0	0	0	0	NR	0
VCP	1.000		0	0	0	0	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	1.000		0	0	0	0	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	1.000		0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	1.000		0	0	0	0	NR	0
SWRCY	1.000		0	0	0	0	NR	0
HAULERS	0.500		0	0	0	NR	NR	0
INDIAN ODI	1.000		0	0	0	0	NR	0
DEBRIS REGION 9	1.000		0	0	0	0	NR	0
ODI	1.000		0	0	0	0	NR	0
IHS OPEN DUMPS	1.000		0	0	0	0	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.500		0	0	0	NR	NR	0
HIST Cal-Sites	1.500		0	0	0	0	0	0
SCH	0.750		0	0	0	0	NR	0
CDL	0.500		0	0	0	NR	NR	0
Toxic Pits	1.500		0	0	0	0	0	0
US CDL	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.750		0	0	0	0	NR	0
HIST UST	0.750		0	0	0	0	NR	0
CA FID UST	0.750		0	0	0	0	NR	0
Local Land Records								
LIENS	0.500		0	0	0	NR	NR	0
LIENS 2	0.500		0	0	0	NR	NR	0
DEED	1.000		0	0	0	0	NR	0
Records of Emergency Release Reports								
HMIRS	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	0.500		0	0	0	NR	NR	0
LDS	0.500		0	0	0	NR	NR	0
MCS	0.500		0	0	0	NR	NR	0
SPILLS 90	0.500		0	0	0	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.750		0	0	0	0	NR	0
FUDS	1.500		0	0	0	0	0	0
DOD	1.500		0	0	0	0	0	0
SCRD DRYCLEANERS	1.000		0	0	0	0	NR	0
US FIN ASSUR	0.500		0	0	0	NR	NR	0
EPA WATCH LIST	0.500		0	0	0	NR	NR	0
2020 COR ACTION	0.750		0	0	0	0	NR	0
TSCA	0.500		0	0	0	NR	NR	0
TRIS	0.500		0	0	0	NR	NR	0
SSTS	0.500		0	0	0	NR	NR	0
ROD	1.500		0	0	0	0	0	0
RMP	0.500		0	0	0	NR	NR	0
RAATS	0.500		0	0	0	NR	NR	0
PRP	0.500		0	0	0	NR	NR	0
PADS	0.500		0	0	0	NR	NR	0
ICIS	0.500		0	0	0	NR	NR	0
FTTS	0.500		0	0	0	NR	NR	0
MLTS	0.500		0	0	0	NR	NR	0
COAL ASH DOE	0.500		0	0	0	NR	NR	0
COAL ASH EPA	1.000		0	0	0	0	NR	0
PCB TRANSFORMER	0.500		0	0	0	NR	NR	0
RADINFO	0.500		0	0	0	NR	NR	0
HIST FTTS	0.500		0	0	0	NR	NR	0
DOT OPS	0.500		0	0	0	NR	NR	0
CONSENT	1.500		0	0	0	0	0	0
INDIAN RESERV	1.500		0	0	0	0	0	0
FUSRAP	1.500		0	0	0	0	0	0
UMTRA	1.000		0	0	0	0	NR	0
LEAD SMELTERS	0.500		0	0	0	NR	NR	0
US AIRS	0.500		0	0	0	NR	NR	0
US MINES	0.750		0	0	0	0	NR	0
ABANDONED MINES	0.500		0	0	0	NR	NR	0
FINDS	0.500	1	0	0	0	NR	NR	1
UXO	1.500		0	0	0	0	0	0
DOCKET HWC	0.500		0	0	0	NR	NR	0
ECHO	0.500		0	0	0	NR	NR	0
FUELS PROGRAM	0.750		0	0	0	0	NR	0
CA BOND EXP. PLAN	1.500		0	0	0	0	0	0
Cortese	1.000		0	0	0	0	NR	0
CUPA Listings	0.750		0	0	0	0	NR	0
DRYCLEANERS	0.750		0	0	0	0	NR	0
EMI	0.500		0	0	0	NR	NR	0
ENF	0.500		0	0	0	NR	NR	0
Financial Assurance	0.500		0	0	0	NR	NR	0
HAZNET	0.500	1	0	0	0	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.500		0	0	0	0	0	0
HWT	0.750		0	0	0	0	NR	0
MINES	0.500		0	0	0	NR	NR	0
MWMP	0.750		0	0	0	0	NR	0
NPDES	0.500		0	0	0	NR	NR	0
PEST LIC	0.500		0	0	0	NR	NR	0
PROC	1.000		0	0	0	0	NR	0
Notify 65	1.500		0	0	0	0	0	0
UIC	0.500		0	0	0	NR	NR	0
WASTEWATER PITS	1.000		0	0	0	0	NR	0
WDS	0.500		0	0	0	NR	NR	0
WIP	0.750		0	0	0	0	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.500		0	0	0	0	0	0
EDR Hist Auto	0.625		0	0	0	0	NR	0
EDR Hist Cleaner	0.625		0	0	0	0	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	0.500		0	0	0	NR	NR	0
RGA LUST	0.500		0	0	0	NR	NR	0

- Totals --		2	0	0	0	0	0	2
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NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

A1
Target
Property
BLATTNER ENERGY INC
17890 CHAMPAGNE AVE
ROSEMEAD, CA 93560

HAZNET **S113772197**
N/A

Site 1 of 2 in cluster A

Actual:
3378 ft.

HAZNET:

envid: S113772197
Year: 2015
GEPAID: CAL000380464
Contact: DAVID SCHWIND
Telephone: 2097478371
Mailing Name: Not reported
Mailing Address: 17890 CHAMPAGNE AVE
Mailing City,St,Zip: ROSAMOND, CA 935600000
Gen County: Kern
TSD EPA ID: CAD097030993
TSD County: Los Angeles
Waste Category: Other organic solids
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)
Tons: 1.3
Cat Decode: Other organic solids
Method Decode: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)
Facility County: Kern

envid: S113772197
Year: 2015
GEPAID: CAL000380464
Contact: DAVID SCHWIND
Telephone: 2097478371
Mailing Name: Not reported
Mailing Address: 17890 CHAMPAGNE AVE
Mailing City,St,Zip: ROSAMOND, CA 935600000
Gen County: Kern
TSD EPA ID: CAD097030993
TSD County: Los Angeles
Waste Category: Unspecified sludge waste
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)
Tons: 0.22935
Cat Decode: Unspecified sludge waste
Method Decode: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)
Facility County: Kern

envid: S113772197
Year: 2014
GEPAID: CAL000380464
Contact: DAVID SCHWIND
Telephone: 2097478371
Mailing Name: Not reported
Mailing Address: 17890 CHAMPAGNE AVE
Mailing City,St,Zip: ROSAMOND, CA 935600000
Gen County: Kern
TSD EPA ID: CAD097030993
TSD County: Los Angeles
Waste Category: Other organic solids

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

BLATTNER ENERGY INC (Continued)

S113772197

Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)

Tons: 2.2528

Cat Decode: Not reported

Method Decode: Not reported

Facility County: Kern

envid: S113772197

Year: 2014

GEPAID: CAL000380464

Contact: DAVID SCHWIND

Telephone: 2097478371

Mailing Name: Not reported

Mailing Address: 17890 CHAMPAGNE AVE

Mailing City,St,Zip: ROSAMOND, CA 935600000

Gen County: Kern

TSD EPA ID: CAD097030993

TSD County: Los Angeles

Waste Category: Unspecified sludge waste

Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)

Tons: 0.4587

Cat Decode: Not reported

Method Decode: Not reported

Facility County: Kern

envid: S113772197

Year: 2013

GEPAID: CAL000380464

Contact: ELLIOT THORBROGGER

Telephone: 6617546178

Mailing Name: Not reported

Mailing Address: 17890 CHAMPAGNE AVE

Mailing City,St,Zip: ROSAMOND, CA 93560

Gen County: Kern

TSD EPA ID: CAD097030993

TSD County: Los Angeles

Waste Category: Not reported

Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery
(H010-H129) Or (H131-H135)

Tons: 0.855

Cat Decode: Not reported

Method Decode: Not reported

Facility County: Not reported

[Click this hyperlink](#) while viewing on your computer to access
3 additional CA_HAZNET: record(s) in the EDR Site Report.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

A2
Target
Property
MANZANA
17890 CHAMPAGNE AVE
ROSAMOND, CA 93560

FINDS **1016784100**
N/A

Site 2 of 2 in cluster A

Actual:
3378 ft.

FINDS:

Registry ID: 110058251216

Environmental Interest/Information System
STATE MASTER

[Click this hyperlink](#) while viewing on your computer to access
additional FINDS: detail in the EDR Site Report.

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NO SITES FOUND					

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 04/21/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 04/21/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/05/2017	Source: EPA
Date Data Arrived at EDR: 04/21/2017	Telephone: N/A
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 04/21/2017
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/05/2017	Telephone: 703-603-8704
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 04/07/2017
Number of Days to Update: 92	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/07/2017	Source: EPA
Date Data Arrived at EDR: 04/19/2017	Telephone: 800-424-9346
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/21/2017
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/31/2017
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 02/07/2017	Source: EPA
Date Data Arrived at EDR: 04/19/2017	Telephone: 800-424-9346
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/25/2017
Number of Days to Update: 16	Next Scheduled EDR Contact: 07/31/2017
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/12/2016	Source: EPA
Date Data Arrived at EDR: 12/28/2016	Telephone: 800-424-9346
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 04/10/2017
	Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 04/10/2017
	Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 04/10/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 04/10/2017
	Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 04/10/2017
	Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/28/2016	Source: Department of the Navy
Date Data Arrived at EDR: 01/04/2017	Telephone: 843-820-7326
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 05/15/2017
Number of Days to Update: 93	Next Scheduled EDR Contact: 08/28/2017
	Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/15/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/29/2016	Telephone: 703-603-0695
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 02/28/2017
Number of Days to Update: 66	Next Scheduled EDR Contact: 06/12/2017
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/15/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/29/2016	Telephone: 703-603-0695
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 02/28/2017
Number of Days to Update: 66	Next Scheduled EDR Contact: 06/12/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016

Date Data Arrived at EDR: 09/29/2016

Date Made Active in Reports: 11/11/2016

Number of Days to Update: 43

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 03/29/2017

Next Scheduled EDR Contact: 07/10/2017

Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity.

These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/30/2017

Date Data Arrived at EDR: 01/31/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 112

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 05/02/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/30/2017

Date Data Arrived at EDR: 01/31/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 112

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 05/02/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/13/2017

Date Data Arrived at EDR: 02/15/2017

Date Made Active in Reports: 05/02/2017

Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 05/17/2017

Next Scheduled EDR Contact: 08/28/2017

Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/02/2017
Number of Days to Update: 49

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 01/26/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 99

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/28/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/28/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/06/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/26/2017	Telephone: 415-972-3372
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/01/2016	Source: EPA Region 6
Date Data Arrived at EDR: 01/26/2017	Telephone: 214-665-6597
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/14/2016	Source: EPA, Region 5
Date Data Arrived at EDR: 01/26/2017	Telephone: 312-886-7439
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/17/2016	Source: EPA Region 8
Date Data Arrived at EDR: 01/26/2017	Telephone: 303-312-6271
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/01/2016	Source: EPA Region 7
Date Data Arrived at EDR: 01/26/2017	Telephone: 913-551-7003
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 03/14/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 06/26/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/11/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/12/2017
Date Data Arrived at EDR: 03/16/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 57

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/16/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 03/24/2017
Number of Days to Update: 69	Next Scheduled EDR Contact: 07/10/2017
	Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/14/2017	Source: EPA Region 5
Date Data Arrived at EDR: 01/26/2017	Telephone: 312-886-6136
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/01/2016	Source: EPA Region 6
Date Data Arrived at EDR: 01/26/2017	Telephone: 214-665-7591
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/01/2016	Source: EPA Region 7
Date Data Arrived at EDR: 01/26/2017	Telephone: 913-551-7003
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/17/2016	Source: EPA Region 8
Date Data Arrived at EDR: 01/26/2017	Telephone: 303-312-6137
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/06/2016	Source: EPA Region 9
Date Data Arrived at EDR: 01/26/2017	Telephone: 415-972-3368
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 11/14/2016	Source: EPA, Region 1
Date Data Arrived at EDR: 01/26/2017	Telephone: 617-918-1313
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016	Source: EPA Region 4
Date Data Arrived at EDR: 01/27/2017	Telephone: 404-562-9424
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 98	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/26/2017	Telephone: 206-553-2857
Date Made Active in Reports: 05/05/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 99	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 03/27/2017
Number of Days to Update: 142	Next Scheduled EDR Contact: 07/10/2017
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/30/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/31/2017	Telephone: 916-323-3400
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 112	Next Scheduled EDR Contact: 08/14/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 01/03/2017
Date Data Arrived at EDR: 01/04/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 57

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/29/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/02/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/13/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/15/2017
Next Scheduled EDR Contact: 08/28/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/01/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/24/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 01/31/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 112

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 54

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 67

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/24/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/06/2017
Date Data Arrived at EDR: 03/07/2017
Date Made Active in Reports: 04/21/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/21/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/06/2017	Source: DTSC and SWRCB
Date Data Arrived at EDR: 03/07/2017	Telephone: 916-323-3400
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 03/07/2017
Number of Days to Update: 77	Next Scheduled EDR Contact: 06/19/2017
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/28/2016	Telephone: 202-366-4555
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 03/29/2017
Number of Days to Update: 37	Next Scheduled EDR Contact: 07/10/2017
	Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/06/2016	Source: Office of Emergency Services
Date Data Arrived at EDR: 01/25/2017	Telephone: 916-845-8400
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 04/28/2017
Number of Days to Update: 105	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017	Source: State Water Quality Control Board
Date Data Arrived at EDR: 03/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 03/14/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 06/26/2017
	Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/13/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/14/2017	Telephone: 866-480-1028
Date Made Active in Reports: 05/02/2017	Last EDR Contact: 03/14/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 06/26/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/12/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/28/2016	Telephone: (415) 495-8895
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 05/02/2017
Number of Days to Update: 44	Next Scheduled EDR Contact: 04/10/2017
	Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 07/08/2015	Telephone: 202-528-4285
Date Made Active in Reports: 10/13/2015	Last EDR Contact: 02/24/2017
Number of Days to Update: 97	Next Scheduled EDR Contact: 06/05/2017
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/14/2017
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/14/2017
Number of Days to Update: 339	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/19/2017
Next Scheduled EDR Contact: 08/28/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 02/13/2017
Date Data Arrived at EDR: 02/15/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 05/17/2017
Next Scheduled EDR Contact: 08/28/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/08/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/24/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/26/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/26/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2017
Date Data Arrived at EDR: 02/09/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/21/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 10/17/2014	Telephone: 202-564-6023
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 05/09/2017
Number of Days to Update: 3	Next Scheduled EDR Contact: 08/21/2017
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016	Source: EPA
Date Data Arrived at EDR: 04/28/2016	Telephone: 202-566-0500
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 04/10/2017
Number of Days to Update: 127	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 04/10/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/19/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/19/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 05/08/2017
Number of Days to Update: 43	Next Scheduled EDR Contact: 08/21/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 03/06/2017
Number of Days to Update: 76	Next Scheduled EDR Contact: 06/19/2017
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 03/06/2017
Number of Days to Update: 40	Next Scheduled EDR Contact: 06/19/2017
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 04/28/2017
Number of Days to Update: 83	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/04/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/06/2017	Telephone: 202-343-9775
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 04/06/2017
Number of Days to Update: 35	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/02/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/26/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/14/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/21/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2017
Date Data Arrived at EDR: 02/28/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 38

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/03/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/03/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/14/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 21

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/04/2017
Date Data Arrived at EDR: 04/07/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 35

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 04/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/24/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/19/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/21/2017	Telephone: 202-564-2280
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 03/21/2017
Number of Days to Update: 52	Next Scheduled EDR Contact: 07/03/2017
	Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/22/2017	Source: EPA
Date Data Arrived at EDR: 02/22/2017	Telephone: 800-385-6164
Date Made Active in Reports: 05/12/2017	Last EDR Contact: 05/24/2017
Number of Days to Update: 79	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/28/2016	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 12/28/2016	Telephone: 916-323-3400
Date Made Active in Reports: 03/02/2017	Last EDR Contact: 03/29/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 07/10/2017
	Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 03/09/2017	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 04/11/2017	Telephone: 916-327-4498
Date Made Active in Reports: 05/23/2017	Last EDR Contact: 03/27/2017
Number of Days to Update: 42	Next Scheduled EDR Contact: 06/19/2017
	Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014	Source: California Air Resources Board
Date Data Arrived at EDR: 09/23/2016	Telephone: 916-322-2990
Date Made Active in Reports: 10/24/2016	Last EDR Contact: 03/21/2017
Number of Days to Update: 31	Next Scheduled EDR Contact: 07/03/2017
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/23/2017	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/27/2017	Telephone: 916-445-9379
Date Made Active in Reports: 05/25/2017	Last EDR Contact: 04/24/2017
Number of Days to Update: 118	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/29/2016	Telephone: 916-255-3628
Date Made Active in Reports: 06/21/2016	Last EDR Contact: 05/22/2017
Number of Days to Update: 53	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/14/2017	Source: California Integrated Waste Management Board
Date Data Arrived at EDR: 02/17/2017	Telephone: 916-341-6066
Date Made Active in Reports: 05/25/2017	Last EDR Contact: 05/15/2017
Number of Days to Update: 97	Next Scheduled EDR Contact: 08/28/2017
	Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 10/12/2016	Telephone: 916-255-1136
Date Made Active in Reports: 12/15/2016	Last EDR Contact: 04/14/2017
Number of Days to Update: 64	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: Annually

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 01/22/2009	Telephone: 916-323-3400
Date Made Active in Reports: 04/08/2009	Last EDR Contact: 01/22/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 11/22/2016	Telephone: 916-323-3400
Date Made Active in Reports: 01/23/2017	Last EDR Contact: 05/24/2017
Number of Days to Update: 62	Next Scheduled EDR Contact: 09/04/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/11/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/13/2017	Telephone: 916-440-7145
Date Made Active in Reports: 04/26/2017	Last EDR Contact: 04/13/2017
Number of Days to Update: 13	Next Scheduled EDR Contact: 07/24/2017
	Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016	Source: Department of Conservation
Date Data Arrived at EDR: 09/14/2016	Telephone: 916-322-1080
Date Made Active in Reports: 10/14/2016	Last EDR Contact: 03/13/2017
Number of Days to Update: 30	Next Scheduled EDR Contact: 06/26/2017
	Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 12/02/2016	Source: Department of Public Health
Date Data Arrived at EDR: 12/06/2016	Telephone: 916-558-1784
Date Made Active in Reports: 03/02/2017	Last EDR Contact: 03/07/2017
Number of Days to Update: 86	Next Scheduled EDR Contact: 06/19/2017
	Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/14/2016	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/15/2016	Telephone: 916-445-9379
Date Made Active in Reports: 03/02/2017	Last EDR Contact: 05/17/2017
Number of Days to Update: 107	Next Scheduled EDR Contact: 08/28/2017
	Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/06/2016	Source: Department of Pesticide Regulation
Date Data Arrived at EDR: 12/06/2016	Telephone: 916-445-4038
Date Made Active in Reports: 03/03/2017	Last EDR Contact: 03/07/2017
Number of Days to Update: 87	Next Scheduled EDR Contact: 06/19/2017
	Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/13/2017	Source: Department of Conservation
Date Data Arrived at EDR: 03/14/2017	Telephone: 916-323-3836
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 03/14/2017
Number of Days to Update: 50	Next Scheduled EDR Contact: 06/26/2017
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/16/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 70

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 04/03/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 01/20/2017
Date Data Arrived at EDR: 03/14/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 50

Source: Department of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board's review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/14/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/24/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/10/2017
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 31

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/10/2017
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 05/02/2017
Number of Days to Update: 21

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/06/2017
Date Data Arrived at EDR: 03/08/2017
Date Made Active in Reports: 04/14/2017
Number of Days to Update: 37

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 01/31/2017
Date Data Arrived at EDR: 02/07/2017
Date Made Active in Reports: 05/12/2017
Number of Days to Update: 94

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing

Cupa Facility Listing

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list.

Date of Government Version: 02/23/2017

Date Data Arrived at EDR: 02/24/2017

Date Made Active in Reports: 05/12/2017

Number of Days to Update: 77

Source: Health & Human Services

Telephone: 530-458-0396

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 08/21/2017

Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2016

Date Data Arrived at EDR: 11/22/2016

Date Made Active in Reports: 01/26/2017

Number of Days to Update: 65

Source: Contra Costa Health Services Department

Telephone: 925-646-2286

Last EDR Contact: 05/01/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List

Cupa Facility list

Date of Government Version: 01/31/2017

Date Data Arrived at EDR: 02/03/2017

Date Made Active in Reports: 04/14/2017

Number of Days to Update: 70

Source: Del Norte County Environmental Health Division

Telephone: 707-465-0426

Last EDR Contact: 05/01/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/24/2017

Date Data Arrived at EDR: 02/28/2017

Date Made Active in Reports: 05/12/2017

Number of Days to Update: 73

Source: El Dorado County Environmental Management Department

Telephone: 530-621-6623

Last EDR Contact: 05/01/2017

Next Scheduled EDR Contact: 08/14/2017

Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/06/2017

Date Data Arrived at EDR: 04/07/2017

Date Made Active in Reports: 05/17/2017

Number of Days to Update: 40

Source: Dept. of Community Health

Telephone: 559-445-3271

Last EDR Contact: 03/31/2017

Next Scheduled EDR Contact: 07/17/2017

Data Release Frequency: Semi-Annually

GLENN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 111

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/24/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/20/2017
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 57

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 01/23/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 36

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/24/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/09/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 77

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 02/07/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/02/2017
Number of Days to Update: 81

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/06/2017
Date Data Arrived at EDR: 03/07/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 71

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/18/2017
Date Data Arrived at EDR: 01/20/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 41

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/17/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 111

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 11/30/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 66

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/17/2017
Date Data Arrived at EDR: 04/18/2017
Date Made Active in Reports: 05/02/2017
Number of Days to Update: 14

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/18/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/17/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/17/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/17/2017
Date Data Arrived at EDR: 01/18/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 112

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/17/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/24/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/10/2017
Date Data Arrived at EDR: 01/13/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 110

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/10/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/03/2017
Date Data Arrived at EDR: 03/07/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 71

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 03/31/2017
Date Data Arrived at EDR: 04/06/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 27

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 03/31/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/22/2017
Date Data Arrived at EDR: 02/23/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 02/21/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 76

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/24/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/24/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 03/15/2017
Date Data Arrived at EDR: 03/16/2017
Date Made Active in Reports: 05/09/2017
Number of Days to Update: 54

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/24/2017
Next Scheduled EDR Contact: 09/11/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 02/09/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/17/2017
Number of Days to Update: 96

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 05/01/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 02/06/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 04/21/2017
Number of Days to Update: 70

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/08/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/08/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/06/2017
Date Data Arrived at EDR: 02/07/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 85

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/09/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 01/31/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 111

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/18/2017
Date Data Arrived at EDR: 04/20/2017
Date Made Active in Reports: 04/21/2017
Number of Days to Update: 1

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 01/19/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 98

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 56

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/08/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 56

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/04/2017
Next Scheduled EDR Contact: 07/17/2017
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa facility list

Date of Government Version: 11/30/2016

Date Data Arrived at EDR: 02/09/2017

Date Made Active in Reports: 05/25/2017

Number of Days to Update: 105

Source: San Benito County Environmental Health

Telephone: N/A

Last EDR Contact: 05/05/2017

Next Scheduled EDR Contact: 08/21/2017

Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 12/09/2016

Date Data Arrived at EDR: 12/13/2016

Date Made Active in Reports: 03/03/2017

Number of Days to Update: 80

Source: San Bernardino County Fire Department Hazardous Materials Division

Telephone: 909-387-3041

Last EDR Contact: 05/08/2017

Next Scheduled EDR Contact: 08/21/2017

Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 10/05/2016

Date Data Arrived at EDR: 12/06/2016

Date Made Active in Reports: 03/02/2017

Number of Days to Update: 86

Source: Hazardous Materials Management Division

Telephone: 619-338-2268

Last EDR Contact: 03/10/2017

Next Scheduled EDR Contact: 06/19/2017

Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015

Date Data Arrived at EDR: 11/07/2015

Date Made Active in Reports: 01/04/2016

Number of Days to Update: 58

Source: Department of Health Services

Telephone: 619-338-2209

Last EDR Contact: 04/24/2017

Next Scheduled EDR Contact: 08/07/2017

Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010

Date Data Arrived at EDR: 06/15/2010

Date Made Active in Reports: 07/09/2010

Number of Days to Update: 24

Source: San Diego County Department of Environmental Health

Telephone: 619-338-2371

Last EDR Contact: 03/06/2017

Next Scheduled EDR Contact: 06/19/2017

Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/28/2017
Date Data Arrived at EDR: 03/02/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 62

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 03/21/2017
Date Data Arrived at EDR: 03/23/2017
Date Made Active in Reports: 05/09/2017
Number of Days to Update: 47

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/20/2017
Next Scheduled EDR Contact: 07/03/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 02/21/2017
Date Data Arrived at EDR: 02/21/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 91

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/15/2017
Date Data Arrived at EDR: 04/07/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 33

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/15/2017
Date Data Arrived at EDR: 04/07/2017
Date Made Active in Reports: 04/21/2017
Number of Days to Update: 14

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011

Date Data Arrived at EDR: 09/09/2011

Date Made Active in Reports: 10/07/2011

Number of Days to Update: 28

Source: Santa Barbara County Public Health Department

Telephone: 805-686-8167

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 02/22/2017

Date Data Arrived at EDR: 02/23/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 89

Source: Department of Environmental Health

Telephone: 408-918-1973

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county.

Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005

Date Data Arrived at EDR: 03/30/2005

Date Made Active in Reports: 04/21/2005

Number of Days to Update: 22

Source: Santa Clara Valley Water District

Telephone: 408-265-2600

Last EDR Contact: 03/23/2009

Next Scheduled EDR Contact: 06/22/2009

Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014

Date Data Arrived at EDR: 03/05/2014

Date Made Active in Reports: 03/18/2014

Number of Days to Update: 13

Source: Department of Environmental Health

Telephone: 408-918-3417

Last EDR Contact: 05/24/2017

Next Scheduled EDR Contact: 09/11/2017

Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/07/2016

Date Data Arrived at EDR: 11/10/2016

Date Made Active in Reports: 01/24/2017

Number of Days to Update: 75

Source: City of San Jose Fire Department

Telephone: 408-535-7694

Last EDR Contact: 05/05/2017

Next Scheduled EDR Contact: 08/21/2017

Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017

Date Data Arrived at EDR: 02/22/2017

Date Made Active in Reports: 05/23/2017

Number of Days to Update: 90

Source: Santa Cruz County Environmental Health

Telephone: 831-464-2761

Last EDR Contact: 05/22/2017

Next Scheduled EDR Contact: 09/04/2017

Data Release Frequency: Varies

SHASTA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

Cupa Facility List.

Date of Government Version: 03/14/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 67

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/21/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 1

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/15/2017
Date Data Arrived at EDR: 03/17/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 47

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List

Cupa Facility list

Date of Government Version: 03/01/2017
Date Data Arrived at EDR: 03/30/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 54

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 55

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/27/2017
Next Scheduled EDR Contact: 07/10/2017
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/20/2017
Date Data Arrived at EDR: 01/24/2017
Date Made Active in Reports: 05/18/2017
Number of Days to Update: 114

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 11/30/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Varies

SUTTER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List

Cupa facilities

Date of Government Version: 01/05/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 104

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/05/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/23/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 05/18/2017
Number of Days to Update: 113

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/24/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

TULARE COUNTY:

CUPA Facility List

Cupa program facilities

Date of Government Version: 01/05/2017
Date Data Arrived at EDR: 02/10/2017
Date Made Active in Reports: 05/25/2017
Number of Days to Update: 104

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 08/21/2017
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/25/2017
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 34

Source: Division of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/24/2017
Next Scheduled EDR Contact: 08/07/2017
Data Release Frequency: Varies

VENTURA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/27/2016	Source: Ventura County Environmental Health Division
Date Data Arrived at EDR: 01/27/2017	Telephone: 805-654-2813
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 04/24/2017
Number of Days to Update: 103	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011	Source: Environmental Health Division
Date Data Arrived at EDR: 12/01/2011	Telephone: 805-654-2813
Date Made Active in Reports: 01/19/2012	Last EDR Contact: 03/31/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008	Source: Environmental Health Division
Date Data Arrived at EDR: 06/24/2008	Telephone: 805-654-2813
Date Made Active in Reports: 07/31/2008	Last EDR Contact: 05/15/2017
Number of Days to Update: 37	Next Scheduled EDR Contact: 08/28/2017
	Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 10/27/2016	Telephone: 805-654-2813
Date Made Active in Reports: 01/24/2017	Last EDR Contact: 04/24/2017
Number of Days to Update: 89	Next Scheduled EDR Contact: 08/07/2017
	Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/27/2017	Source: Environmental Health Division
Date Data Arrived at EDR: 03/15/2017	Telephone: 805-654-2813
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 03/15/2017
Number of Days to Update: 49	Next Scheduled EDR Contact: 06/26/2017
	Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 03/31/2017	Source: Yolo County Department of Health
Date Data Arrived at EDR: 04/06/2017	Telephone: 530-666-8646
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 03/31/2017
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/17/2017
	Data Release Frequency: Annually

YUBA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 01/31/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 112

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 05/01/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/15/2017
Next Scheduled EDR Contact: 08/28/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 01/03/2017
Number of Days to Update: 96

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/11/2017
Next Scheduled EDR Contact: 07/24/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 02/01/2017
Date Made Active in Reports: 02/13/2017
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/03/2017
Next Scheduled EDR Contact: 08/14/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/18/2017
Next Scheduled EDR Contact: 07/31/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/22/2017
Next Scheduled EDR Contact: 09/04/2017
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015

Date Data Arrived at EDR: 04/14/2016

Date Made Active in Reports: 06/03/2016

Number of Days to Update: 50

Source: Department of Natural Resources

Telephone: N/A

Last EDR Contact: 03/13/2017

Next Scheduled EDR Contact: 06/26/2017

Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CAMINO SOLAR
17890 CHAMPAGNE AVE
ROSAMOND, CA 93560

TARGET PROPERTY COORDINATES

Latitude (North):	34.919955 - 34° 55' 11.84"
Longitude (West):	118.446669 - 118° 26' 48.01"
Universal Transverse Mercator:	Zone 11
UTM X (Meters):	367852.7
UTM Y (Meters):	3864924.2
Elevation:	3378 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5630787 TYLERHORSE CANYON, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

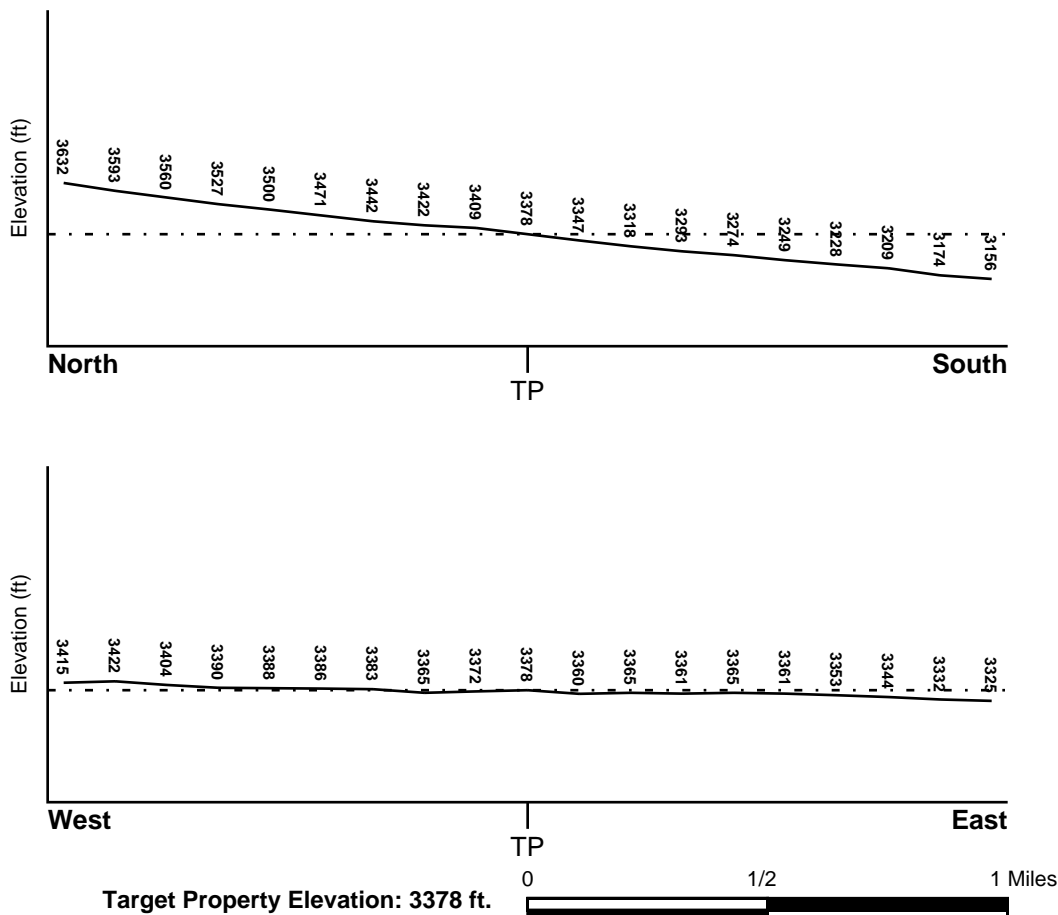
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06029C3625E	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
Not Reported	

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
TYLERHORSE CANYON	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

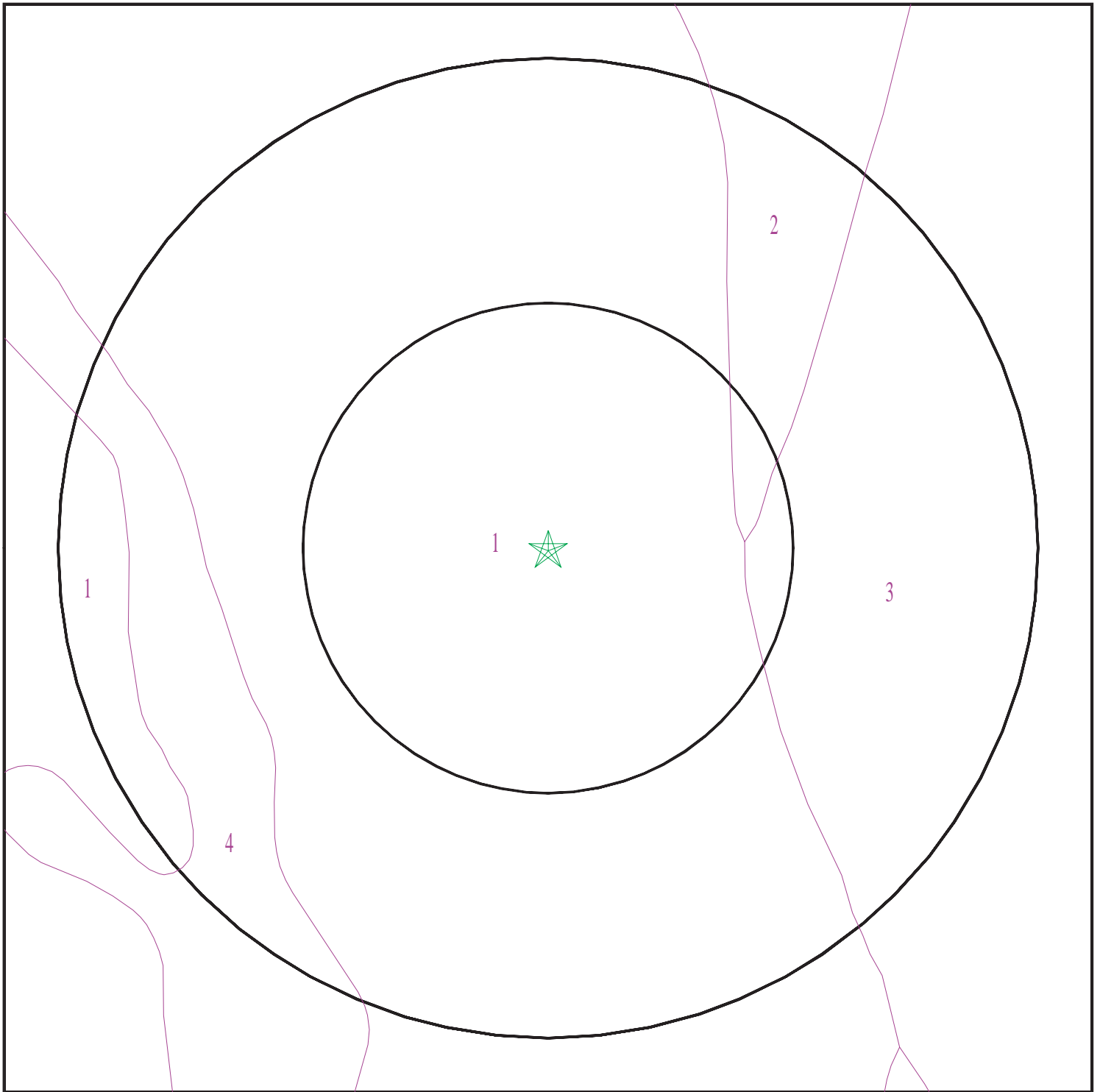
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q (decoded above as Era, System & Series)

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4952767.2s



- ★ Target Property
- ∕ SSURGO Soil
- ∕ Water



SITE NAME: Camino Solar
ADDRESS: 17890 Champagne Ave
Rosamond CA 93560
LAT/LONG: 34.919955 / 118.446669

CLIENT: HDR
CONTACT: Kim Hawkins
INQUIRY #: 4952767.2s
DATE: May 31, 2017 7:28 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Ramona

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1
2	11 inches	31 inches	gravelly loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
3	31 inches	64 inches	gravelly sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
4	64 inches	90 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1

Soil Map ID: 2

Soil Component Name: Hanford

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
2	7 inches	70 inches	gravelly fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1

Soil Map ID: 3

Soil Component Name: Cajon

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
2	9 inches	59 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 4

Soil Component Name: Ramona

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6
2	11 inches	22 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1
3	22 inches	90 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

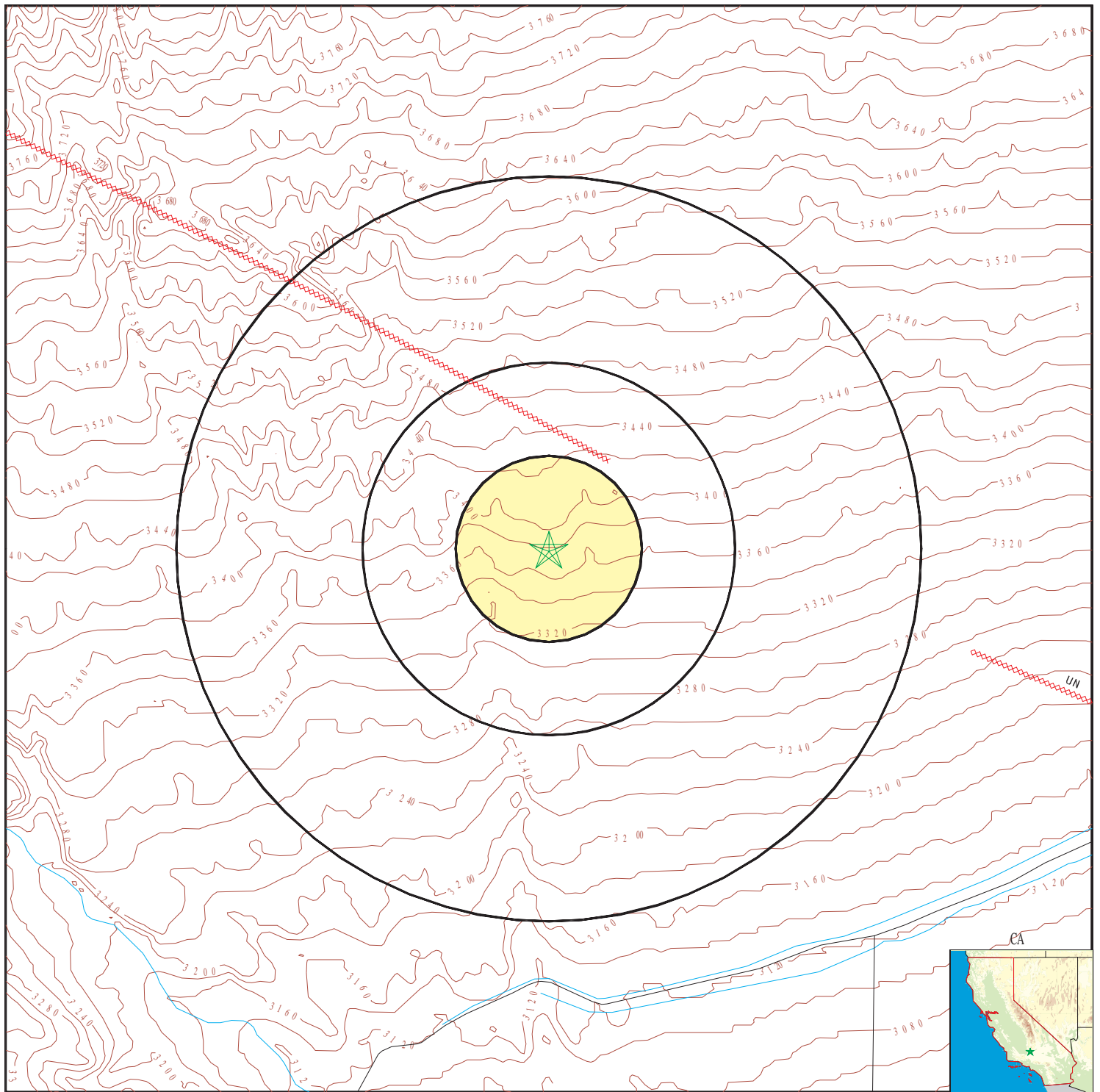
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 4952767.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Camino Solar
 ADDRESS: 17890 Champagne Ave
 Rosamond CA 93560
 LAT/LONG: 34.919955 / 118.446669

CLIENT: HDR
 CONTACT: Kim Hawkins
 INQUIRY #: 4952767.2s
 DATE: May 31, 2017 7:28 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93560	12	1

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level \geq 2 pCi/L and \leq 4 pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 93560

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.250 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish & Game

Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

California Drinking Water Quality Database

Source: Department of Public Health

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

RADON

State Database: CA Radon

Source: Department of Health Services

Telephone: 916-324-2208

Radon Database for California

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER


Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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Camino Solar
17890 Champagne Ave
Rosamond, CA 93560

Inquiry Number: 4952767.3
May 31, 2017

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/31/17

Site Name:

Camino Solar
17890 Champagne Ave
Rosamond, CA 93560
EDR Inquiry # 4952767.3

Client Name:

HDR
606 Columbia Street NW , Suite 200
Olympia, WA 98501
Contact: Kim Hawkins



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by HDR were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # E67C-4C5D-9283

PO # 10060836

Project Camino Solar

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.



Sanborn® Library search results

Certification #: E67C-4C5D-9283

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
- ☒ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Camino Solar

17890 Champagne Ave
Rosamond, CA 93560

Inquiry Number: 4952767.5
June 05, 2017

The EDR-City Directory Image Report

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SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.

Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1992	<input type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1990	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1975	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

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FINDINGS

TARGET PROPERTY STREET

17890 Champagne Ave
Rosamond, CA 93560

Year

CD Image

Source


CHAMPAGNE AVE

2013	-	Cole Information Services	Target and Adjoining not listed in Source
2008	-	Cole Information Services	Target and Adjoining not listed in Source
2003	-	Cole Information Services	Target and Adjoining not listed in Source
1999	-	Cole Information Services	Target and Adjoining not listed in Source
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified



Camino Solar
17890 Champagne Ave
Rosamond, CA 93560

Inquiry Number: 4952767.4
May 31, 2017

EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

05/31/17

Site Name:

Camino Solar
17890 Champagne Ave
Rosamond, CA 93560
EDR Inquiry # 4952767.4

Client Name:

HDR
606 Columbia Street NW ,Suite 200
Olympia, WA 98501
Contact: Kim Hawkins



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by HDR were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:**Coordinates:**

P.O.#	10060836	Latitude:	34.919955 34° 55' 12" North
Project:	Camino Solar	Longitude:	-118.446669 -118° 26' 48" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	367855.75
		UTM Y Meters:	3865121.52
		Elevation:	3379.46' above sea level

Maps Provided:

2012
1995
1965
1947
1943
1917
1915

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Tylerhorse Canyon
2012
7.5-minute, 24000

1995 Source Sheets



Tylerhorse Canyon
1995
7.5-minute, 24000
Aerial Photo Revised 1989

1965 Source Sheets



Tylerhorse Canyon
1965
7.5-minute, 24000
Aerial Photo Revised 1963

1947 Source Sheets



WILLOW SPRINGS
1947
15-minute, 50000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1943 Source Sheets



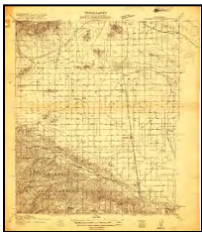
Willow Springs
1943
15-minute, 62500
Aerial Photo Revised 1943

1917 Source Sheets

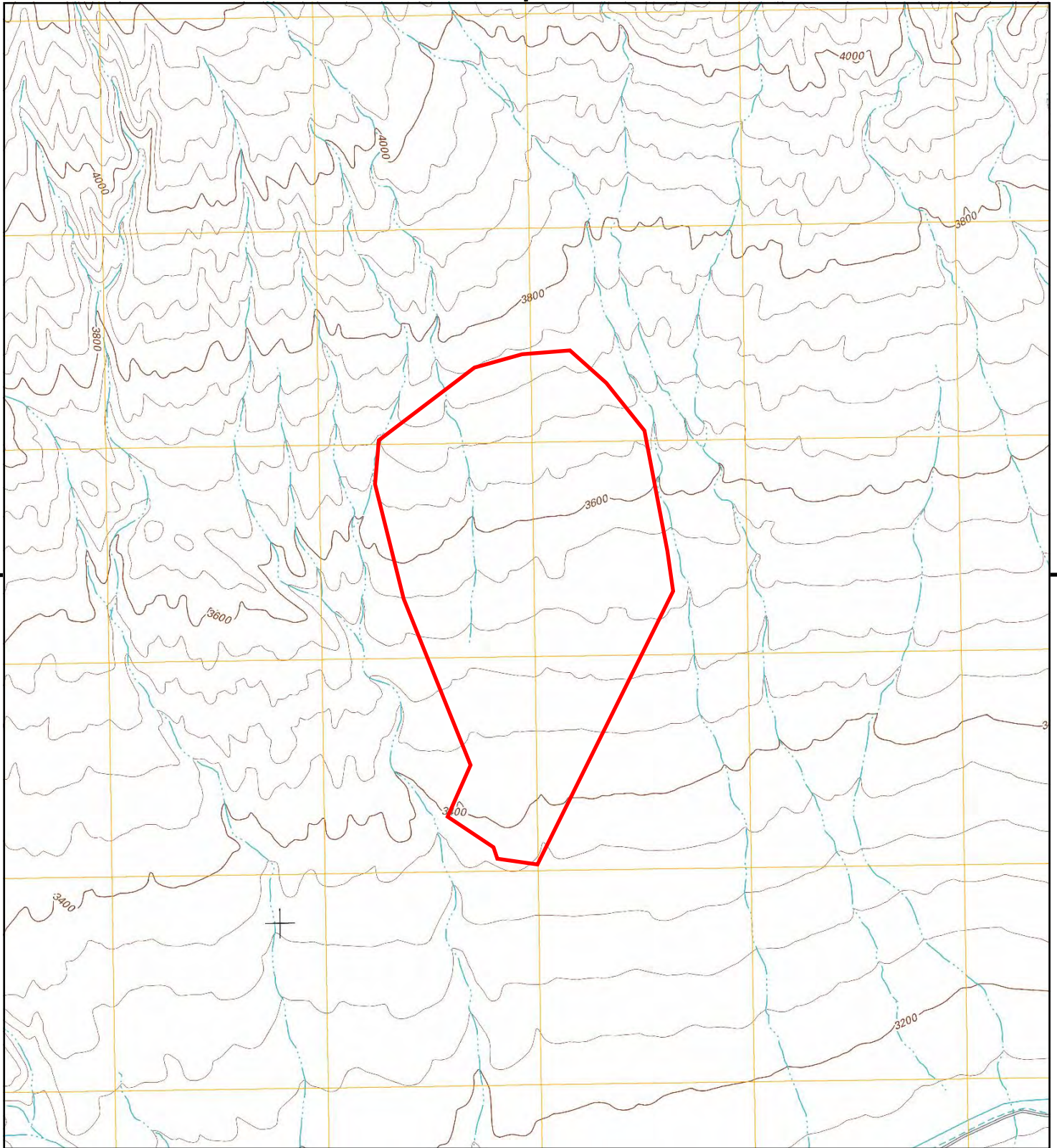


Elizabeth Lake
1917
30-minute, 125000

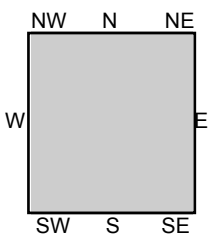
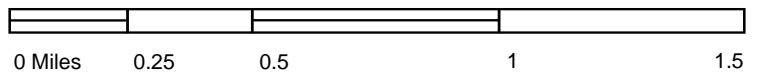
1915 Source Sheets



Elizabeth Lake
1915
30-minute, 96000



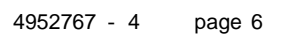
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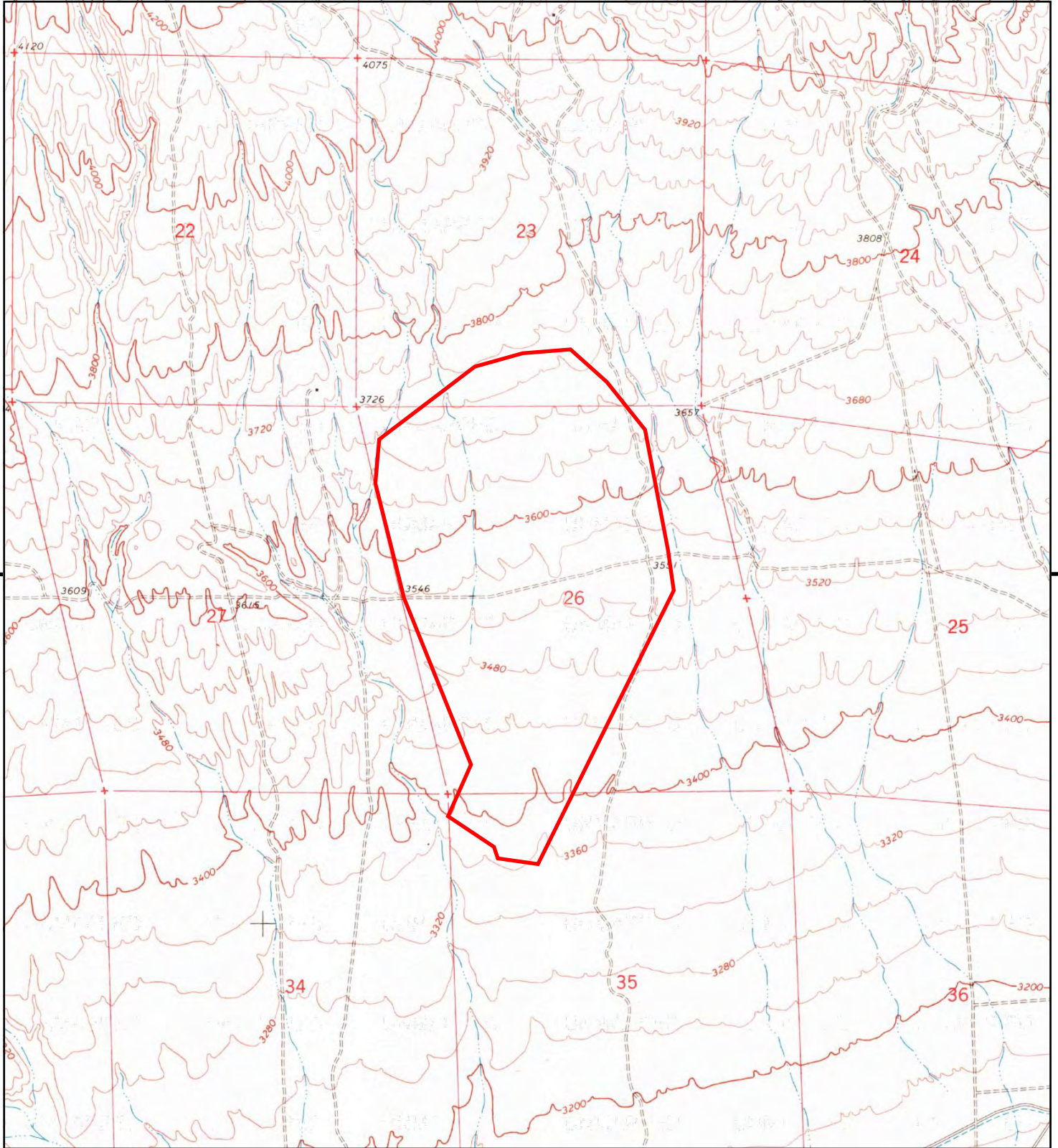


TP, Tylerhorse Canyon, 2012, 7.5-minute

SITE NAME: Camino Solar
 ADDRESS: 17890 Champagne Ave
 Rosamond, CA 93560
 CLIENT: HDR







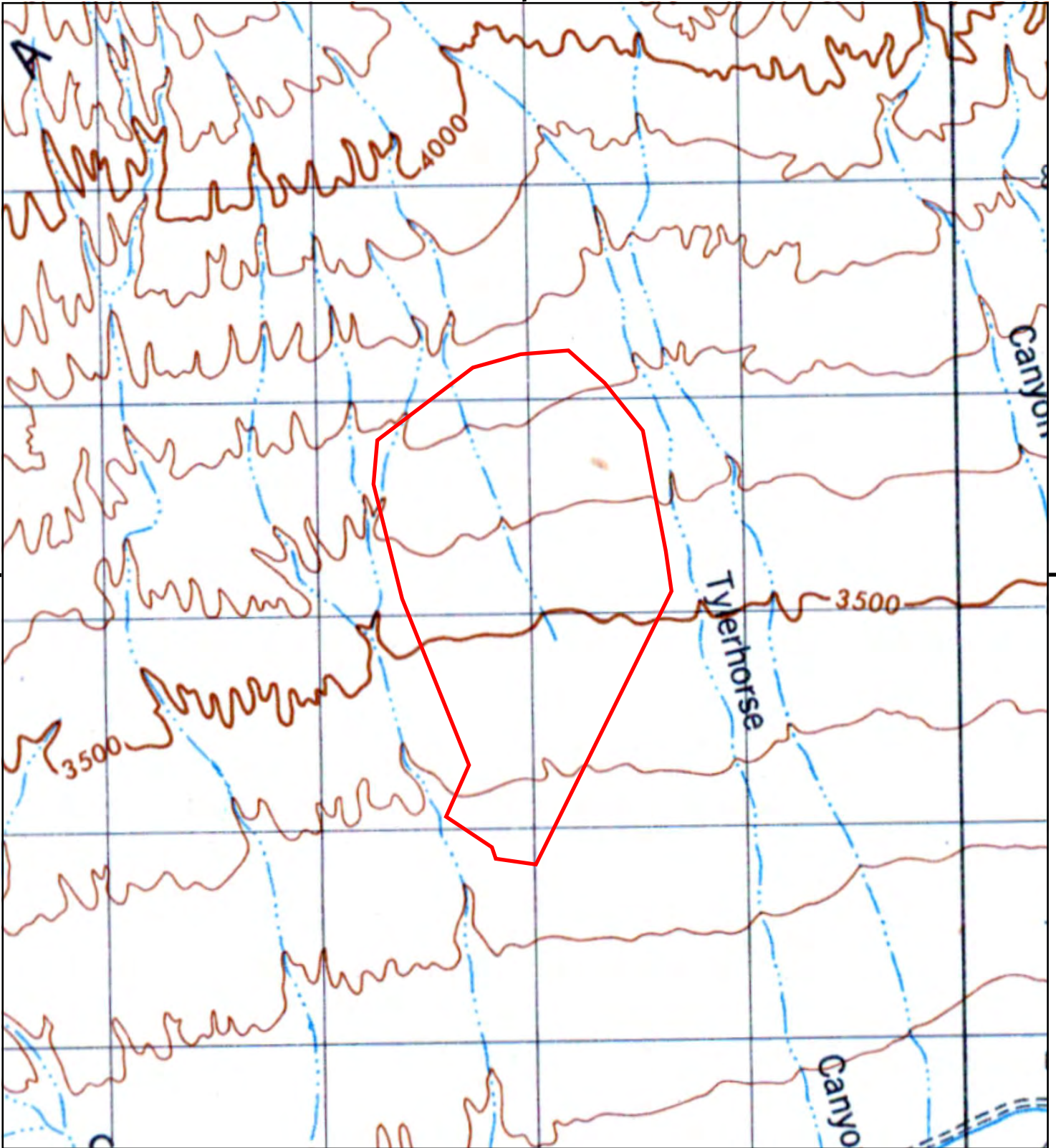
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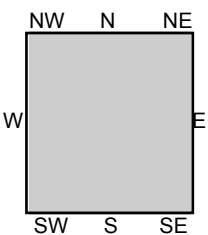
TP, Tylerhorse Canyon, 1965, 7.5-minute

SITE NAME: Camino Solar
ADDRESS: 17890 Champagne Ave
Rosamond, CA 93560
CLIENT: HDR





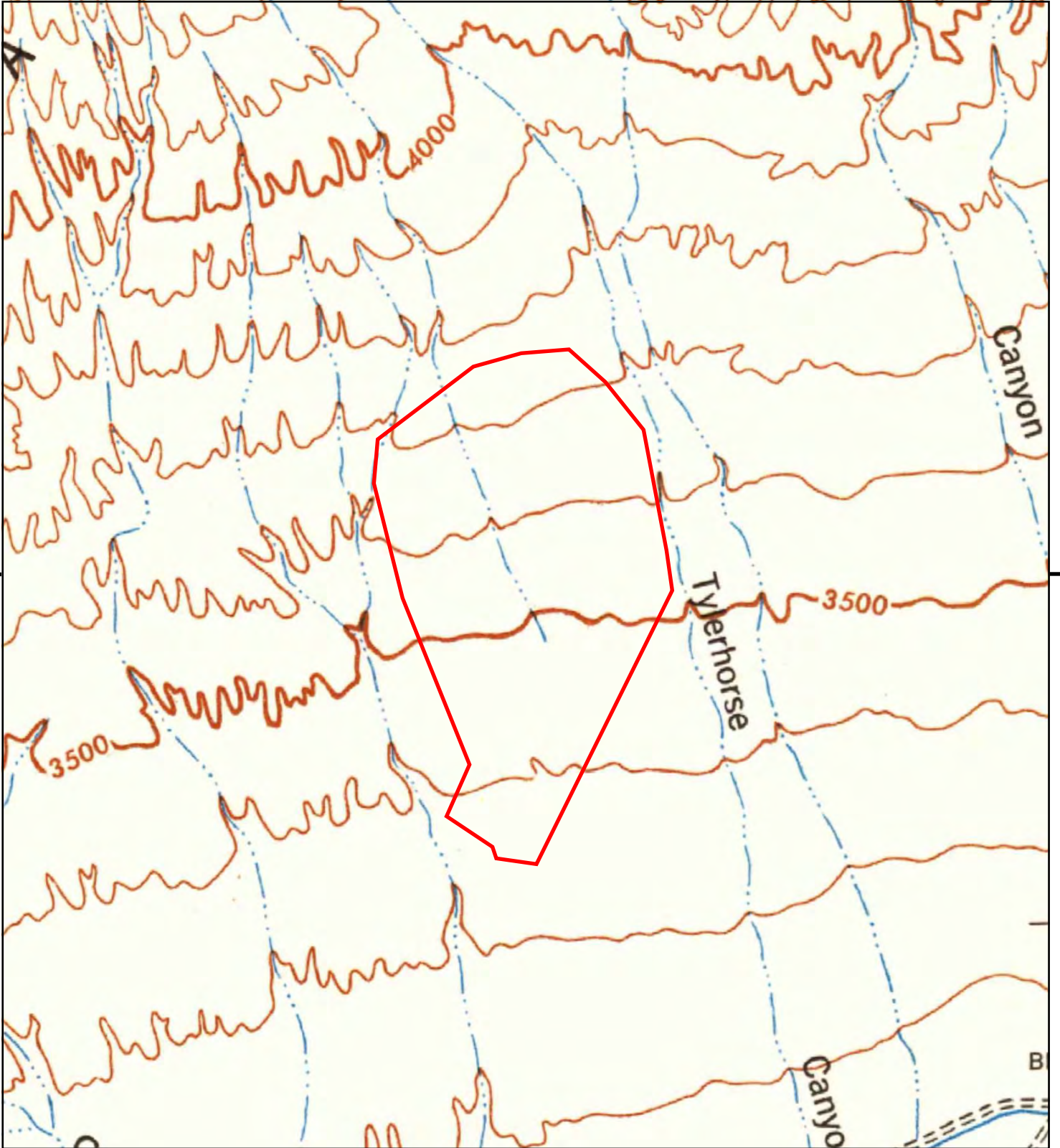
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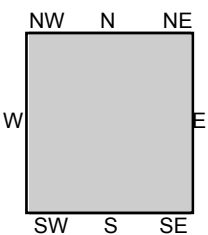
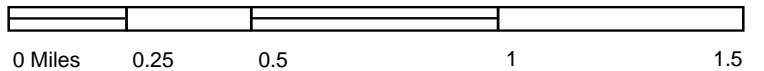
TP, WILLOW SPRINGS, 1947, 15-minute

SITE NAME: Camino Solar
ADDRESS: 17890 Champagne Ave
Rosamond, CA 93560
CLIENT: HDR





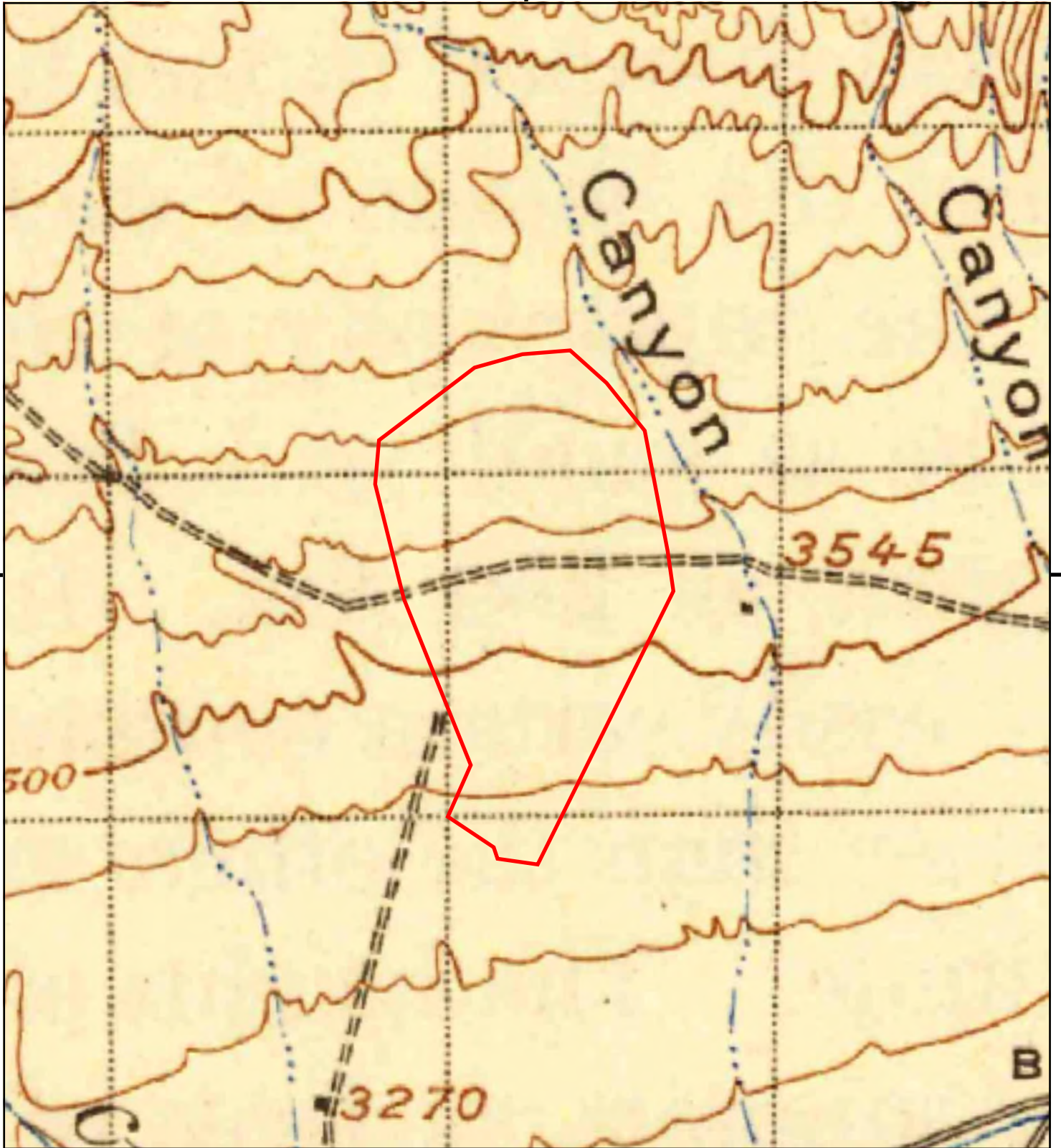
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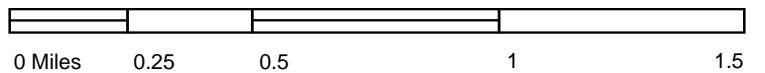
TP, Willow Springs, 1943, 15-minute

SITE NAME: Camino Solar
 ADDRESS: 17890 Champagne Ave
 Rosamond, CA 93560
 CLIENT: HDR





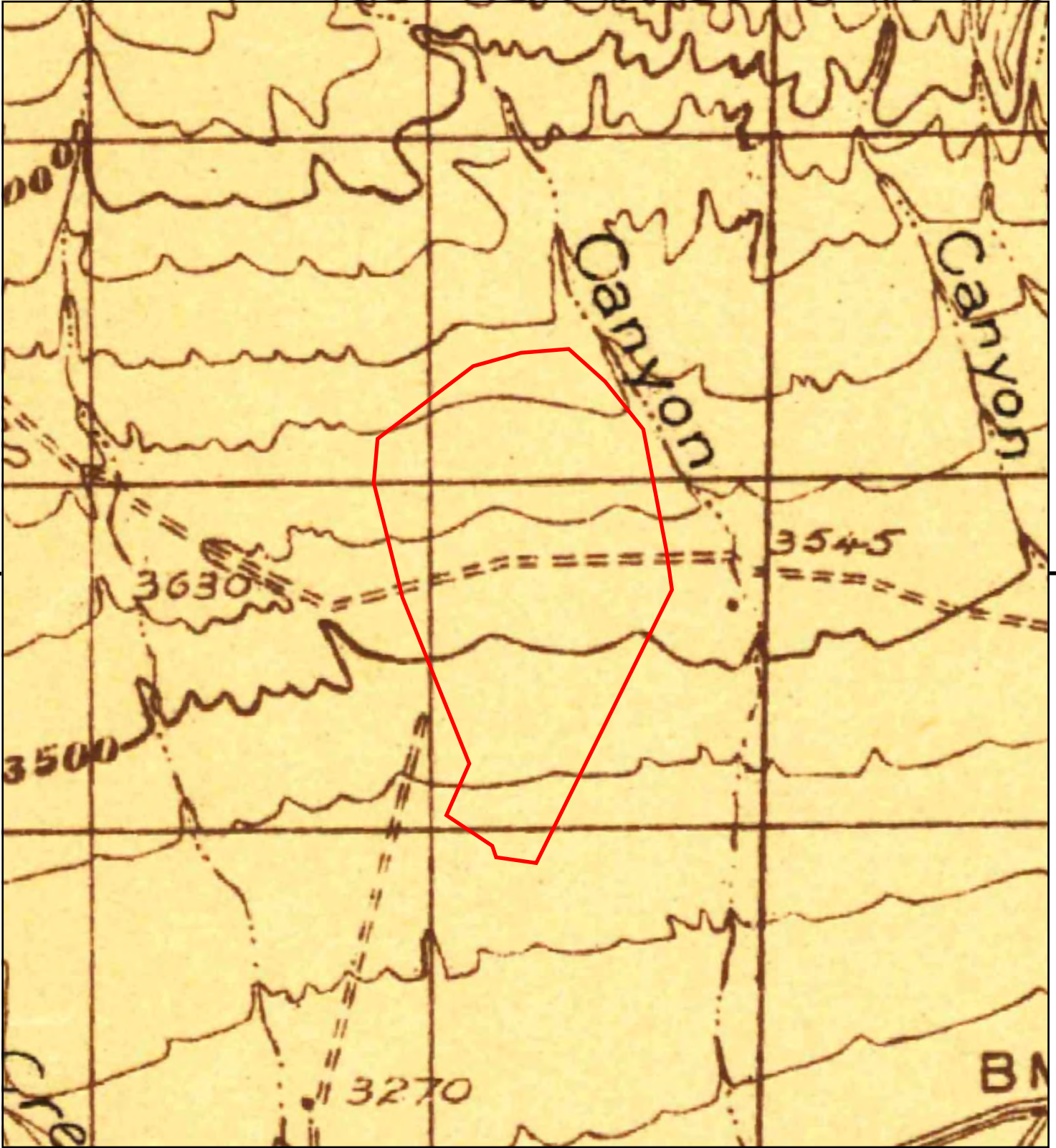
This report includes information from the following map sheet(s).



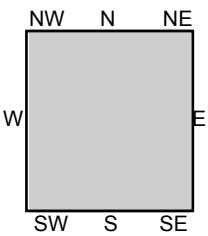
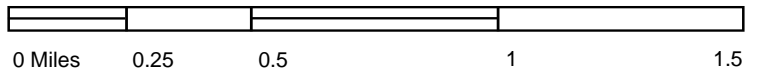
TP, Elizabeth Lake, 1917, 30-minute

SITE NAME: Camino Solar
ADDRESS: 17890 Champagne Ave
Rosamond, CA 93560
CLIENT: HDR





This report includes information from the following map sheet(s).




TP, Elizabeth Lake, 1915, 30-minute

SITE NAME: Camino Solar
 ADDRESS: 17890 Champagne Ave
 Rosamond, CA 93560
 CLIENT: HDR





Appendix D. Historical Aerial Photographs



Camino Solar
17890 Champagne Ave
Rosamond, CA 93560

Inquiry Number: 4952767.9

June 05, 2017

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

06/05/17

Site Name:

Camino Solar
17890 Champagne Ave
Rosamond, CA 93560
EDR Inquiry # 4952767.9

Client Name:

HDR
606 Columbia Street NW ,Suite 200
Olympia, WA 98501
Contact: Kim Hawkins



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1989	1"=500'	Acquisition Date: September 08, 1989	USGS/DOQQ
1986	1"=1000'	Flight Date: January 01, 1986	USDA
1977	1"=1000'	Flight Date: January 01, 1977	USGS
1974	1"=1000'	Flight Date: January 01, 1974	USGS
1963	1"=1000'	Flight Date: January 01, 1963	USGS

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Disclaimer - Copyright and Trademark Notice

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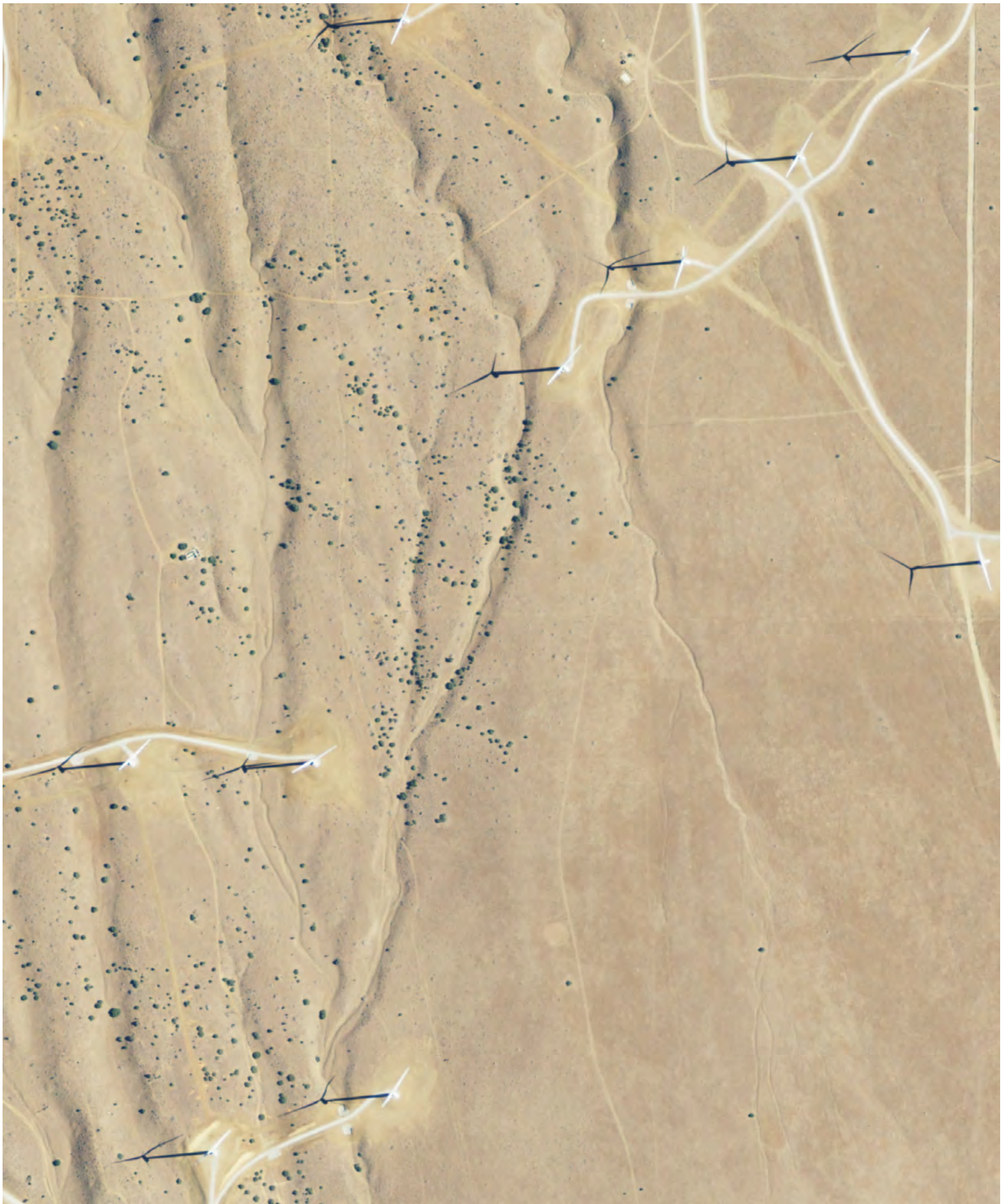


INQUIRY #: 4952767.9

YEAR: 2012

= 500'





INQUIRY #: 4952767.9

YEAR: 2012

— = 500'



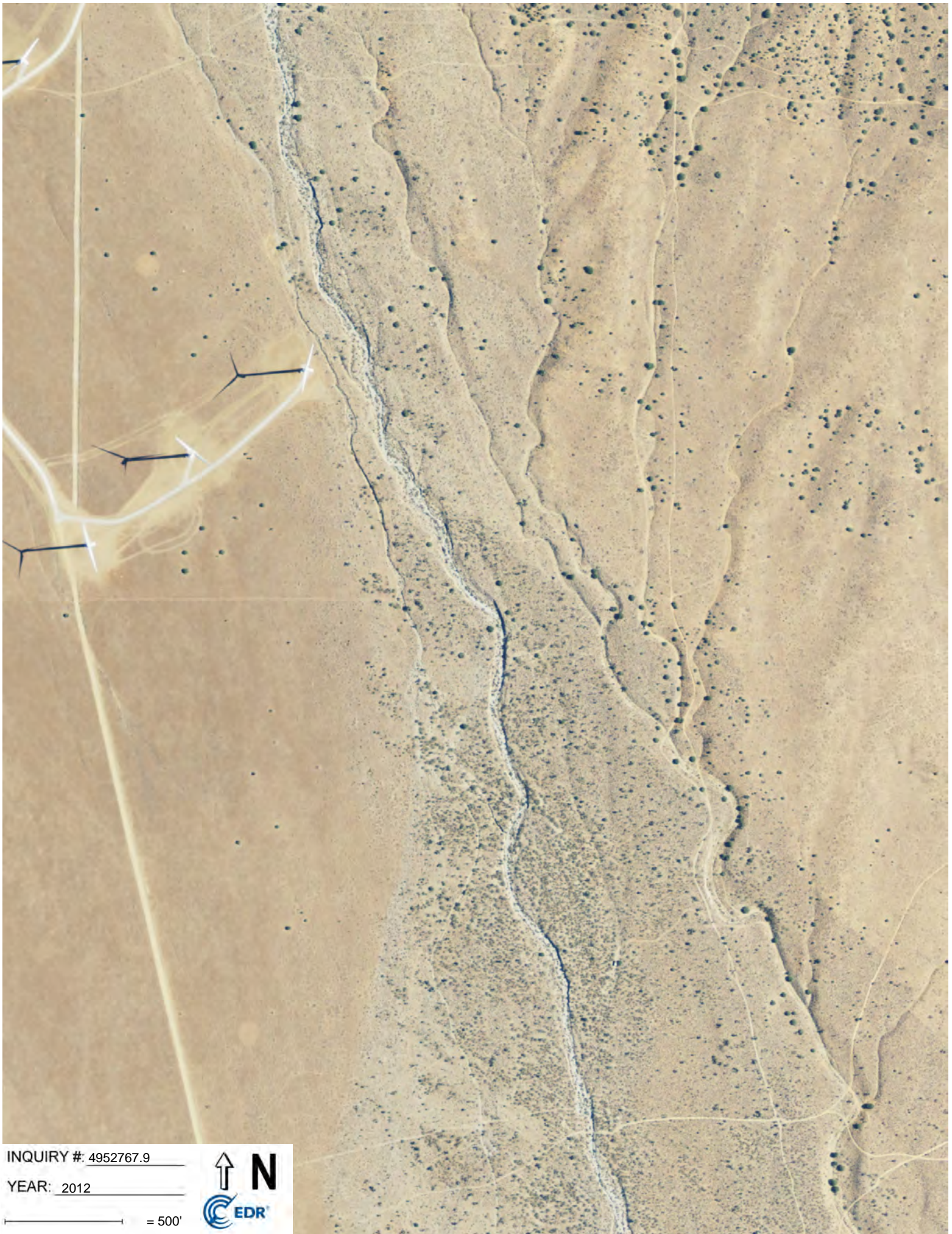


INQUIRY #: 4952767.9

YEAR: 2012

— = 500'





INQUIRY #: 4952767.9

YEAR: 2012

500'





INQUIRY #: 4952767.9

YEAR: 2010

— = 500'





INQUIRY #: 4952767.9

YEAR: 2010

— = 500'





INQUIRY #: 4952767.9

YEAR: 2010

= 500'





INQUIRY #: 4952767.9

YEAR: 2010

500'





INQUIRY #: 4952767.9

YEAR: 2009

500'



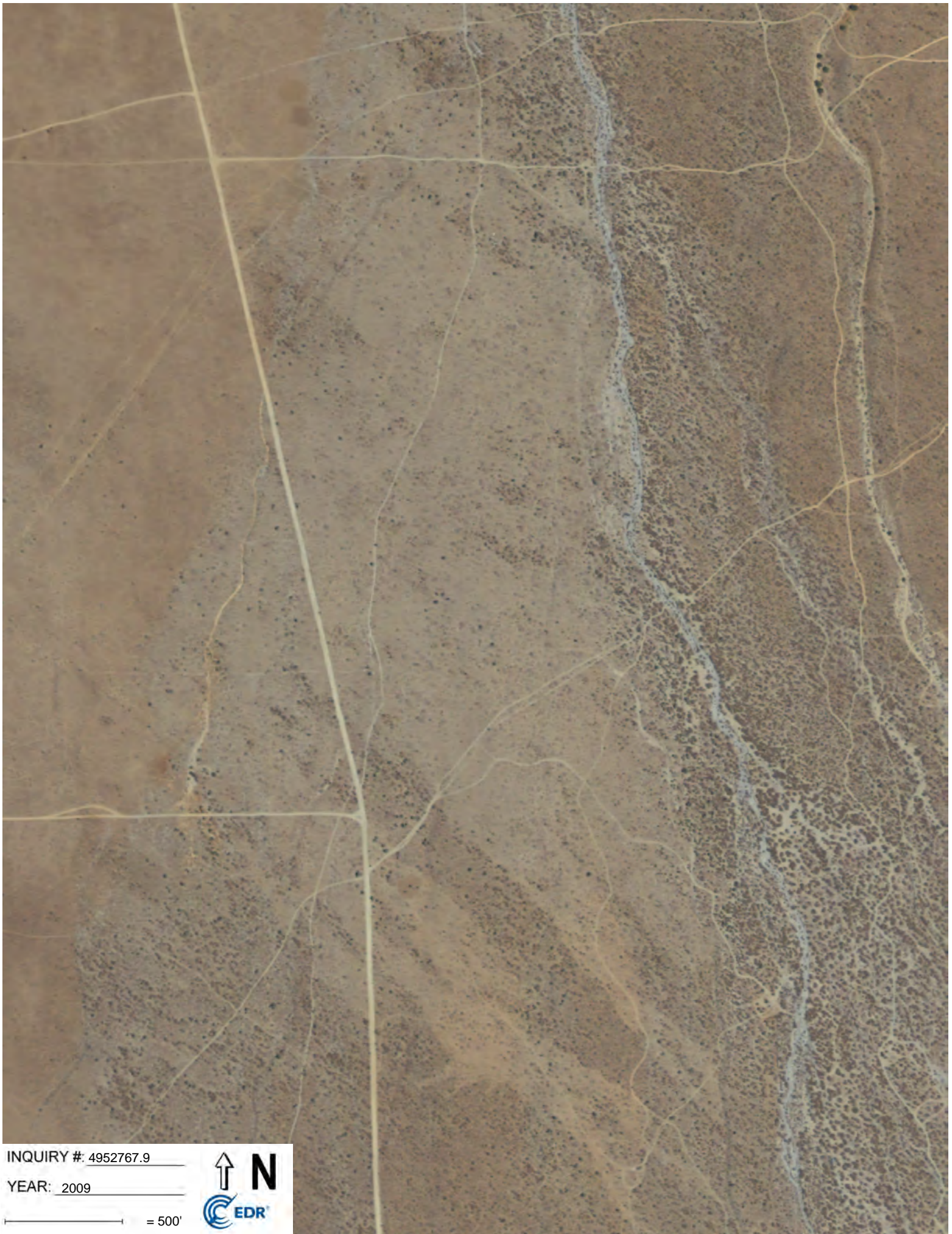


INQUIRY #: 4952767.9

YEAR: 2009

— = 500'





INQUIRY #: 4952767.9

YEAR: 2009

— = 500'



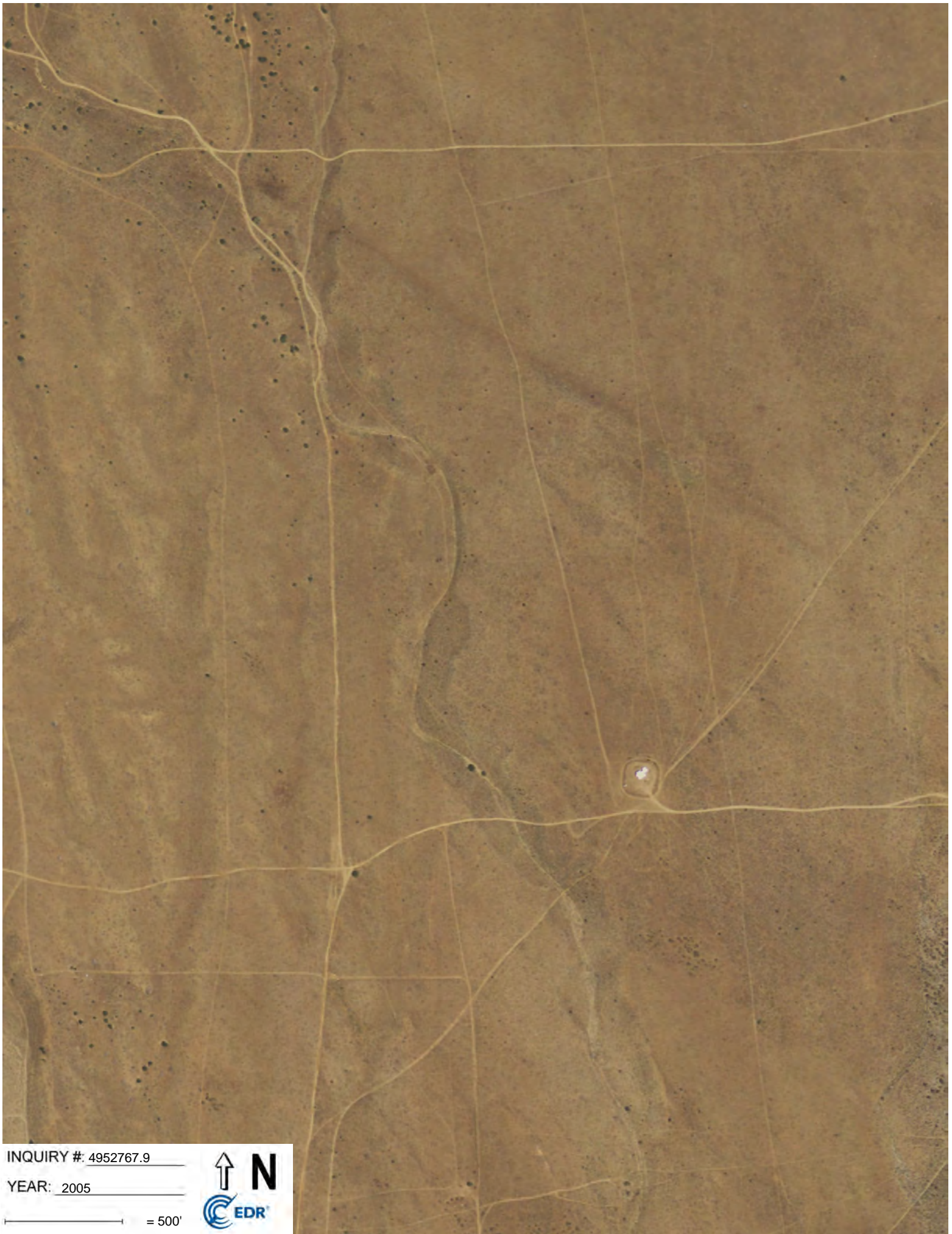


INQUIRY #: 4952767.9

YEAR: 2009

— = 500'





INQUIRY #: 4952767.9

YEAR: 2005

— = 500'





INQUIRY #: 4952767.9

YEAR: 2005

— = 500'





INQUIRY #: 4952767.9

YEAR: 2005

— = 500'





INQUIRY #: 4952767.9

YEAR: 2005

— = 500'



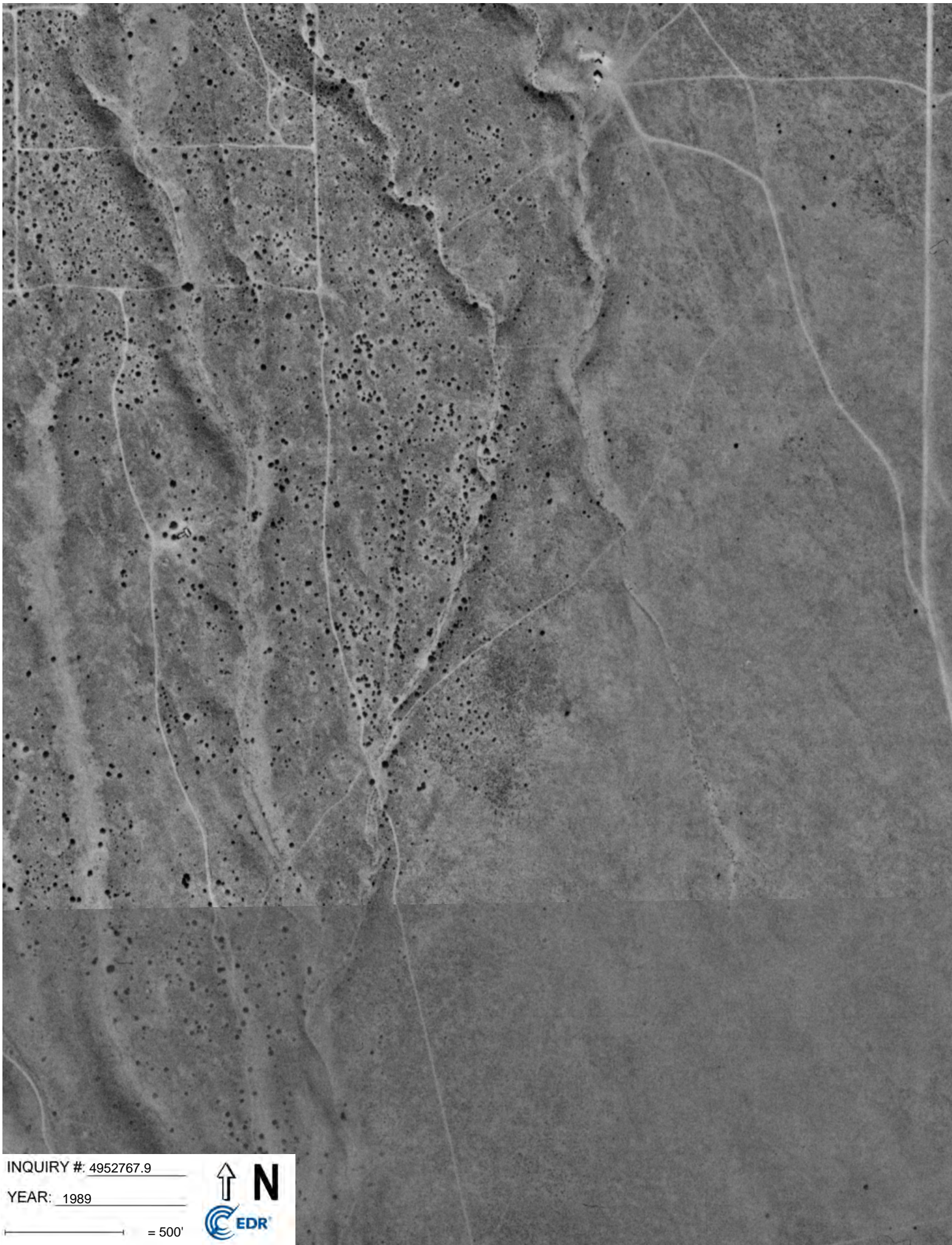


INQUIRY #: 4952767.9

YEAR: 1989

— = 500'





INQUIRY #: 4952767.9

YEAR: 1989

— = 500'



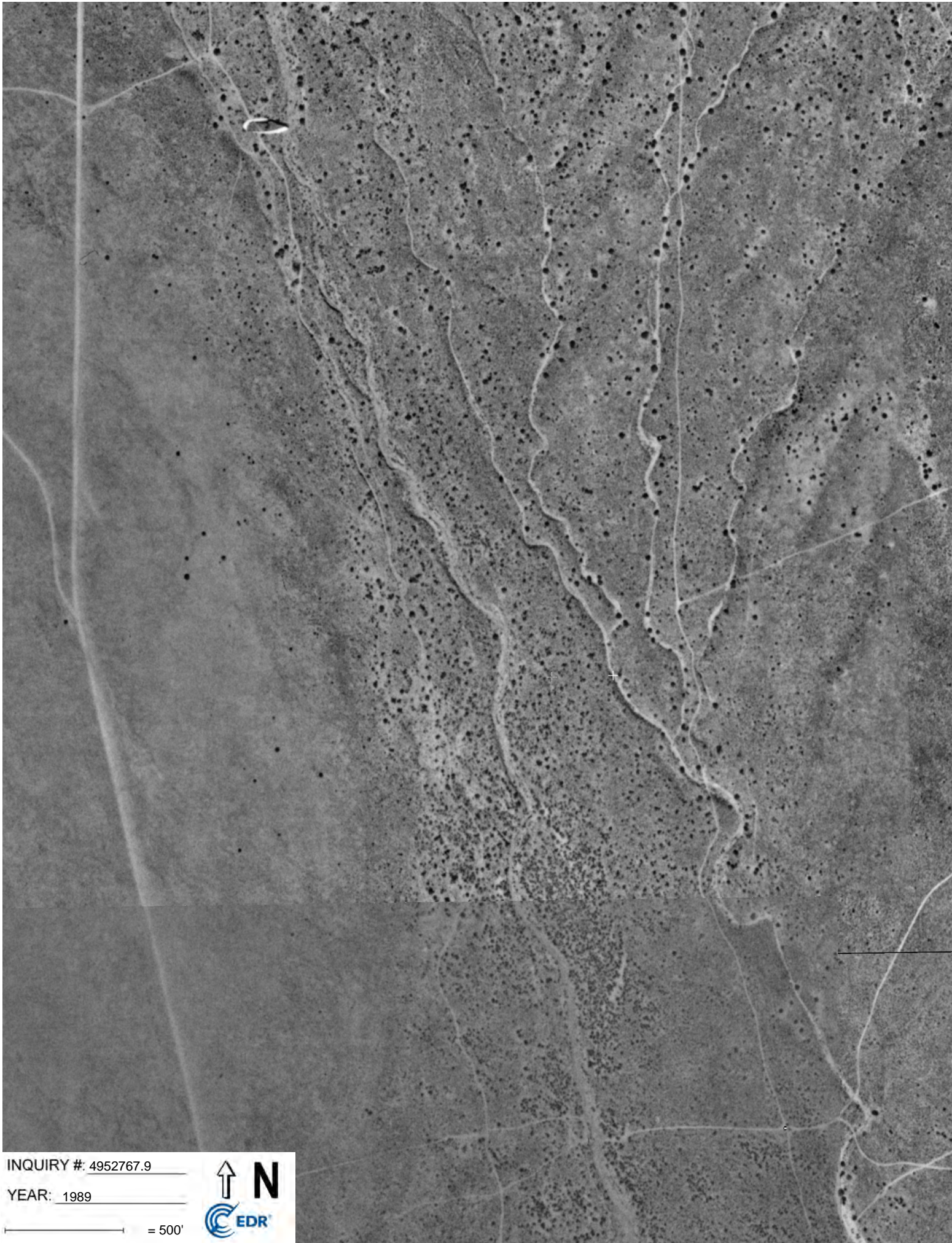


INQUIRY #: 4952767.9

YEAR: 1989

— = 500'



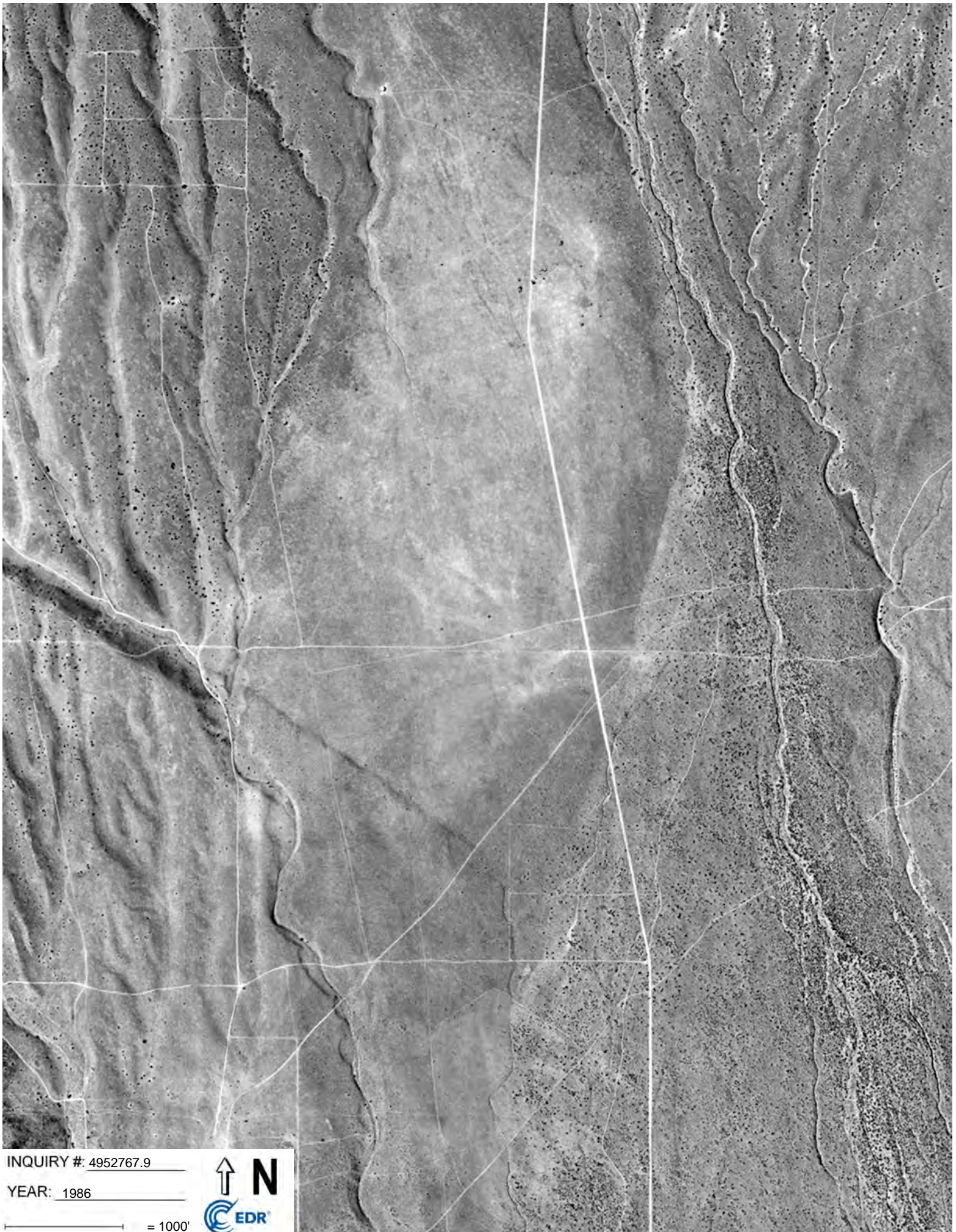


INQUIRY #: 4952767.9

YEAR: 1989

— = 500'





INQUIRY #: 4952767.9

YEAR: 1986

— = 1000'







INQUIRY #: 4952767.9

YEAR: 1974

— = 1000'





INQUIRY #: 4952767.9

YEAR: 1963

— = 1000'





Appendix E. Property Deeds

RECORDING REQUESTED BY:
Fidelity National Title Company
Escrow No. 5005367-TB
Title Order No. 978944-MD

When Recorded Mail Document
and Tax Statement To:
Mr. and Mrs. Jerry Tomlinson
1610 W. Ave. L-4
Lancaster, CA 93534

James Maples-Assessor-Recorder
Kern County Official Records

DOCUMENT #: 0197141602



JOANNE
Pages: 6
10/24/1997
8:00:00

Fees	42 00
Taxes	6 60
Other	
TOTAL	
PAID	48 60

Stat Types: 1

A PN: (SEE EXHIBIT ONE)

GRANT DEED

SPACE ABOVE THIS LINE FOR RECORDER'S USE

The undersigned grantor(s) declare(s)
Documentary transfer tax is \$ 6.60

- ☒ computed on full value of property conveyed, or
☐ computed on full value less value of liens or encumbrances remaining at time of sale,
☒ Unincorporated Area City of

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Transamerica Financial Services

hereby GRANT(S) to Jerry Tomlinson and Melinda M. Tomlinson, Husband and Wife as Joint Tenants

the following described real property in the County of Kern, State of CALIFORNIA:
SEE EXHIBIT ONE ATTACHED HERETO AND MADE A PART HEREOF

DATED: October 3, 1997

STATE OF CALIFORNIA
COUNTY OF SAN BERNARDINO
ON OCTOBER 7, 1997 before me,
JODI HOLMES personally appeared
TERI MALDONADO

TRANSAMERICA HOME LOAN AS ATTORNEY IN FACT FOR

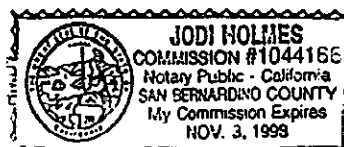
Transamerica Financial Services

By: Teri Maldonado
TERI MALDONADO - ASST SECRETARY

personally known to me (or proved to me on the basis
of satisfactory evidence) to be the person(s) whose
name(s) is/are subscribed to the within instrument and
acknowledged to me that he/she/they executed the
same in his/her/their authorized capacity(ies), and that
by his/her/their signature(s) on the instrument the
person(s), or the entity upon behalf of which the
person(s) acted, executed the instrument.

Witness my hand and official seal.

Signature Jodi Holmes



MAIL TAX STATEMENTS AS DIRECTED ABOVE

Exhibit One

"A"

A.P. NUMBERS:

476-130-11-00-9
476-130-12-00-2
476-130-13-00-5
476-130-14-00-8
476-130-02-00-3
476-130-10-00-6
476-130-03-00-6
476-130-04-00-9
476-130-16-00-4
476-130-17-00-7
476-130-18-00-0
476-130-08-00-1
476-130-07-00-8
476-130-05-00-2
476-140-02-00-6
476-140-03-00-9
476-140-04-00-2
476-140-05-00-5
476-140-06-00-8

File Number : 978944
Page Number : 2

EXHIBIT "ONE"

The land referred to in this Report is situated in the County of Kern, State of California, and is described as follows:

Parcel 1:

The West 5 acres of the North 15 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 145, of Official Records.

Parcel 2:

The East 2½ acres of the West 7½ acres of the North 15 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 146, of Official Records.

Parcel 3:

The West 2½ acres of the East 7½ acres of the North 15 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 147, of Official Records.

Parcel 4:

The East 5 acres of the North 15 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 148, of Official Records.

Parcel 5:

The North half of the West half of the South 10 acres of the North 25 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 149,

File Number : 978944
Page Number : 3

EXHIBIT "ONE"
(continued)

Parcel 6:

The South half of the West half of the South 10 acres of the North 25 acres of the North half of the West half of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 151, of Official Records.

Parcel 7:

The North half of the East half of the South 10 acres of the North 25 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 150, of Official Records.

Parcel 8:

The South half of the East half of the South 10 acres of the North 25 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 152, of Official Records.

Parcel 9:

The East half of the West half of the North 10 acres of the South 20 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 153, of Official Records.

Parcel 10:

The West half of the East half of the North 10 acres of the South 20 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 154, of Official Records.

File Number : 978944
Page Number : 4

EXHIBIT "ONE"
(continued)

Parcel 11:

The East half of the East half of the North 10 acres of the South 20 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 155, of Official Records.

Parcel 12:

The West half of the West half of the South 10 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 156, of Official Records.

Parcel 13:

The East half of the West half of the South 10 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 157, of Official Records.

Parcel 14:

The East half of the East half of the South 10 acres of the Northwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 158, of Official Records.

Parcel 15:

The East half of the West half of the North 10 acres of the Southwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 159, of Official Records.

Parcel 16:

The West half of the East half of the North 10 acres of the Southwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 160, of Official Records.

File Number : 978944
Page Number : 5

EXHIBIT "ONE"
(continued)

Parcel 17:

The East half of the East half of the North 10 acres of the Southwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 161, of Official Records.

Parcel 18:

The South 10 acres of the North 20 acres of the Southwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 162, of Official Records.

Parcel 19:

The West 2½ acres of the North 5 acres of the South 25 acres of the Southwest quarter of the Northwest quarter of Section 35, Township 10 North, Range 15 West, San Bernardino Meridian, in the unincorporated area of the County of Kern, State of California, according to the official plat thereof, and by the effect of a Conditional Certificate of Compliance recorded May 17, 1990, in Book 6384, Page 163, of Official Records.

Recording Requested By:
JERRY R. EDGMON

When Recorded Mail To:
JERRY R. EDGMON, ESQ.
3835 E. Seventh St.
Long Beach, CA 90804

James Maples-Assessor-Recorder
Kern County Official Records

PA111

Pages 3

DOCUMENT #:0200039789

4/03/2000

13 44 45



Fees	13 00
Taxes	
Other	
TOTAL	
PAID	13 00

Stat Types:1

Space above this line reserved for Recorder's Use

TITLE(S)

INTERSPOUSAL TRANSFER DEED

Recording Requested By and
When Recorded Return To:
JERRY R. EDGMON, ESQ.
3835 E. Seventh St.
Long Beach, CA 90804

Mail Tax Statements To:
RONALD C. FRY
8371 Charloma Drive
Downey, CA 90240

Assessor's I.D. No. 476 052 09 00 5

INTERSPOUSAL TRANSFER DEED

GRANT DEED (Excluded from Reappraisal Under Proposition 13)

The undersigned grantor declares under penalty of perjury that
the following is true and correct:
THERE IS NO CONSIDERATION FOR THIS TRANSFER.
Documentary transfer tax is \$ -0-.

This is an INTERSPOUSAL TRANSFER under Sec. 63 of the Revenue &
Taxation Code. Grantee has checked the applicable exclusion:

- () From joint tenancy to community property;
- () From joint tenancy to tenancy in common;
- (X) From one spouse to both spouses;
- () From one spouse to the other spouse;
- () From both spouses to one spouse;

"This conveyance is between spouses for the purpose of effecting
a division of community property pursuant to written agreement
executed in contemplation of judgment of dissolution of marriage,
R & T 11927."

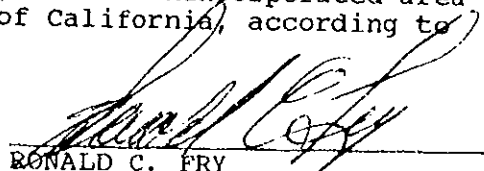
GRANTOR: RONALD C. FRY, a married man,

hereby GRANTS to: RONALD C. FRY and MARY E. FRY,
husband and wife, as Tenants in Common,
each as to an undivided one-half (50%)
interest, as his or her sole and separate
property,

the following described real property in the County of Kern,
State of California:

The South half of Section 23, Township 10 North, Range 15
West, San Bernardino Meridian, in the unincorporated area
of the County of Kern, State of California, according to
the official plat thereof.

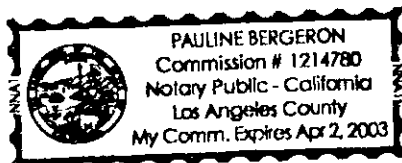
Dated: 10-22-99 1999


RONALD C. FRY

STATE OF CALIFORNIA)
)
COUNTY OF LOS ANGELES)

On October 22, 1999, before me, PAULINE BERGERON, a Notary Public in and for said County and State, personally appeared RONALD C. FRY, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.



Pauline Bergeron
Notary Public

698352-A11
RECORDING REQUESTED BY
CHICAGO TITLE COMPANY
AND WHEN RECORDED MAIL TO

TIM REDMOND
18700 PINE CANYON ROAD
LAKE HUGHES, CA 93532

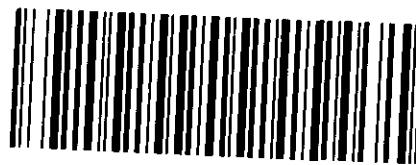
James W. Fitch, Assessor - Recorder
Kern County Official Records

JASON

Recorded at the request of
Chicago Title

1/16/2004
8:00 AM

DOC#: 0204010343



Stat Types: 1 Pages: 1

Fees	7.00
Taxes	11.00
Others	0.00
PAID	\$18.00

Escrow No. 36051987 - H95
Order No. 36051987 - H31

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT DEED

476-110-24

THE UNDERSIGNED GRANTOR(S) DECLARE(S)

DOCUMENTARY TRANSFER TAX IS \$11.00

☒ unincorporated area

☐ City of

☒ computed on the full value of the interest or property conveyed, or is

☐ computed on the full value less the value of liens or encumbrances remaining at time of sale, and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
RONALD C. FRY, A MARRIED MAN AS HIS SOLE AND SEPARATE PROPERTY

hereby GRANT(S) to
TIM REDMOND, AN UNMARRIED MAN

the following described real property in the UNINCORPORATED AREA
County of KERN, State of California:

THE SOUTH HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, SECTION 26, TOWNSHIP
10 NORTH, RANGE 10 WEST, APPROXIMATELY 20 ACRES, IN THE ANTELOPE VALLEY, COUNTY OF
KERN, STATE OF CALIFORNIA.

Dated November 10, 2003

STATE OF

COUNTY OF

Los Angeles

} SS.

On

December 2, 2003

before me,

A. J. DIAZ

a Notary Public in and for said County and State, personally appeared

RONALD C. FRY

RONALD C. FRY

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature of Notary

Date My Commission Expires

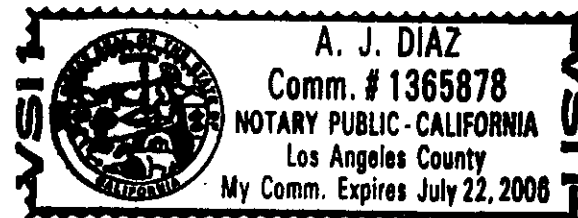
FOR NOTARY SEAL OR STAMP

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE: IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name

Street Address

City, State & Zip



JULY 22, 2006

James W. Fitch, Assessor - Recorder
Kern County Official Records

SOFIR
10/10/2005
2:00 PM

Recorded at the request of
Public

RECORDING REQUESTED BY
RYUL KIM

AND WHEN RECORDED MAIL TO

SUN HAE RYU
HACK SUN RYU
2497 TEQUESTA
TUSTIN, CA 92782

DOC#: 0205279967



Stat Types: 1 Pages: 3

Fees	13.00
Taxes	0.00
Others	4.00
PAID	\$17.00

APN:

476-110-19-01-6

Space above line for Recorder's Use
NO CONSIDERATION. NO TAX DUE.
Conveyance without consideration
to change the manner in which the
interest of the parties is held.

TRUST TRANSFER DEED

(Excluded from Reappraisal Under Proposition 13;
Calif. Const. Art. 13A § 1 et seq.)

The undersigned Grantors declare under penalty of perjury that
the following is true and correct:

Documentary transfer tax is NONE.

X Unincorporated area ___ City of

Mail tax statements to: same address as above.

This is a Trust Transfer under Section 62 of the Revenue and
Taxation Code and Grantors have checked the applicable exclusion:

X Transfer to a revocable trust;

___ Transfer to a short-term trust not exceeding 12 years with
Settlor holding the reversion;

___ Transfer to a trust where the settlor or the settlor's
spouse is the sole beneficiary;

___ Change of trustee holding title;

___ Transfer from trust to settlor or settlor's spouse where
prior transfer to trust was excluded from reappraisal and
for a valuable consideration, receipt of which is
acknowledged.

___ Other: _____

GRANTORS: SUN HAE RYU and HACK SUN RYU, wife and husband, as Community Property, hereby **GRANT TO:** SUN HAE RYU and HACK SUN RYU, trustees of the 2005 SUN HAE RYU and HACK SUN RYU Revocable Trust dated August 25, 2005, that real property in the County of Kern, State of California, described in Exhibit "A" attached hereto and incorporated herein.

Dated: 8/22/2005

Sun Hae Ryu
SUN HAE RYU
Hack Sun Ryu
HACK SUN RYU

State of California)
County of ORANGE) ss

On August 22, 2005 before me,
MINH NGA PHAN, a notary public in and for the State of California, personally appeared SUN HAE RYU and HACK SUN RYU, personally known to me (or proved to me on the basis of satisfactory evidence) to be the persons whose names are subscribed to the within instrument and acknowledged to me that they executed the same in their authorized capacities, and that by their signatures on the instrument, the persons, or the entity upon behalf of which the persons acted, executed the instrument.

WITNESS my hand and official seal.
Signature Minh Nga Phan

(SEAL)

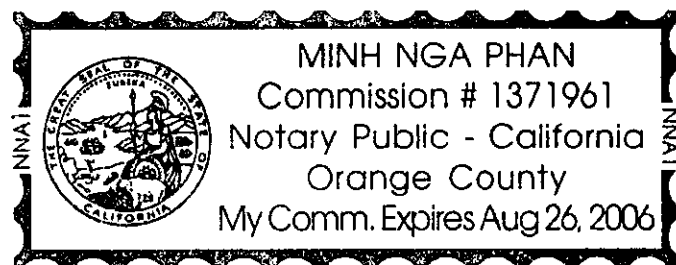


EXHIBIT A

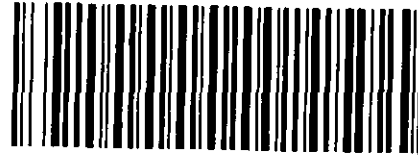
THE NORTH HALF OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 26, TOWNSHIP 10 NORTH, RANGE 15 WEST, S.B.B.M., IN THE UNINCORPORATED AREA OF THE COUNTY OF KERN, STATE OF CALIFORNIA, AS PER THE OFFICIAL PLAT THEREOF ON FILE IN THE OFFICE OF THE SURVEYOR GENERAL.

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO

Corinne Egan
17537 Victory Blvd.
Van Nuys, California 91406

Recorded at the request of
Public

DOC#: 0211112934



Stat Types: 1 Pages: 2

Fees	18.00
Taxes	0.00
Others	3.00
PAID	\$21.00

A.P.N. 476-110-16

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT DEED:


The undersigned Grantor, PAUL LASCOLA, as Successor Trustee of the Dolores T. Volpe Family Trust, Dated 1/26/2006, declares under penalty of perjury under the laws of the State of California that the following is true and correct:

GRANTOR: PAUL LASCOLA as Successor Trustee of the Dolores T. Volpe Family Trust, Dated 1/26/2006
GRANTS 3/8th interest in the below described property to

GRANTEE: CORINNE M. EGAN, an unmarried woman

all that real property situated in an unincorporated area in the County of Kern, State of California, described on Exhibit A attached hereto and incorporated herein by this reference.

Dated: 6/3/10


Paul Lascola Dolores T. Volpe Family Trust

STATE OF CALIFORNIA)

COUNTY OF VENTURA)

On 6/3/10, before me, Ruth Schnapka, Notary Public, personally appeared Paul Lascola, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.


NOTARY PUBLIC



MAIL TAX STATEMENTS TO:

Maria T. Messina, 7045 Sylvia Ave. Reseda CA. 91335

DOCUMENTARY TRANSFER TAX \$ Gift

- ☐ Computed on full value of property conveyed, or
☐ Computed on full value less liens & encumbrances remaining thereon at time of sale.


Signature of declarant or agent determining tax, firm name

Exhibit "A"

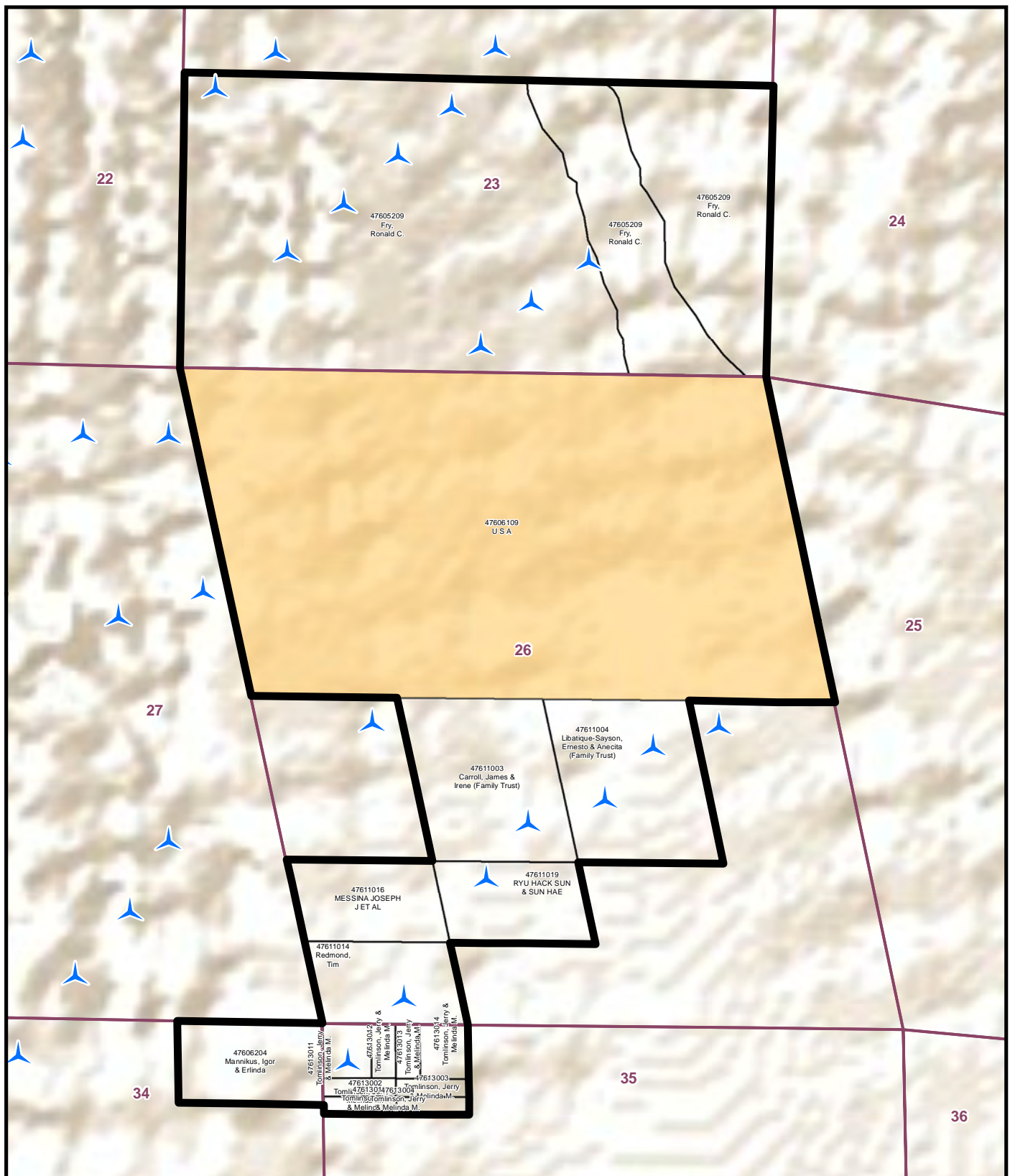
All that certain real property situated in the County of Kern, State of California, described as follows:

Legal Description

The North half (N2) of the Southwest Quarter (SW4) of the Southwest Quarter (SW4) of Section 26, Township 10 North, Range 15 West, San Bernardino meridian, in the unincorporated area of the County of Kern, state of California, according to Official Plat of said land approved by the Surveyor General, February 19, 1856.

Assessor's Parcel Number

476-110-16



Legend

- Existing Turbine
- Project Area
- Township
- Section
- Private Land
- BLM Land

Project Landowner Map

Camino Solar

N

0 1,000 2,000

Feet

AVANGRID RENEWABLES

Appendix I

**Camino Solar Preliminary
Drainage Report, Camino Solar
Water Use Memorandum, and
Camino Solar Water Supply
Assessment**



PRELIMINARY DRAINAGE REPORT

44MW Camino Solar Project

September 2016

**Prepared For:
Iberdrola Energy Projects**



Prepared By:



Table of Contents

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3	SITE CONDITIONS AND PROPOSED DEVELOPMENT	3
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5.2	Soil Types	4
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6	ONSITE STORM WATER MANAGEMENT	5
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Appendix A	Exhibits: Exhibit 1 – FEMA FIRM Panel Exhibit 2 –Drainage Map
Appendix B	Retention Basin Calculations

1 INTRODUCTION

1.1 Purpose

The purpose of this preliminary drainage report is to present the methodology and analysis of onsite drainage conditions, identify and provide a conceptual mitigation plan for offsite drainage flows, in support of the 44MW Camino Solar Photovoltaic (PV) Project and to provide recommendations for drainage and grading concepts for the proposed site development. This report addresses the recommended drainage facilities by:

- Establishing drainage design criteria and concepts.
- Documenting engineering solutions for the management of post-construction storm water runoff.
- Size retention ponds so that pre-development discharge is not exceeded under post-development conditions for the Intermediate Storm Design Discharge (ISDD) storm event.

Calculations were performed according to the methodology and procedures outlined in *Kern County Hydrology Manual* and Kern County Development Standards, dated August 2005.

Included in the appendices are drainage maps and retention calculations.

2 LOCATION

The project is located adjacent to the southern foothills of the Tehachapi Mountains in the western portion of the Mojave Desert. The site is within unincorporated Kern County. The total site encompasses approximately 360 net acres and 258 gross acres within BLM land and 183 acres of private land. The total fenced in photovoltaic site is approximately 314 acres. The site is approximately 20 miles southwest of the City of Mojave. Most of the site is located within Section 26, Township 10 North and Range 15 West with small portions of the site located within Section 23. The site is situated within the existing Manzana Wind Energy Project. Access to the site will be done using the existing dirt roads installed for the wind project. The location is shown on Figure 1, Project Vicinity Map and Figure 2, Project Site Map.



Figure 1: Project Vicinity Map

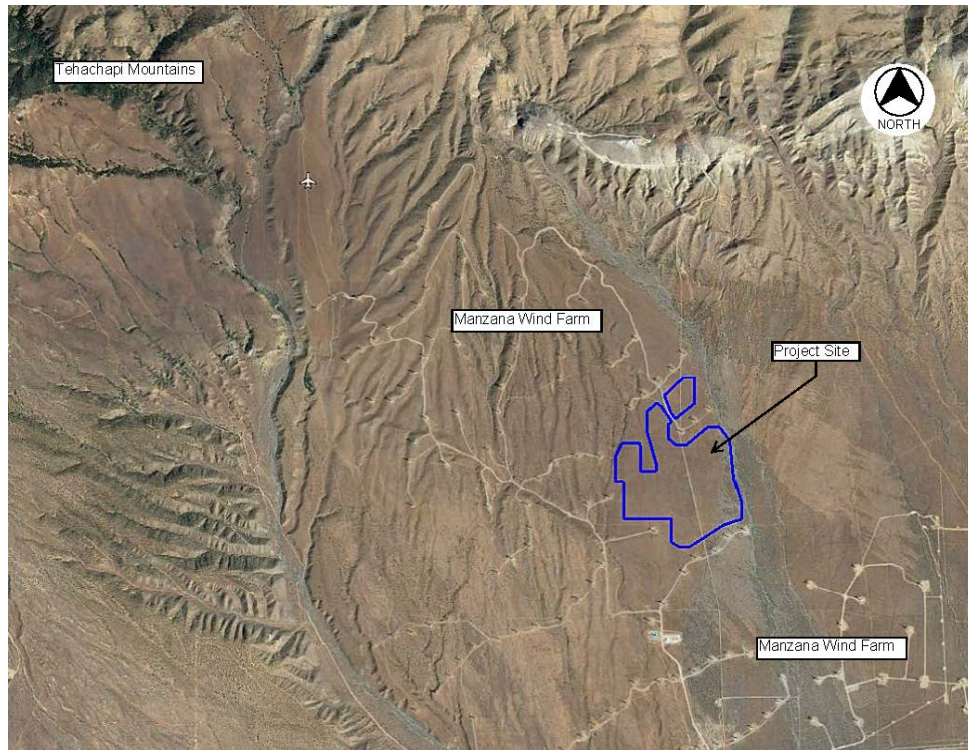


Figure 2: Project Site Map

3 SITE CONDITIONS AND PROPOSED DEVELOPMENT

The project site consists of undeveloped desert land with little to no vegetative cover. The ground general slopes from north to south at approximately 6%. The project is located within the Antelope-Willow Springs Watershed, surrounded by wind turbines developed with the Manzana project. Additionally, the project is being developed at the base of the Tehachapi Mountains on an alluvial fan. Typical of alluvial fan regions, the project has few well-defined drainage channels. Much of the sites storm water runoff is sheet flow. There is no active flowing water on the site. Bisecting and surrounding the site are dirt roads and trails, some developed for the wind farm and some created by recreational vehicles. All of the dirt roads in the vicinity of the project are at grade and do not affect the drainage. The dirt roads that bisect the site will be re-routed to the eastern edge of the site to maintain access to adjacent properties.

Proposed improvements will include construction of solar panels, tracking system components, cabling, direct current (DC) to alternating current (AC) power conversion units with medium voltage transformers, medium voltage underground lines, combining switchgear, meteorological stations, and a gen-tie line to connect the site to an existing substation. The site will also have interior gravel roads for operations and maintenance, fencing and retention basins.

4 FEMA FLOODPLAIN CLASSIFICATION

The project site is located within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) map number 06029C3625E effective September 26, 2008. The FIRM panel is shown in Appendix A. The site is located entirely within Flood Zone "X", areas of minimal flooding and no standing water.

5 OFFSITE STORM WATER MANAGEMENT

5.1 Hydrology

As discussed above, the site is located at the base of the Tehachapi Mountains on an alluvial fan. As such, much of the offsite water reaches the project via sheet flow. Since the proposed improvements, at-grade gravel road, inverter pads and solar panels, will not impede the flow of water, the site will not adversely impact offsite flows and little mitigation measures will be needed.

There is one small, partially defined channel within the western portion of the site. Hydrology for this wash was mostly completed in Manzana Wind Energy Project Phase I ESA, prepared by Sapphos Environmental Inc. The wash crosses one of the projects maintenance roads and was identified to contain approximately 179 cfs in the 10-year storm event. The drainage area from that point to the location where it enters the solar plant is about 25 acres, as shown as the offsite sub-basin on Exhibit 2: Drainage Map in Appendix A. To estimate the total flow that enters the site, the *United States Geological Survey (USGS) Magnitude and Frequency Method* was utilized.

The methods are empirically derived equations based on precipitation and runoff data from 778 stream gauging stations in California. Based on the size of the one tributary area, this method is acceptable. The equation to calculate the 10-year storm event is as follow:

$$Q_{10\text{-year}} = 150 \times (\text{Area in Square Miles})^{0.53}$$

The above equation yields a 10-year flow of 26.7 cfs. Comparing these results to like drainage areas in the Manzana ESA show that this is an accurate number to use in the final design of the project.

5.2 Soil Types

Soil types were taken from the published survey by the National Resources Conservation Service (NRCS) Soils Survey for Antelope Valley Area, California. There are three main soil types for the site, all falling in Hydrologic Soils Group A, consistent with well-drained alluvial fans, shown in the table below. Group A soils have a high infiltration rate and low runoff potential when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands.

Soil Map Unit (Per USDA Soil Conservation Service)	Soil Map Description	Hydrologic Soil Group
AsB	Arizo gravelly loamy sand, 0 to 5 percent slopes	A
CaC	Cajon loamy sand, 2 to 9 percent slopes	A
HdC	Hanford gravelly sandy loam, 2 to 9 percent slopes	A

5.3 Mitigation Measures

A majority of the offsite flow that enters the site will continue to flow south through the site with no impacts from the proposed development of the project and, therefore, no mitigation measures will be necessary.

The western wash, as discussed previously, enters the site conveying approximately 206 cfs. The banks of the wash are not well defined and as it continues through the site, losses definition completely and returns to sheet flow. As such, to contain the wash in an engineered channel would alter the historic flow conditions as it exits the site. The wash is only one to two feet deep as it runs through the site. The recommendation is to allow the wash to enter the site, creating low water crossing gravel roads where necessary and not contain the flow. To protect the panel supports

in the vicinity of wash, scour calculations and water surface modeling should be completed during final design.

6 ONSITE STORM WATER MANAGEMENT

6.1 Description

The site was divided into seven sub-basins generally in the southern direction based on the existing and proposed contours. There is proposed grading for the site to reduce the overall slope for the installation of the trackers but the land will still follow existing drainage patterns. Other than the placement of the trackers, installation of the at-grade gravel roads and placement of inverter pads, the general topography of the area will not be altered due to the proposed construction activities. Therefore, there will be no change in the direction of flood runoff during storm events. Exhibit 2 in Appendix A shows the drainage sub-basins.

6.2 Retention Basins

There are three main features of the proposed site that are considered impervious, the gravel roads, the inverter pads and the support piers. The solar panels themselves are not considered impervious as the structure is raised and precipitation is still able to flow beneath the panels.

The design of the storm water retention basins were based on the runoff from the ISDD five-day storm event, computed as defined in the Manual. Equation 1 from the Manual was used to compute the runoff volume calculations based on the 10-year, 24-hour storm event. The rainfall depth was obtained from NOAA for the site. Total impervious areas were calculated per sub-basin. The table below presents the results and necessary storm water retention per basin.

Table 1: Require Retention Basin Volumes

Basin No.	Total Area (Sq Ft)	Impervious Area (Sq Ft)	Average % Impervious	10yr 24-hr Rainfall Depth (Inches)	Runoff Volume (Cu Ft)
1	479,309	35	0.01	3.75	16
2	964,097	9,095	0.94	3.75	4,093
3	973,173	15,435	1.59	3.75	6,946
4	2,691,860	52,620	1.95	3.75	23,679
5	2,755,618	30,970	1.12	3.75	13,937
6	2,877,326	59,290	2.06	3.75	26,681
7	2,904,222	65,203	2.25	3.75	29,341

A retention basin is proposed at or near the outlet of each sub-basin to retain the excess runoff volume generated after the completion of the project. Calculations have been included in Appendix B.

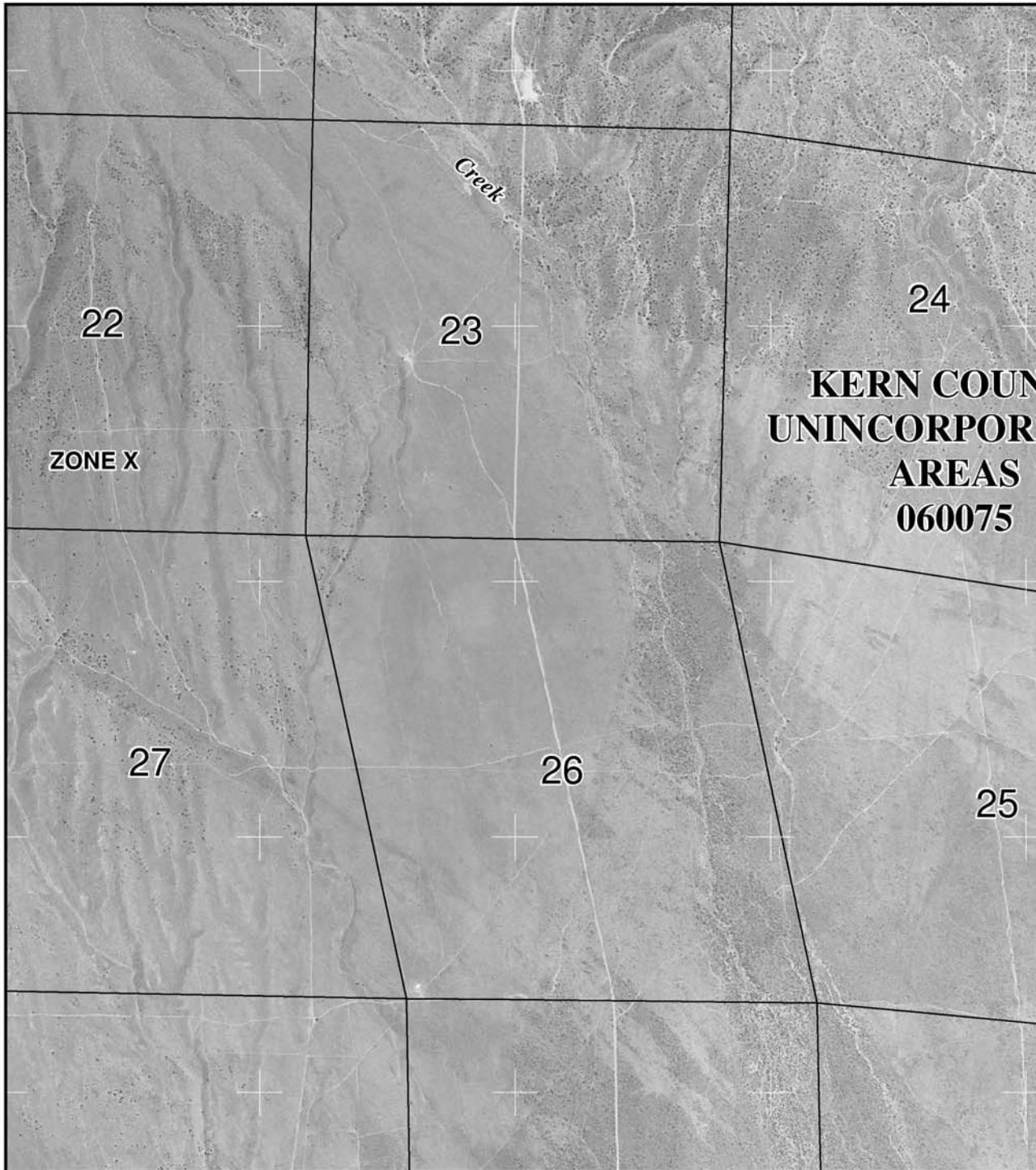
6.3 Additional Onsite Mitigation Measures

Additional storm water erosion and sediment control measures will be implemented to protect the site and adjacent properties. These measures will include silt fence along the boundary of the site where onsite runoff would leave the site. Although it is not anticipated at this time, if slopes exceed 3:1 in cut or fill areas, sediment blankets may be necessary to prevent erosion. Additionally, permanent seeding over the site after the main grading activities is completed will be done to help with stabilization of the site.

Appendix A:

Exhibit 1 – FEMA FIRM Panel

Exhibit 2 – Drainage Map



the Flood Insurance Study report for this jurisdiction.
 Insurance is available in this community, contact your insurance
 agent or the National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 2000'

0 600 1200

PANEL 3625E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY,
CALIFORNIA
AND INCORPORATED AREAS

PANEL 3625 OF 4125
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFFIX</u>
KERN COUNTY	060075	3625	E

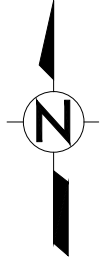
Notice to User: The **Map Number** shown below should be
 used when placing map orders; the **Community Number** shown
 above should be used on insurance applications for the subject
 community.



MAP NUMBER
06029C3625E
EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It
 was extracted using F-MIT On-Line. This map does not reflect changes
 or amendments which may have been made subsequent to the date on the
 title block. For the latest product information about National Flood Insurance
 Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



CONSULTANT
AZTEC
TYP S A Group

OWNER

IBERDROLA

CONTRACTOR

PRELIMINARY
NOT FOR
CONSTRUCTION

REVISIONS		DESCRIPTION	REV	DATE	DRW	CK	APV
0		DESIGN REVIEW		9/14/16			

SCALE: 1"=400'
SIZE: 22" X 34"
PROJECT#: AZENE1601

PROJECT
CAMINO 44 MW SOLAR FARM
17890 CHAMPAGNE AVENUE, ROSAMOND, CA 93560

TITLE
EXHIBIT 2 - DRAINAGE MAP

SHEET
#####

REV
0

Appendix B:

Retention Volume Calculations



NOAA Atlas 14, Volume 6, Version 2
Location name: California, US*
Latitude: 34.9348°, Longitude: -118.4444°
Elevation: 3610 ft*
 * source: Google Maps



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aersials](#)

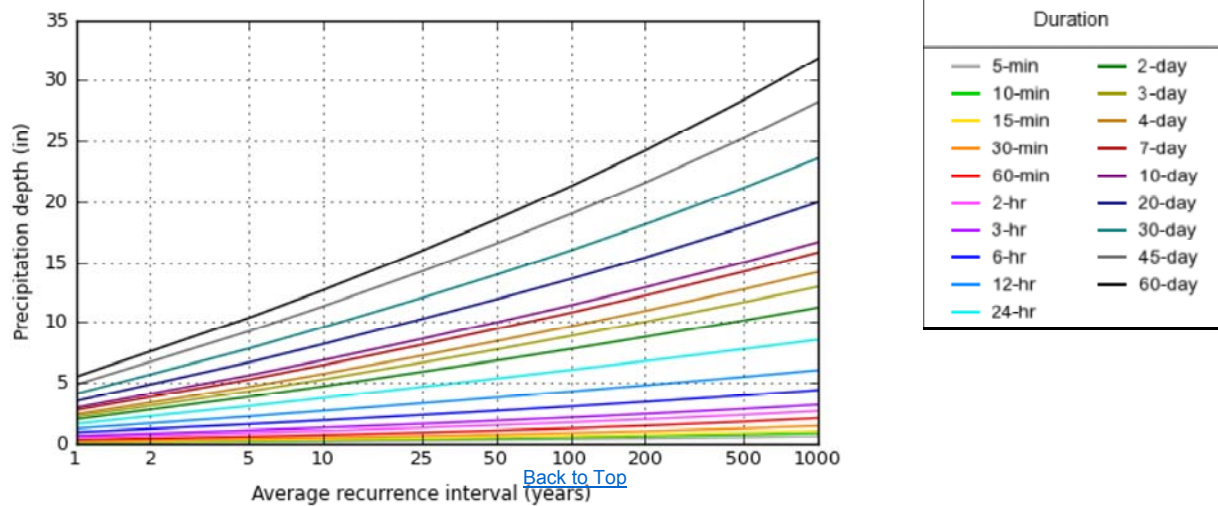
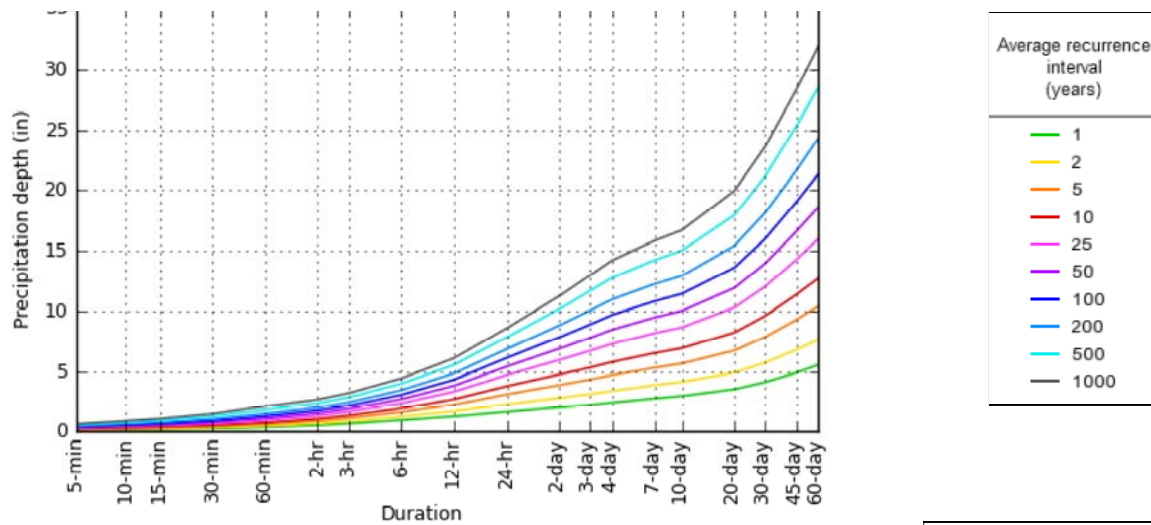
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.096 (0.079–0.118)	0.126 (0.104–0.154)	0.168 (0.138–0.207)	0.206 (0.168–0.255)	0.262 (0.207–0.336)	0.310 (0.239–0.405)	0.363 (0.274–0.487)	0.423 (0.310–0.584)	0.517 (0.363–0.743)	0.602 (0.408–0.896)
10-min	0.138 (0.114–0.169)	0.180 (0.149–0.221)	0.241 (0.198–0.296)	0.295 (0.241–0.365)	0.376 (0.296–0.481)	0.444 (0.343–0.581)	0.520 (0.392–0.698)	0.607 (0.445–0.837)	0.741 (0.520–1.07)	0.863 (0.585–1.28)
15-min	0.167 (0.138–0.204)	0.218 (0.180–0.267)	0.292 (0.240–0.358)	0.357 (0.291–0.442)	0.454 (0.358–0.582)	0.537 (0.415–0.703)	0.629 (0.474–0.844)	0.734 (0.538–1.01)	0.896 (0.629–1.29)	1.04 (0.708–1.55)
30-min	0.231 (0.191–0.282)	0.302 (0.249–0.370)	0.404 (0.332–0.496)	0.494 (0.403–0.612)	0.629 (0.496–0.806)	0.744 (0.575–0.973)	0.872 (0.657–1.17)	1.02 (0.745–1.40)	1.24 (0.871–1.78)	1.45 (0.980–2.15)
60-min	0.332 (0.274–0.406)	0.434 (0.358–0.531)	0.580 (0.477–0.712)	0.710 (0.579–0.879)	0.904 (0.713–1.16)	1.07 (0.825–1.40)	1.25 (0.943–1.68)	1.46 (1.07–2.01)	1.78 (1.25–2.56)	2.08 (1.41–3.09)
2-hr	0.503 (0.415–0.615)	0.652 (0.538–0.799)	0.859 (0.707–1.06)	1.04 (0.846–1.29)	1.30 (1.02–1.66)	1.51 (1.16–1.97)	1.73 (1.31–2.32)	1.98 (1.45–2.73)	2.35 (1.65–3.37)	2.66 (1.80–3.96)
3-hr	0.638 (0.527–0.780)	0.827 (0.682–1.01)	1.09 (0.892–1.33)	1.30 (1.06–1.61)	1.62 (1.27–2.07)	1.87 (1.44–2.44)	2.13 (1.61–2.86)	2.42 (1.77–3.34)	2.84 (1.99–4.08)	3.18 (2.16–4.74)
6-hr	0.924 (0.763–1.13)	1.21 (0.995–1.48)	1.58 (1.30–1.95)	1.90 (1.55–2.35)	2.34 (1.84–2.99)	2.68 (2.07–3.51)	3.04 (2.29–4.08)	3.42 (2.51–4.72)	3.96 (2.78–5.69)	4.39 (2.98–6.53)
12-hr	1.23 (1.02–1.51)	1.66 (1.37–2.03)	2.22 (1.83–2.73)	2.68 (2.19–3.32)	3.30 (2.61–4.23)	3.79 (2.92–4.95)	4.28 (3.22–5.74)	4.79 (3.51–6.61)	5.49 (3.86–7.90)	6.04 (4.10–8.99)
24-hr	1.61 (1.43–1.85)	2.25 (1.99–2.59)	3.08 (2.72–3.55)	3.75 (3.29–4.36)	4.66 (3.95–5.61)	5.36 (4.44–6.59)	6.06 (4.91–7.64)	6.79 (5.34–8.81)	7.78 (5.86–10.5)	8.54 (6.22–12.0)
2-day	1.98 (1.76–2.28)	2.78 (2.47–3.20)	3.84 (3.40–4.43)	4.71 (4.13–5.48)	5.90 (5.00–7.11)	6.83 (5.67–8.40)	7.78 (6.30–9.81)	8.78 (6.91–11.4)	10.1 (7.66–13.7)	11.2 (8.18–15.7)
3-day	2.21 (1.96–2.54)	3.10 (2.75–3.57)	4.29 (3.80–4.96)	5.28 (4.63–6.15)	6.66 (5.64–8.01)	7.74 (6.42–9.51)	8.86 (7.17–11.2)	10.0 (7.89–13.0)	11.7 (8.80–15.8)	13.0 (9.45–18.2)
4-day	2.39 (2.13–2.75)	3.36 (2.98–3.87)	4.66 (4.12–5.37)	5.73 (5.03–6.67)	7.24 (6.13–8.71)	8.42 (6.99–10.4)	9.65 (7.81–12.2)	10.9 (8.61–14.2)	12.8 (9.62–17.3)	14.2 (10.3–19.9)
7-day	2.74 (2.44–3.15)	3.83 (3.39–4.41)	5.27 (4.66–6.08)	6.46 (5.67–7.52)	8.13 (6.89–9.78)	9.44 (7.83–11.6)	10.8 (8.74–13.6)	12.2 (9.62–15.9)	14.2 (10.7–19.3)	15.8 (11.5–22.2)
10-day	2.94 (2.61–3.38)	4.09 (3.63–4.71)	5.61 (4.96–6.47)	6.87 (6.02–7.99)	8.61 (7.30–10.4)	9.99 (8.29–12.3)	11.4 (9.24–14.4)	12.9 (10.2–16.8)	15.0 (11.3–20.3)	16.7 (12.1–23.4)
20-day	3.50 (3.10–4.02)	4.86 (4.31–5.60)	6.68 (5.91–7.71)	8.19 (7.18–9.53)	10.3 (8.70–12.4)	11.9 (9.88–14.6)	13.6 (11.0–17.2)	15.4 (12.1–20.0)	17.9 (13.5–24.3)	20.0 (14.5–28.0)
30-day	4.08 (3.62–4.69)	5.69 (5.04–6.54)	7.81 (6.91–9.02)	9.58 (8.40–11.1)	12.0 (10.2–14.5)	14.0 (11.6–17.2)	16.0 (12.9–20.2)	18.1 (14.3–23.5)	21.2 (16.0–28.6)	23.6 (17.2–33.1)
45-day	4.85 (4.30–5.57)	6.73 (5.96–7.74)	9.24 (8.17–10.7)	11.3 (9.94–13.2)	14.2 (12.1–17.2)	16.6 (13.7–20.4)	19.0 (15.4–23.9)	21.6 (17.0–28.0)	25.2 (19.0–34.2)	28.2 (20.6–39.6)
60-day	5.49 (4.88–6.32)	7.58 (6.72–8.72)	10.4 (9.16–12.0)	12.7 (11.1–14.8)	16.0 (13.5–19.2)	18.5 (15.4–22.8)	21.3 (17.2–26.8)	24.2 (19.1–31.4)	28.4 (21.4–38.4)	31.8 (23.2–44.6)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical


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Maps & aeriels

NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Tue Aug 30 21:25:23 2016

Small scale terrain





Large scale aerial



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[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Site: Camino 44 MW Solar Plant
Location: Kern County, CA
Description: Basin Design Volume Calculations
Reference: Kern County Hydrology Manual - ISDD Storm Event



Computed: TFR Date: 8/31/2016
Checked: SAS Date: 9/2/2016

Retention Basin Design Volume Calculations

Basin No.	Total Area (Sq Ft)	Impervious Area (Sq Ft)	Average % Impervious	10yr 24-hr Rainfall Depth (Inches)	Runoff Volume (Cu Ft)
1	479,309	35	0.01	3.75	16
2	964,097	9,095	0.94	3.75	4,093
3	973,173	15,435	1.59	3.75	6,946
4	2,691,860	52,620	1.95	3.75	23,679
5	2,755,618	30,970	1.12	3.75	13,937
6	2,877,326	59,290	2.06	3.75	26,681
7	2,904,222	65,203	2.25	3.75	29,341

*Runoff Volume = (.12) x (10yr 24-hr rainfall depth - inches) x (average percentage of impervious area) x (total area)

Site: Camino 44 MW Solar Plant
 Location: Kern County, CA
 Description: Proposed Retention Basins
 Reference: Kern County Hydrology Manual - ISDD Storm Event



Computed: TFR Date: 8/31/2016
 Checked: SAS Date: 9/2/2016

Basin 1

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	0.00	0	0	0
HW	0.00	0	0	0

Total infiltration = 0 cu.ft.
 $V_{prov} = 0.00$ acre-feet

Basin 2

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	3679.00	1,555	0	0
HW	3681.00	2,646	4,153	4,153

Total infiltration = 4,153 cu.ft.
 $V_{prov} = 0.10$ acre-feet

Basin 3

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	3743.00	2,812	0	0
HW	3745.00	4,216	6,981	6,981

Total infiltration = 6,981 cu.ft.
 $V_{prov} = 0.16$ acre-feet

Basin 4

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	3537.00	10,451	0	0
HW	3539.00	13,420	23,809	23,809

Total infiltration = 23,809 cu.ft.
V_{prov} = 0.55 acre-feet

Basin 5

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	3484.00	6,138	0	0
HW	3486.00	8,154	14,244	14,244

Total infiltration = 14,244 cu.ft.
V_{prov} = 0.33 acre-feet

Basin 6

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	3509.00	12,105	0	0
HW	3511.00	14,888	26,945	26,945

Total infiltration = 26,945 cu.ft.
V_{prov} = 0.62 acre-feet

Basin 7

	Elevation	Area (ft ²)	Incremental Volume (ft ³)	Accumulated Volume* (ft ³)
	3529.00	13,331	0	0
HW	3531.00	16,261	29,544	29,544

Total infiltration = 29,544 cu.ft.
V_{prov} = 0.68 acre-feet

Total infiltration = 105,675.89

*Volume is calculated using conic method



Avangrid Renewables

Camino Solar Photovoltaic 44MW Project

Water Demand Memorandum

REVISION INDEX

Page/Reason	REV	Date	PROD	CHECK	APRV
Draft version – for review	0	19-Sep-2016	JDL	SAS	JDL
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Introduction

Avangrid, Inc. is proposing to construct the Camino Solar Array Project (Project), a renewable energy project that will produce electric power using solar photovoltaic (PV) modules on approximately 320 acres (ac) of originally undeveloped ranchland in rural southeastern Kern County (County). The Project will be located within the perimeter of the existing Manzana Wind project (owned by Avangrid, Inc), located approximately 9 miles northeast of Highway 138, 24 miles east of Interstate 5, 10.5 miles south of Highway 58, and 15 miles west of State Highway 14 (Antelope Valley Freeway). The proposed project site is located nearly 30 miles southwest of the incorporated California City, and 15 miles southwest of the City of Mojave, Kern County, California.

The Project will have a net electric power generating capacity of up to 44 megawatts alternating current (MWac) and approximately 172,000 individual solar PV modules arranged on a grid pattern on the Project site. The Project facilities would include service roads, underground transmission and collection lines, inverter stations, one generator tie-in line to connect with the existing Manzana Wind project substation, and communication cables. The project will share O&M building, substation, and transmission facilities with the existing Manzana Wind Project. The project may also be remotely monitored, therefore a specific O&M building would not necessarily be built. Figures 1 & 2 below show the location of the Project site relative to the Manzana Wind project boundaries.

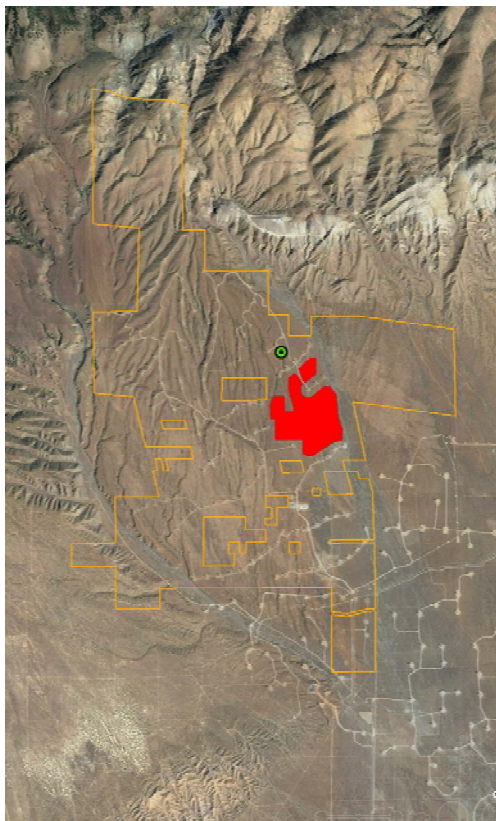
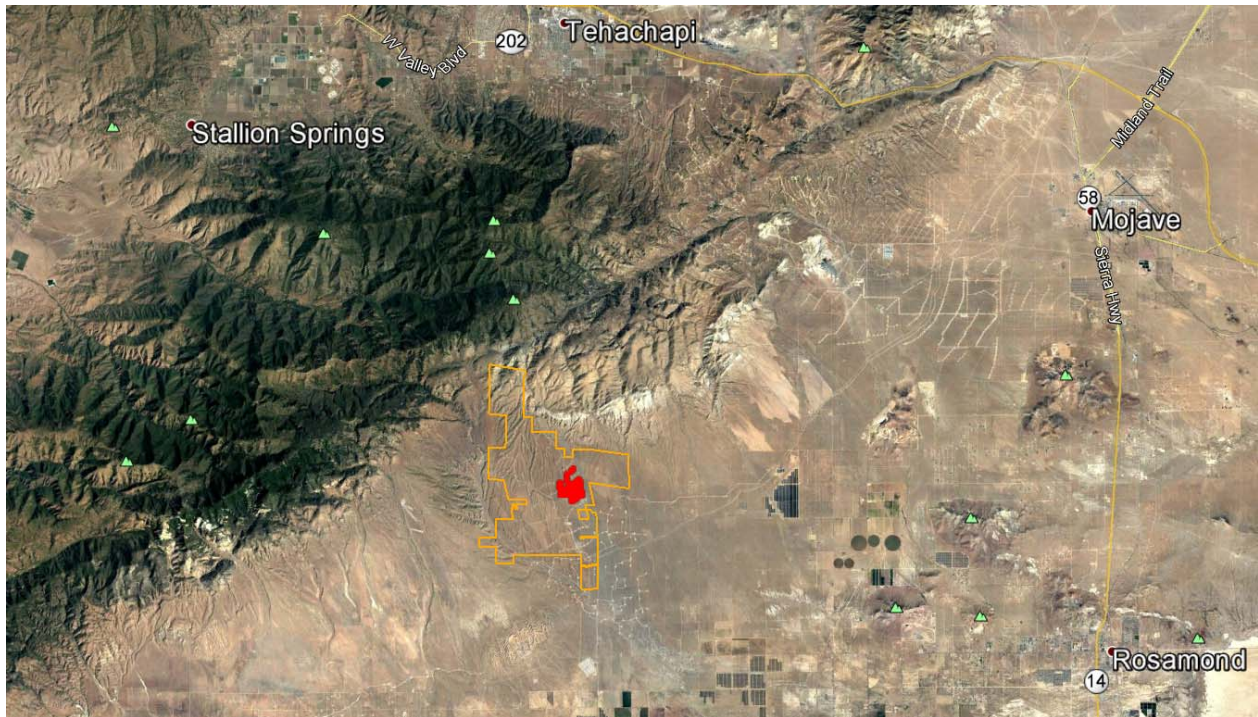
Temporary construction phase facilities would include construction access roads, laydown/staging areas and running water and bathroom facilities.

Project construction is expected to begin in Q3-2017 and last for 8 months, including construction activities such as site preparation, grading and earthwork, concrete foundation construction, structural steel work, electrical work, generator tie-in installation, and architectural and landscaping work. Project operations are expected to commence by Q3-2018. The anticipated operational lifespan of the project is 25 years. Most of the water required for the project would be needed for construction over this relatively short construction period of up to 240 working days.

Construction activities that consume water include dust suppression in work areas and along access roads. There is no Urban Water Management Plan or groundwater management plan covering the project site. The source of water during construction and operation has not yet been finalized but will likely be groundwater extracted from one or more wells existing within five (5) miles of the project site. Therefore, project may source water from existing groundwater wells located on adjacent properties, or/and import water via truck. Potable water will likely be provided by bottled water sources during the construction period.

A small portion of the overall project water demand will be realized during operation of the facility and is associated with routine warehouse activities and possibly one panel washing operation per year. There is no existing domestic water delivery system within the project area.

Figure 1 & 2 – Project location



Study Objective

The primary objectives of this Water Demand Memo are as follows:

- Identify current land uses of the Project Site and estimate recent site water demands;
- Discuss regional groundwater plans and actions in the Antelope Valley
- Identify the estimated Project construction water demands for grading and dust control;
- Identify the Project's estimated long-term operation and maintenance water requirements, as well as potable water requirements for operations personnel housed within a potential O&M building; and
- Analyze the sufficiency of water supply for the Project.

Current Land Use

Historic and Current Land Uses

The approximately 320 acres Project site consists of originally undeveloped ranchland land, which was disturbed by the construction of the surrounding Manzanita Wind project. No evidence of agricultural or other water-demanding activities can be found at the Project site. Some abandoned dwelling units are reported in the EIA for the Manzanita Wind Project (Kern County – PdV Wind Project, September 2007 http://www.co.kern.ca.us/planning/pdfs/eirs/PdV/PdV_TOC.pdf).

Historic and Current Site Water Demand

There is an existing well just north of the project boundary within the wind farm project. This is shown on Figure 2 above as a green dot. The existing well appears to have been used to serve spread dwelling units (now abandoned). The historic site water demand appears to be negligible. Current site water demand is limited to minor O&M operations at the Manzanita Wind Project, and also negligible.

Groundwater Hydrology

Groundwater Basin Boundaries

The project site is underlain by the Mojave Groundwater Basin, an area that encompasses the Mojave Desert. The Mojave Groundwater Basin is subdivided into many subunits, and the project site is within the Antelope Valley groundwater sub-basin. The Antelope Valley is a 2,400-square-mile, arrow-head shaped area, bounded on the northwest by the Tehachapi Mountains and the San Gabriel mountains to the southwest (U.S. Geological Survey 2000). The Antelope Valley has an approximately 385-square-mile drainage area and an estimated 40,700 acre-feet total yearly runoff (Lahontan Regional Water Quality Control Board 2002). The Antelope Valley groundwater sub-basin is approximately 940 square miles and is separated from the northern part of Antelope Valley by faults and low-lying hills (U.S. Geological Survey 2003). The project site is located in the jurisdiction of the Lahontan RWQCB.

Subsurface Geology and Groundwater

The Antelope Valley groundwater sub-basin is a basin and range basin-fill aquifer, comprising alluvial and lacustrine deposits (National Atlas 2005; U.S. Geological Survey 2000). The alluvium consists of unconsolidated to moderately indurated, poorly sorted gravels, sands, silts, and clays. The older deep units within the alluvium typically are more compacted and indurated than the younger shallow units. The fine-grained lacustrine deposits consist of sands, silts, and clays that accumulated in a large lake or marsh that at times covered large parts of the study area (Allwest Geoscience 2005).

The Antelope Valley groundwater sub-basin is a single, undrained, closed basin that was historically separated into an upper, principal aquifer, which is unconfined, and a lower aquifer under artesian conditions (U.S. Geological Survey 2003). The USGS 2003 Water Resources Investigation Report 03-4016 asserts that a more reasonable conceptual model of the groundwater system would divide the groundwater basin into the three aquifers, the upper aquifer extending from the water table to an altitude of about 1,950 feet above sea level; the middle aquifer extending from 1,950 to 1,550 feet above sea level; and the lower aquifer extending from 1,550 feet above sea level to the altitude at which bedrock is encountered. There is a general shallowing of the aquifers toward the mountainous areas over the entire aquifer, although there is little data from within the proposed project site to support this. Only one well several miles northeast of the project area has groundwater information, which was collected in the 1950s (U.S. Geological Survey 2005).

Natural sources of groundwater recharge include runoff from ephemeral streams from the surrounding mountainous areas and, to a lesser extent, direct infiltration of precipitation and lateral groundwater underflow from adjacent bedrock areas and basins (U.S. Geological Survey 2003). Human sources of recharge from development include irrigation return flow and infiltration of treated wastewater. Evaporation rates are high in the Antelope Valley and, prior to development, groundwater and surface water discharge was primarily due to evapotranspiration (U.S. Geological Survey 2003; County Sanitation Districts of Los Angeles County 2004). However, evapotranspiration has been replaced by groundwater pumping as the primary cause of discharge.

Prior to 1972, groundwater provided more than 90% of the total water supply in the Antelope Valley. Since 1972, it has provided between 50% and 90%. The groundwater level in some parts of the Antelope Valley has declined more than 200 feet because of an increase in pumping lifts, reduced well efficiency, and land subsidence of more than 6 feet in some areas (U.S. Geological Survey 2003). Most groundwater is pumped from the Antelope Valley groundwater sub-basin, which supplies the rapidly growing cities of Lancaster and Palmdale. More than twice as much groundwater is currently extracted in Antelope Valley as the estimated mean natural recharge (U.S. Geological Survey 2005).

Available data for groundwater resources indicates that domestic water sources are groundwater extracted from local wells and imported water from the Antelope Valley East Kern Water Agency. Water wells in the region derive potable water from a depth of about 200 to 300 feet. Shallower water-bearing formations are

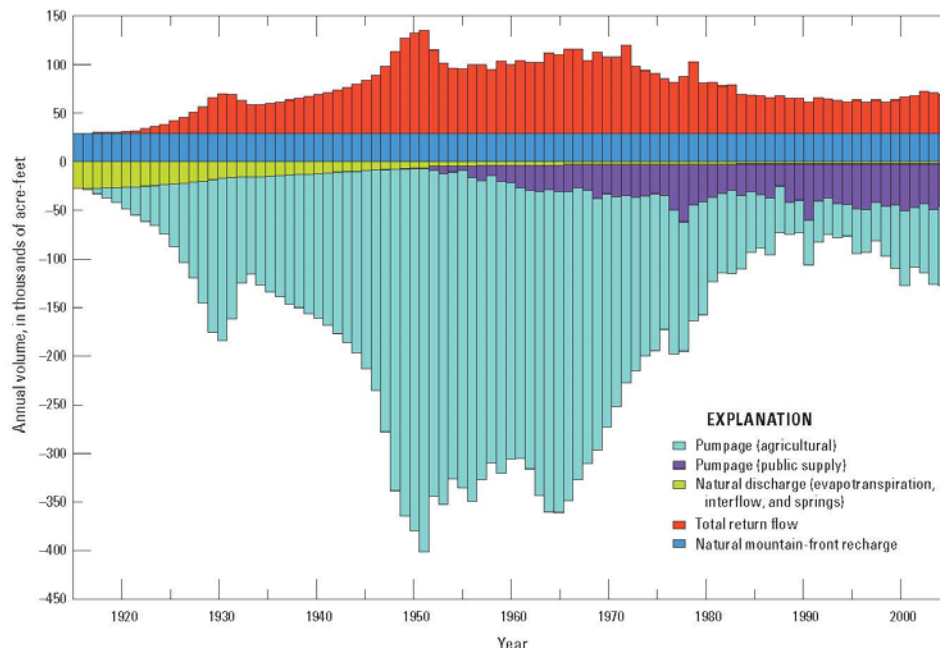
likely present. At this time, the effect on individual wells and agricultural uses by this imminent adjudication cannot be determined with any accuracy. It is expected that there will be no charge for pumping below the assigned allocation; however, pumping in excess of the allocation may require payment of a replenishment fee to the watermaster for acquisition of additional supplies. Water rights are a tradable commodity, and the anticipated reduction in water availability in the area may continue recent trends in the Antelope Valley to further reduce agricultural production, as farmers choose to sell their remaining water rights rather than attempt to cultivate the land.

A groundwater rights adjudication process is currently underway for the area managed by AVIRWMP. In May, 2011, the California superior court issued an official decision determining that the adjudication area is in a state of overdraft, and established a safe yield of 110,000 acre-feet per year for the entire Basin. This decision was based on scientific evidence, records of water table levels, and instances of subsidence. Although a current water budget is not available for the Basin, the Basin is in a state of overdraft, where annual extractions exceed inflows.

Antelope Valley Basin Baseline Water Budget

Information on the baseline water budget for the Antelope Valley Basin was obtained from the USGS publication *Groundwater-Flow and Land-Subsidence Model of Antelope Valley, California*, 2014. The model discussed in the publication to formulate the water budget for the basin uses all recharge components and the pumpage component of discharge as inputs. Additionally, evapotranspiration, evaporation from the playa surfaces and spring flow, groundwater underflow, flow between model layers were all simulated. The model simulates steady-state mountain-front recharge estimated at approximately 29,150 acre-feet per year. The results of the model are shown below in Figure 3.

Figure 3 – Simulated annual volumes for groundwater budget component, USGS



The trend for the past 10 years has shown a significant decrease in the pumping activities for agriculture but an increase in public supply, totally equally about 130,000 acre-feet per year. Adding natural discharge from evapotranspiration, interflow and springs (only about 1,900 acre-feet per year) gives a total drawdown on 191,900 acre-feet per year. Elements that add to the aquifer include mountain-front recharge with an estimated value of 29,150 acre-feet per year and return flows with a value of approximately 60,000 acre-feet per year.

The simulated groundwater budget for 1915-2005 shows that pumpage exceed recharge almost every year since early 1920s, and agricultural return flows were the major source of the recharge to the groundwater basin. Because of the thick unsaturated zone beneath most of the groundwater basin, there is a time delay between when the returns flows are applied at the land surface and when they reach the groundwater table. As the results show, and we can assume will continue to improve, that the water budget or change in storage would equal approximately -71,750 acre-feet per year.

The approximate Antelope Basin Water Budget is summarized in the following table:

Antelope Basin – Water budget estimate (2005) (acre feet / yr)	
Pumpage (agricultural)	-80,000
Pumpage (public supply)	-50,000
Natural discharge (evapotranspiration, interflow and springs)	-1,900
Natural mountain front recharge	+29,150
Return flow	+31,000
Total (approx.)	-71,750

Project Construction Water Demands

Construction-related water demand for the Project is determined by the site preparation activities and duration. The construction period will last up to 8 months, and will include mobilization activities, grading, installation, testing, and completion work of the solar facility. This analysis conservatively assumes all construction-related water needs, including dust control, based on the construction of similarly-sized photovoltaic projects in desert areas of the western United States. The Project anticipates using approximately 200 acre-feet during the 8-month construction period. This analysis conservatively assumes all construction related water needs, including dust control, based on the construction of similarly-sized photovoltaic projects in desert areas of the western United States and specifically in Kern County. This value strongly depends on the site wind speed and duration of the civil work on site -which is estimated in two months-, so actual project needs might be less than the conservatively anticipated 200 acre-feet.

Construction Water Source

Water necessary for Project construction is expected to be provided from existing wells. Even if the source



of water during construction and operation has not yet been finalized, it is foreseen that it will likely be groundwater extracted from one or more wells existing within five (5) miles of the project site. In the event that the wells cannot supply adequate water for the construction of the Project, such as a reduction in available water following the Basin adjudication or peak water consumption (in the case Project civil work occurs in summer), the Project plans to acquire water from a local water purveyor. Most probably water will be transported to the site by truck.

Water Supply Sufficiency for Construction

Water usage would be greatest during peak construction, which would be limited to several months and would not be expected to require a large quantity of water. As a staff of maximum 2 (if any) would be required to work on-site during operation, the amount of water withdrawn is expected to be minimal.

Installation of the photovoltaic module's supporting structure and associated facilities would have a less-than-significant impact on groundwater because excavation for facility foundations would not reach groundwater depths, which are estimated to be 200 to 300 feet deep in the project area. The project would permanently disturb approximately 300 acres. However, only building foundation areas would be converted to impervious surfaces. These areas are estimated to total approximately 0.5 acres (or 0.17% of the entire project site).

The anticipated construction water demand for the Project over the 8-month construction period is 200acre-feet for dust suppression needs, especially during civil work phases. This compares to the established a safe yield of 110,000 acre-feet per year for the entire Basin.

Project Operation Water Demands

Upon completion of construction activities, the solar facility will be monitored remotely; however, the Project will employ an on-site staff of up to 2 personnel to conduct preventative and corrective maintenance, and to maintain the security of the Project site. The Project will use P-Si PV technology that does not require water for electrical generation. During Project operations, routine washing of the PV modules is not anticipated to be required; however, the Project conservatively includes provisions for washing the modules up to once per year, if needed.

Other than dust suppression, the potential washing of the modules once per year, and use by on-site staff, the Project would utilize very little water during the operational phase. An above-ground storage tank would be sized to supply sufficient fire suppression water during operations. An on-site water treatment system (e.g., a package unit) may also be installed to meet the Project's potable water needs. The Project anticipates using approximately 5 acre-feet per year for project operation and maintenance.

The proposed yearly water use for this project is negligible compared to the other water demands within the Antelope Valley groundwater basin. As demonstrated in the above section, annual drawdown of the



aquifer from agricultural and public supply pumping equaled nearly 130,000 acre-feet per year in 2005. Although the trend has been declining, this number is fairly steady over the last 10 years. The 5 acre-feet per year of demand on the aquifer will result in no predicted drawdown beyond existing annual variability in the basin.

The Project would result in an increase in impervious surfaces on the site, however, the Project would be required to be designed and would have to maintain post-construction runoff patterns with pre-construction conditions, in accordance with Kern County code requirements. The Project would therefore not result in a significant reduction of groundwater infiltration rates and recharge.

Summary and Conclusion

Agricultural production has declined in the Antelope Valley, and continues to decline as agricultural land is converted to less water intensive land uses, such as renewable energy projects. Even if the project is not located in existing agricultural land, it will take the advantage of being installed in already disturbed land within the existing Manzanita Wind Project boundaries.

Regarding the Project ability to secure water resources during construction phase, it shall be noticed that pending groundwater basin adjudication proceedings could result in changes in the cost of water. Based on results from the adjudication proceedings to date, it is anticipated that even if the adjudication is finalized prior to or during Project construction, the Project would still be able to secure rights to groundwater (although the cost could be substantially higher than at present). Even in the unlikely event that groundwater becomes unavailable to the Project following completion of the adjudication process, trucking water from a local purveyor to the site, as needed for construction and operation, remains a possibility. Therefore, it is anticipated that sufficient water supplies would be available to serve the Project, and impacts of the Project on water supply would be less than significant and no predicted aquifer drawdown beyond the existing. The proposed Project water use would not adversely affect the available water supply that could be used other beneficial uses.

Water Supply Assessment

Camino Solar Project

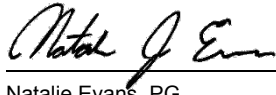
Avangrid Renewables, LLC

August 1, 2019

Water Supply Assessment

Quality information

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AB	Assembly Bill
AF	acre-feet
AFY	acre-feet per year
Aurora	Aurora Solar, LLC
Avangrid	Avangrid Renewables, LLC
AVEK	Antelope Valley-East Kern Water Agency
AVGB	Antelope Valley Groundwater Basin
AVRWMG	Antelope Valley Regional Water Management Group
CEQA	California Environmental Quality Act
CSD	Community Services District
CWP	California Water Plan
County	Kern County, California
DWR	Department of Water Resources
IRWMG	Integrated Regional Water Management Group
IRWMP	Integrated Regional Water Management Plan
Judgement	Antelope Valley Groundwater Adjudication Judgement
MCL	maximum contaminate levels
mg/l	milligrams per liter
MPUD	Mojave Public Utility District
MW	megawatt
Project	Camino Solar Array Project
SB	Senate Bill
SWP	State Water Project
SWRCB	State Water Resources Control Board
TSY	total sustainable yield
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment
WSSP-2	Water Supply Stabilization Project

1. Introduction

Senate Bill (SB) 610 amended the California Water Code (see §10910, et seq.) to promote collaborative planning to “improve the link between information on water supply availability and certain land use decisions made by cities and counties” (California Department of Water Resources [DWR] 2003). SB 610 requires the preparation of a Water Supply Assessment (WSA) for any project that is subject to the California Environmental Quality Act (CEQA), provided it qualifies as a “project” and is not otherwise exempt under the relevant provisions of the Water Code. A WSA must examine the availability of an identified water supply under normal year, single-dry year, and multiple-dry year conditions over a 20-year projection, accounting for the projected water demand of the project in addition to other existing and planned future uses of the identified water supply.

1.1 Project Location and Description

Aurora Solar, LLC (Aurora), a subsidiary of Avangrid Renewables, LLC (Avangrid), is proposing to construct and operate the Camino Solar Project (Project) comprising a photovoltaic solar facility and associated infrastructure necessary to generate up to 44 megawatts (MW) of renewable energy. The Project will be located on approximately 339 acres of originally undeveloped ranchland in rural southeastern Kern County, California (County), as shown in Figure 1.1. The Project will be adjacent to the existing Manzana Wind Project, operated by Manzana Wind, LLC (Manzana Wind), a subsidiary of Avangrid.

The Project site is located within Sections 23, 26, 34 and 35 Township 10 North, Range 15 West, approximately 15 miles west of California State Highway 14 (Antelope Valley Freeway), 12.5 miles south of California State Highway 58 (Blue State Memorial Highway), and 8 miles north of State Route 138 (West Avenue D). The nearest populated areas are the City of Tehachapi 12 miles to the north, the unincorporated community of Rosamond 16 miles to the southeast, the unincorporated community of Mojave 17 miles to the northeast, and the incorporated California City 30 miles to the northeast.

Components of the facility would include a solar array, service roads, underground transmission and collection lines, inverter stations, a generator tie-in to connect with the existing Manzana Wind Project substation, and communication cables. Interconnection to the grid would be through the use of existing interconnection agreements and facilities from the adjacent Manzana and/or Pacific Wind Project site.

Construction of the facilities is projected to take approximately 8 months and would include site preparation, grading and earthwork, concrete foundation construction, structural steel work, electrical work, solar array assembly, generator tie-in installation, commissioning, architectural and landscaping work, and site clean-up. The anticipated operational lifespan of the Project is approximately 25 years. The majority of the water required for the Project would be utilized during the construction period.

2. Regulatory Setting

2.1 Senate Bill 610 Applicability

Water Code §10910 et seq. requires preparation of a WSA for a project that is subject to CEQA and is considered a project as defined in Water Code §10912. The Project is subject to CEQA and is considered a project requiring preparation of a WSA because it is a proposed industrial facility occupying more than 40 acres of land.

The DWR published a Guidebook for implementation of SB 610 and an accompanying bill, SB 221, to assist water suppliers, cities and counties in integrating water and land use planning (DWR 2003). While the DWR has no regulatory authority concerning WSAs, this WSA is organized following the suggestions provided in the guidebook to ensure the information required under SB 610 is provided in this document.

Chapter 3 provides background on water resources in the Antelope Valley Watershed and the Antelope Valley Groundwater Subunit of the Lahontan Hydrologic Region. **Chapter 4** documents water supplies relevant to the Project, identifies Project water demands and assesses whether the projected water supply is sufficient or insufficient for the Project.

2.1.1 Existing Public Water Systems

A public water system is defined in Water Code §10912 as “a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections.” The Project site is not connected to a public water system and there are no public water systems near the site.

The City of Tehachapi is the closest retail water agency. The City of Tehachapi is a public water system with a total of 3,125 municipal connections as of 2019 (State Water Resources Control Board [SWRCB] 2019a). The Rosamond Community Services District (Rosamond CSD) is the next closest retail water agency and is a public water system with a total of 5,088 municipal connections as of 2019 (SWRCB 2019b). Other retail water agencies that serve local communities in the Project vicinity include the Mojave Public Utility District (MPUD), which has fewer than 3,000 service connections and is therefore not a public water system (SWRCB 2019c); and California City, which is a public water system with a total of 4,437 municipal connections as of 2019 (SWRCB 2019d).

2.1.2 Existing Water Management Plans

Public water systems are required by the California Water Code to prepare Urban Water Management Plans (UWMP) to carry out “long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water” (Water Code §10610.2). UWMPs are prepared using input from multiple water systems operating in the region. They include assessment of the reliability of water supply over a 20-year period and account for known and projected water demands during that time, including during normal, single-dry, and multiple-dry water years. WSAs commonly incorporate assessment of project-related water demands from UWMPs and other assessments and plans.

The Project area is located within the service area of the Antelope Valley-East Kern Water Agency (AVEK), which is a wholesale water supplier to utilities and local government agencies such as Rosamond CSD, MPUD, and California City. Therefore, the Project area is addressed in the UWMPs of the wholesaler. Information from UWMPs describing water supply in the Antelope Valley Region is incorporated into this WSA. Assessments that provide information relevant to water supply for the Project include UWMPs for the City of Tehachapi, Rosamond CSD, California City, and AVEK (City of Tehachapi 2016, Rosamond CSD 2017, California City 2017, AVEK 2016). These UWMPs are informed by the 2013 Antelope Valley Integrated Regional Water Management Plan (IRWMP) (Antelope Valley Regional Water Management Group [AVRWMG] 2013).

In 2014, MPUD joined the Fremont Valley Integrated Regional Water Management Group (IRWMG) with AVEK and California City. Because MPUD is not defined as a public water system, there is no regulatory requirement for them to prepare an UWMP. However, it is considered good practice, as the State is more involved with how water suppliers, cities and counties integrate water and land use planning regarding future growth. The IRWMG provides the required water management information for Mojave and California City, both located within the Fremont Valley

Groundwater Basin (FVGB). An IRWMP was prepared and submitted to the State in 2018 (Fremont Basin Regional Water Management Group 2018).

2.2 Groundwater Supply Evaluation

For a project that proposes the use of groundwater, Water Code §10910(f) requires a WSA include an analysis of groundwater supply to satisfy the requirements listed below. The Water Code requirements are addressed in the sections that follow, as indicated in parentheses after each requirement:

1. A review of any information contained in the UWMP relevant to the identified water supply for the proposed project (**Section 4.3**).
2. A description of any groundwater basin or basins from which the proposed project will be supplied (**Section 3**).
3. For those basins for which a court or the California Department of Water Resources has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county has the legal right to pump under the order or decree (**Section 3.9** and http://www.avek.org/fileLibrary/file_453.pdf).
4. A detailed description and analysis of the amount and location of groundwater pumped for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records (**Section 4.3**).
5. A detailed description and analysis of the amount and location of groundwater that is pumped from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records (**Section 4.3**).
6. An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project (**Section 4.3**).

The Project proposes to use one of three groundwater wells located within the Antelope Valley Groundwater Basin (AVGB) to supply water for the Project (Figure 2-1).

- The Cal Portland water supply well (Cal Portland Well) is located 0.44 mile southeast of the Project site.
- The T09NR14W22A1 water supply well (T09NR14W22A1 Well) is located approximately ¼ mile south of the intersection of Rosamond Boulevard and 120th Street West, approximately 6.61 miles southeast of the Project site.
- The T09NR14W22B1 water supply well (T09NR14W22B1 Well) is located approximately ½ mile southeast of the intersection of Rosamond Boulevard and 120th Street West, approximately 7.04 miles southeast of the Project site.

In the event that the selected wells are unable to supply adequate water for the construction of the Project, such as reduction of availability during the rampdown schedule outlined in the Antelope Valley Groundwater Adjudication Judgement (Judgement), the Project plans to acquire water from a local water purveyor such as AVEK.

3. Water Resources

The Project is located within the Oak Creek Subbasin of the Antelope Valley Watershed which overlies the AVGB (Figures 3.1 and 3.2).

3.1 Antelope Valley Watershed

The Project is located within the Antelope Valley Watershed, which covers approximately 2,400 square miles, ranging from 2,300 to 3,500 feet in elevation, in the western Mojave Desert and includes portions of Kern, Los Angeles, and San Bernardino Counties (Figure 3.1). The watershed is bounded by the San Gabriel Mountains to the south, the Tehachapi Mountains to the north, and a series of hills and buttes to the east. The climate in the Antelope Valley Watershed is typical of a semi-arid desert region, with mean daily temperatures from 63 degrees Fahrenheit (°F) to 93°F during the summer and 34°F to 57°F during the winter, and annual precipitation ranging from less than 4 inches on the valley floor to 20 inches in the mountains (AVRWMG 2013, WRCC 2019).

Natural surface water is typically generated from storm water runoff in the hills and mountains surrounding the Antelope Valley, which flows via ephemeral streams into the valley across alluvial fans and deeply excised washes. Major streams that drain into the Antelope Valley Watershed include Big Rock Creek, Little Rock Creek, and Amargosa Creek in the San Gabriel Mountains, and Oak Creek, which originates in the Tehachapi Mountains west and north of the Project. The Antelope Valley Watershed is a closed basin, which means that there is no outflow of surface or ground water from the basin unless it is conveyed by artificial means (e.g., canal). Most drainages in the watershed terminate within or near the Rosamond, Rogers, Buckhorn, and Rich Dry Lakes, which are located on Edwards Air Force Base in the eastern portion of the watershed. Surface water runoff that collects in these dry lakes evaporates quickly; therefore, most infiltration and groundwater recharge estimated within the Antelope Valley Watershed is assumed to occur in the upgradient areas of the ephemeral streams and washes between the headwaters and the valley floor (United States Geological Survey [USGS] 2014).

Groundwater flow generally follows surface topography but is also affected by permeability in the aquifer, confining layers, and historical groundwater extraction (USGS 2014). Within the Oak Creek subbasin, which underlies the Project area, groundwater recharge is primarily from Oak Creek and minor streams which drain surface water runoff from the Tehachapi Mountains (USGS 1987). Groundwater movement within the Oak Creek subbasin is generally southeastward with some outflow from the subbasin moving northeastward toward the Koehn Lake area (USGS 1987).

In addition to the naturally occurring surface waters identified above, the east and west branches of the California Aqueduct convey State Water Project (SWP) water supplies across the watershed via a series of canals. The Los Angeles Aqueduct also conveys surface water from the Owens River in the Eastern Sierra Nevada Mountains through the watershed to the Los Angeles region (DWR 2014).

3.2 Surface Water Supply Sources

The majority of the surface water supplied within the Antelope Valley is imported from the SWP. The SWP is the nation's largest state-built and managed water and power development and conveyance system. It includes a series of canals, tunnels, pipelines, reservoirs, lakes, pumps, and power plants that collect, store, and convey water to approximately 29 contract water agencies that are responsible for treatment and distribution to regional users throughout the state. Water supplied by the SWP originates in the watersheds draining into Lake Oroville in Northern California (Butte County) and is conveyed for use in Southern California by a complex delivery system that includes the east and west branches of the California Aqueduct within the Antelope Valley. Within the Antelope Valley, AVEK, the Littlerock Creek Irrigation District, and the Palmdale Water District have contracts with DWR for SWP entitlements.

AVEK is one of the largest wholesale suppliers of SWP water to the region, with a service area that includes the Project site (AVEK 2016). SWP water is treated and supplied by AVEK to retail water suppliers within its service area; supplied to private agricultural, industrial, and commercial customers; and transferred to agencies outside of its service district. AVEK is contractually allocated up to 144,844 acre-feet (AF) of SWP water in a given water year (October 1 to September 31), though the availability of SWP water depends on surface water availability, regulatory

and legislative restrictions, and operational limitations (AVRWMG 2013, AVEK 2016). Approximately 47,000 AF of SWP water was delivered to AVEK in 2015, which was considered low as 2015 was a very dry year (AVEK 2016). Approximately 123,117 AF of SWP water was delivered to AVEK in 2017 (AVEK 2017). AVEK projects water demand in its service area to vary between approximately 83,000 and 86,000 AF through 2035.

The Littlerock Creek Irrigation District and Palmdale Water District located in the AVGB deliver SWP water along with water from Littlerock Reservoir and groundwater pumping to users within their service boundaries (AVRWMG 2013). The Littlerock Creek Irrigation District has a contract for SWP water of up to 2,300 AF per year (AFY), and the Palmdale Water District has a contract for up to 21,300 AFY. Other urban retail water suppliers in the Antelope Valley supplement groundwater pumping with SWP water purchased from AVEK, including the Rosamond Community Services District, California City, MPUD, Quartz Hill Water District, and Boron Community Services District.

3.3 Surface Water Quality

The surface water supplies are provided by the SWP to AVEK. AVEK treats the imported water with chemical addition at the Rosemond Treatment Plant for the area around Rosamond (AVEK 2017).

3.4 Groundwater Resources

Groundwater resources for this Project would be drawn from the AVGB within the South Lahontan Hydrologic Region. It is anticipated that the water to be used during construction and operation of the Project's solar facilities would be groundwater pumped from one of three existing wells located within 7 miles of the Project site (Figure 3.2).

The Cal Portland Well is located approximately 0.44 mile southeast of the Project site within the Oak Creek subbasin of the AVGB. The T09NR14W22A1 Well and T09NR14W22B1 Well are located approximately 6.61 and 7.04 miles southeast of the Project site, respectively, within the Neenach subbasin of the AVGB.

The projected groundwater resource supplies will be pumped from the Oak Creek and Neenach subbasins of the AVGB, located within the adjudicated jurisdictional boundary of the AVGB (Figure 3.3). Customers of AVEK have pre-rampdown overlying groundwater production rights of 38,000 AFY. After the 7-year rampdown, the production rights for AVEK customers will be 19,300 AFY, a decrease of 18,700 AFY in production rights (AVEK 2016). The production rights decrease is based on the Judgement, with each AVEK customer subject to production rights management by the court-appointed Watermaster. Groundwater resource pumping and supply water from AVEK could be affected by the future rampdown schedule outlined in the Judgement and subject to management by the Watermaster.

3.5 Antelope Valley Groundwater Basin

The AVGB is an extensive alluvial valley fed by and generally underlying the Antelope Valley Watershed. The AVGB is bounded by the Garlock fault zone at the base of the Tehachapi Mountains to the northwest; by the San Andreas Fault zone at the base of the San Gabriel Mountains to the southwest; and by ridges, buttes, and low hills to the north (**Figure 3.3**) (DWR 2004). The USGS divides the AVGB into 12 groundwater subunits based on differential groundwater recharge characteristics, flow patterns, and geographic location (USGS 1987).

Groundwater recharge is primarily provided by perennial runoff from the surrounding mountains and hills, with the majority historically provided by Big Rock and Littlerock Creeks at the southern end of the valley. The principal aquifer is also artificially recharged by injection of recycled and SWP water into aquifer storage and recovery wells (AVEK 2016, 2017) and by percolation of water from irrigation canals and wastewater management activities (AVRWMG 2013). Groundwater is produced by two main aquifers within the AVGB, an upper (principal) and a deep aquifer. The upper aquifer is unconfined and is the principal source of groundwater for Antelope Valley (AVRWMG 2013).

3.6 Groundwater Quality

The groundwater quality in the principle (upper) aquifer in the AVGB is generally suitable for domestic, agriculture and industrial uses. Total dissolved solids (TDS) range from 200 milligrams per liter (mg/L) to 800 mg/L within this aquifer (AVEK 2016). Volatile organic compounds, semi volatile organic compounds, nitrates, pesticides and inorganics have been reported as exceeding the Maximum Contaminate Levels (MCL) in several wells located throughout the AVGB.

The Oak Creek subbasin groundwater is moderately mineralized and boron, dissolved solids, hardness, and fluoride may exceed regulatory drinking water requirements, requiring treatment prior to use for potable applications (USGS 1987).

The Neenach subbasin groundwater is moderately mineralized with naturally occurring arsenic concentrations in exceedance of regulatory drinking water levels (AVRWGMG 2013). Water wells with arsenic concentrations exceeding the MCL of 10 micrograms per liter are typically treated to remove arsenic or blended for dilution prior to use for potable applications.

3.7 Recharge and Storage Capacity

3.7.1 Antelope Valley

In the semi-arid AVGB, natural recharge primarily originates from runoff from the surrounding mountains in ephemeral streams that flow into underlying aquifers. This runoff naturally recharges the groundwater supplies in the AVGB and is important in maintaining a sustainable balance of stored groundwater. As summarized in the Antelope Valley IRWMP, past estimates of natural recharge have ranged from 30,300 AFY to 81,400 AFY, based on differences in methodologies and study assumptions (AVRWGMG 2013). The USGS subsequently revised its 2003 estimate of 30,300 AFY to 29,150 AFY in their 2014 update to groundwater-flow and land-subsidence modeling (USGS 2014). A natural recharge estimate of 60,000 AFY was assumed in the Judgement, which set an average safe yield of 110,000 AFY. Safe yield was calculated as a sum of estimated average natural recharge and return flows. Natural recharge varies based on annual climate variability. The total storage capacity of the AVGB has been reported as between 68 and 70 million AF (DWR 2004). Usable storage has been estimated at 20 million AF. These storage capacity estimates do not reflect actual quantities of available groundwater within the AVGB.

Heavy reliance on groundwater production to support agriculture in the Antelope Valley starting early in the 20th century has led to historical overdraft of the AVGB (DWR 2014). Provision of SWP water starting in 1972 relieved some pressure on groundwater resources in the region, though population growth in the 1980s through the present day has further increased water demands (DWR 2014). Groundwater levels are thought to have declined by 40 to 100 feet in many areas, with declines in some locations exceeding 300 feet, resulting in land subsidence in overdrafted areas (USGS 2014). Further overdraft of the AVGB would likely result in additional declines in water level, increases in subsidence, and further decreases in storage capacity.

AVEK has operated a groundwater bank since 2010 to improve the reliability of regional water supplies by storing water in groundwater banks in wetter years when surplus water is available from the SWP. Currently, the maximum banking recharge volume available to AVEK is approximately 72,000 AFY (AVEK 2017). In addition to groundwater banking projects, AVEK has been allocated groundwater pumping rights to supplement its water supply at a pre-rampdown production rate of 4,000 AFY and an overlying production rate of 3,550 AFY at the end of the 7-year production rampdown period (which began on January 1, 2016) per Judgment. The Judgment is discussed in detail in Section 3.4. Additionally, customers of AVEK will have an overlying groundwater production right of 19,300 AF at the end of the 7-year rampdown period, per the Judgment. The production right will be 18,700 AF less than the production right at the beginning of the rampdown period (AVEK 2016, 2017).

3.8 Groundwater Management

DWR's Bulletin 118 is a periodically updated record of California's groundwater resources that defines groundwater basin boundaries, describes hydrological characteristics of those basins, provides information on groundwater management, and forecasts future conditions. Bulletin 118 was last updated in 2016.¹ The 2016 update to Bulletin 118 does not provide a groundwater budget or estimates of overdraft for the AVGB (DWR 2004).

The California Statewide Groundwater Elevation Modeling program prioritizes Bulletin 118 groundwater basins according to need for additional groundwater level monitoring. Basins are prioritized according to population overlying the basin, current and projected population growth, number of public supply wells, total number of wells, irrigated acreage, reliance on groundwater as primary source of water, and documented overdraft, subsidence, and water

¹ The 2016 interim update to Bulletin 118 did not address the Antelope Valley Groundwater Basin.

quality degradation. A leading indicator of basin priority is the reliance on groundwater as the primary source of water. The AVGB is designated as high priority due to population growth, reliance on groundwater, and impacts to the groundwater resource (i.e., overdraft and ground subsidence) (DWR 2014). The prioritization of the AVGB is aimed at improving regular and systematic monitoring of groundwater levels and increasing local collaboration to gain a better understanding of groundwater resources in the AVGB, informing future management actions.

The California Water Plan (CWP), also known as Bulletin 160, is the state's strategic plan for managing and developing water resources. The DWR updates the CWP every 5 years to present status and trends of available surface and groundwater resources and projected water demands; the most recent update to the CWP was completed in 2018 and provides recommended actions, funding scenarios and strategies to overcome the state's water resource challenges (DWR 2018). The 2013 CWP presents more detailed individual reports for 10 hydrological regions covering the state (DWR 2014). The AVGB is located within the South Lahontan hydrologic region.

3.8.1 Water Budget and Safe Yield

The majority of groundwater users are not required to monitor and report their use in California. The DWR estimates extraction of groundwater across the state using land and water use information such as urban use reported by service districts, land use surveys, surface water use information, and reported extraction from voluntary reporting (DWR 2014). The DWR compiles groundwater use estimates into planning areas. There are five DWR planning areas in the South Lahontan hydrologic region, including the Antelope Valley planning area.

The DWR's estimate of average annual groundwater use in the Antelope Valley planning area between 2005 and 2010 was 98,300 AF, the third highest of the five planning areas in the South Lahontan hydrologic region, though the percentage of total water use supplied by groundwater in the Antelope Valley planning area was lowest in the hydrologic region, at 48 percent (DWR 2014). The valley's relatively low reliance on groundwater compared to other planning areas in the region is likely due to the availability of water from the SWP for urban and agricultural uses (AVRWMP 2013). The 2013 CWP did not present a water budget showing the AVGB was in a state of overdraft but noted historical overdraft conditions caused by continued urbanization in the Antelope Valley and the increases in demand that have historically resulted in excessive pumping that have put many of the groundwater basins in the region, including the AVGB, in states of overdraft (DWR 2014).

Reduction in groundwater pumping following the Judgement resulted in reported estimated extractions in 2016 of 96,005 AFY, which is within the total safe yield of 110,000 AFY set in the Judgement (Watermaster 2017).

3.8.2 Supply Management Plans

Water Code §10750-10755 was established with the intent of ensuring safe groundwater production and quality through basin-level groundwater management programs. As a direct result of this legislation, Assembly Bill (AB) 3030 instituted a systematic procedure for existing local agencies to develop these management programs through Groundwater Management Plans in 1992. As established under AB 3030, Groundwater Management Plans may be voluntarily developed and will include basin management objectives, cooperation with other agencies whose service area or boundary overlies the basin; maps of the plan area recharge areas, and adoption of monitoring protocols (DWR 2014). Subsequent legislation in 2002 required public agencies to prepare and implement Groundwater Management Plans if an agency seeks state funds administered through the DWR to construct groundwater projects (SB 1938), and in 2011 required that plans include a component that focuses on identifying groundwater recharge areas (DWR 2019). The Sustainable Groundwater Management Act of 2014 was enacted to further groundwater management in basins that are most threatened by overuse by prioritizing basins, establish sustainability plan requirements, form local groundwater management agencies, and create timelines for management plans.

Groundwater Management Plan legislation and groundwater sustainability plan requirements under the Sustainable Groundwater Management Act do not apply to the AVGB because it has been adjudicated by the California Superior Court (Section 3.9). However, the Antelope Valley IRWMP and UWMPs developed by several public water suppliers in the Antelope Valley have been prepared to include the elements of a Groundwater Management Plan as specified under AB 3030. This groundwater planning information has informed this report.

Future groundwater use within the AVGB, and ultimately by the Project, will be managed by the court appointed Watermaster, as described below.

3.9 Antelope Valley Groundwater Basin Adjudication

The SWRCB regulates and permits the right to use surface water in California (with exceptions to some historical water rights); however, land owners have historically had unrestricted rights to extract groundwater resources without state approval if they are extracting water underlying their property (CalEPA 2017). In some basins where groundwater overdraft has resulted in legal disputes, water use is managed under court decree through the process of adjudication. The court determines the amount of water that can be pumped annually from the adjudicated basin without causing undesirable effects to the basin such as depletion of the aquifer, ground subsidence, and water quality degradation; and sets amounts of groundwater that can be produced by specific users accordingly.

The formal adjudication process for the AVGB began in 1999 with litigation filed by agricultural water users against several public water suppliers. This and other subsequent filings related to groundwater allocation were consolidated into a general adjudication for the AVGB in 2004. The adjudication process proceeded in court over the following years until Superior Court Judge Jack Komar made a final ruling in December 2015. This adjudication decision defined the process by which groundwater resources available for pumping must be quantified, defined use limitations for various water users and classes of user, and authorized the formation of a Watermaster to manage the AVGB in accordance with the adjudication (Watermaster 2019).

In 2016, the Watermaster Board and Advisory Committee mandated under the Judgement were formed. The Watermaster for the AVGB consists of a five-member board composed of one representative each from AVEK, the Los Angeles County Waterworks District 40, a single Public Water Supplier representative selected by Public Water Suppliers in the AVGB (including AVEK and Los Angeles County Waterworks District 40), and two non-public-agency landowners elected by landowners identified in the Judgement. The Watermaster's responsibilities include prescribing pumping rights of individual users, management and control of groundwater supplies within the adjudicated AVGB, determining safe yield for each upcoming fiscal year, entering into storage agreements, and regulation and oversight of transfer of production rights.

The 2015 Judgement is being phased in through a 7-year "rampdown period," which began January 1, 2016. During the first 2 years of the rampdown period, producers were not limited by the adjudication assessment, though they were required to install monitoring equipment if it was not already present. Project applicants may be required to submit well completion reports to the DWR if wells must be altered for compliance with the adjudication monitoring requirements. Production will be reduced in equal annual increments relative to safe yield during years 3 through 7 of the rampdown period, with the exception of private parties that have historically pumped minor amounts of groundwater for use on their property (Watermaster 2017).

The effects of the AVGB adjudication decision on groundwater use are likely to change over the life of the Project as the Project location is situated within the adjudication jurisdictional boundary for the AVGB (Figure 3.2). The Project will need to be compliant to the adjudication judgment and subject to management by the court-appointed Watermaster.

3.10 Recycled Water

Recycled water is not currently a viable source of supply for the Project. Recycled water and stormwater are secondary sources of water supply only to areas well to the southeast of the Project, near Lancaster, Palmdale, and Edwards Air Force Base (AVRWG 2013, Watermaster 2017). The expansion of recycled water use continues in the region, but is concentrated in the southern portion of the Antelope Valley and is not expected to be available to the Project.

4. Water Supply Availability

4.1 Project Water Demands

Project water demands are divided into construction and operational phases. The majority of water use for the Project would occur during the initial 8-month construction phase (Table 4.1-1). The construction phase is anticipated to begin in the first quarter of 2021. Water would primarily be used for dust control during site preparation and dust emissions control. The peak annual water use during construction is 200 AF in 2021 over an 8-month period.

Table 4.1-1 Construction Phase Project Water Requirements	
Year	2021
	Water Usage (acre-feet)
Project Total	200

The Project's operational water consumption is expected to be much lower, at approximately 5 AFY used for photovoltaic solar panel washing. Bottled drinking water would be provided for operations and maintenance staff consumption.

Table 4.1-2 identifies the Project's estimated annual water requirements over 25 years from the start of construction to satisfy the analysis time frame required under SB 610 and to show water use through the proposed life of the Project. To facilitate comparisons with supply availability, which is provided in 5-year increments, the table is broken down into 5-year increments. The total forecasted Project water use over 25 years is 315 AF.

Table 4.1-2 25-Year Annual Project Water Supply Requirements									
Year	1 (2021)	2	3 (2023)	4	5 (2025)	10 (2030)	15 (2035)	20 (2040)	25 (2045)
Acre-feet	100	100	5	5	5	25 ⁽¹⁾	25 ⁽¹⁾	25 ⁽¹⁾	25 ⁽¹⁾
5-Year Average	—	—	—	—	43	5	5	5	5
Total⁽²⁾	100	200	205	210	215	240	265	290	315

Notes:

⁽¹⁾ 5 acre feet per year for 5 years = 25 acre feet

⁽²⁾ Total = running total of all water supply requirement from previous years

The Project area is originally undeveloped desert land with no documented historical land uses prior to the construction of the Manzana Wind project. The annual water use during the construction phase of the Project will increase water usage compared to the historical water use at the Project site, which for purposes of this analysis is assumed to be zero.

4.2 Surface Water Supply Projections

Construction water for the solar facility would be supplied from one of three existing groundwater wells (Cal Portland Well, T09NR14W22A1 Well, and T09NR14W22B1 Well) located within the AVGB. The acquired water would be transported by trucks to the Project site.

In the event that the selected wells are unable to supply adequate water for the construction of the Project, such as reduction of availability during the rampdown schedule outlined in the Judgement, the Project plans to acquire water from a local water purveyor such as AVEK.

Water Supply Assessment

AVEK is contractually allocated up to 144,844 AF of SWP water annually, though the actual availability of SWP water varies from year to year based on a number of factors, including precipitation, regulatory restrictions, and operational limitations. AVEK estimates the supply of SWP water during an average water year to be 85,500 AF, approximately 59 percent of its maximum allocation (AVEK 2016). Based on past allocations, the availability of SWP water to AVEK during single-dry year and multiple-dry year conditions is projected to be 8 to 41 percent of 85,500 AF. AVEK plans to supplement water supply shortages with groundwater from production wells and water banks during single-dry and multiple-dry years by pumping 36,000 AFY from the AVGB groundwater banks during single-dry and multiple-dry years, compared to 3,550 AF during normal water years.

Table 4.2.1 provides AVEK's forecasted water supply (SWP and groundwater) and demand for normal, single-dry, and multiple-dry years through 2035. Additional data is currently not available from AVEK for a 20-year projection of water supply and demand. The next UWMP revision will be published in 2020 for AVEK. Data presented for 2040 has been extrapolated from the data provided by AVEK through 2030. Total demand between 2025 and 2035 increased by 30 AF; therefore, this same increase was assumed for 2040, for an increase of 360 AF.

Table 4.2-1 AVEK Wholesale Water Supply⁽¹⁾ and Demand⁽²⁾ Projections					
Description	2020	2025	2030	2035	2040⁽³⁾
Normal Year Projections (acre-feet)					
Supply Total	89,010	89,010	89,010	89,010	89,010
Demand Total	83,670	85,620	85,920	86,250	86,610
Surplus/(Deficit)	5,340	3,390	3,090	2,760	2,400
Single-Dry Year Projections (acre-feet)					
Supply Total	46,750	46,750	46,750	46,750	46,750
Demand Total	83,670	85,620	85,920	86,250	86,610
Surplus/(Deficit) ⁽⁴⁾	-36,920	-38,870	-39,170	-39,500	-39,860
Multiple-Dry Year Projections, First Year⁽⁴⁾ (acre-feet)					
Supply Total	56,950	56,950	56,950	56,950	56,950
Demand Total	83,670	85,620	85,920	86,250	86,610
Surplus/(Deficit) ⁽⁵⁾	-26,720	-28,670	-28,970	-29,300	-29,660
Multiple-Dry Year Projections, Second Year⁽⁴⁾ (acre-feet)					
Supply Total	62,750	62,750	62,750	62,750	62,750
Demand Total	83,670	85,620	85,920	86,250	86,610
Surplus/(Deficit) ⁽⁵⁾	-20,920	-22,870	-23,170	-23,500	-23,860
Multiple-Dry Year Projections, Third Year⁽⁴⁾ (acre-feet)					
Supply Total	74,350	74,350	74,350	74,350	74,350
Demand Total	83,670	85,620	85,920	86,250	86,610
Surplus/(Deficit) ⁽⁵⁾	-9,320	-11,270	-11,570	-11,900	-12,260

Source: AVEK 2016

Notes:

- (1) Supply projections include SWP-allocated water and groundwater. Groundwater accounts for 3,550 AF of projected supply during normal years and 39,550 AF during single-dry and multiple-dry years.
- (2) Demand projections are based the Antelope Valley IRWMP and UWMPs from AVEK's retail water supply customers.
- (3) Data presented for 2040 has been extrapolated from the data provided by AVEK through 2030. Total demand between 2025 and 2035 increased by 30 AF; therefore, this same increase was assumed for 2040, for an increase of 360 AF.
- (4) Multiple-dry year projections are consistent with California DWR "Early Long Term" scenarios accounting for potential effects to availability of SWP water resulting from climate change (DWR 2017).
- (5) AVEK anticipates that the supply deficits will be made up by increased groundwater pumping (recovery of banked supplies or return flows), use of recycled water, and/or reductions in demand by the retail agencies.

Key:

AVEK = Antelope Valley – Eastern Kern Water Agency AF = acre feet

SWP = State Water Project IRWMP = Integrated Regional Water Management Plan

UWMP = Urban Water Management Plan

AVEK uses demand totals provided by the Antelope Valley IRWMP and UWMP from AVEK's retail water customers to calculate demand. Water supply shortages are based on current usage patterns by retail water and do not account for other potential water sources available to retail purveyors such as groundwater pumping, recovery from groundwater banking programs, use of recycled water, or water conservation efforts (AVEK 2016, 2017). AVEK will notify its customers of potential supply shortages and assist with public outreach and water conservation. Water shortages may affect the availability and pricing of AVEK water to the Project during dry years.

4.3 Groundwater Supply Projections

4.3.1 Antelope Valley

SB 610 states that WSAs may incorporate assessments of a project's water demand from UWMPs and other plans. The Project area is located within the area assessed in the Antelope Valley IRWMP, and water supply projections from the IRWMP are applicable to the Project's timeline (AVRWMG 2013). This assessment adopts projections from the Antelope Valley IRWMP under average year, single-dry year, and multiple-dry year conditions over a 20-year period in accordance with SB 610 (Tables 4.3.1-1 through 4.3.1-3). An update to the Antelope Valley IRWMP is prepared approximately every 5 years as needed to comply with new State integrated planning requirements. The Antelope Valley IRWMP is currently in the process of being updated (AVRWMG 2019).

Table 4.3.1-1 Water Budget Comparison for a Normal Water Year – Antelope Valley				
	2020	2025	2030	2035
Groundwater Storage	Acre-Feet (AF)			
Recharge + Return Flows (TSY)	110,000	110,000	110,000	110,000
WSSP-2 Water Extracted ⁽¹⁾	600	600	600	600
Subsurface Flow Loss	0	0	0	0
Direct Deliverables	95,900	95,900	95,900	95,900
Recycle/Reuse⁽²⁾	82	82	82	82
Surface Storage				
Surface Deliveries	4,000	4,000	4,000	4,000
Total Supply	210,600	210,600	210,600	210,600
Demands⁽³⁾				
Urban Demand	103,000	108,000	113,000	118,000
Agricultural Demand	92,000	92,000	92,000	92,000
Total Demand	195,000	200,000	205,000	210,000
Surplus	15,600	10,600	5,600	600

Source: AVRWMG 2013

Notes:

- ⁽¹⁾ WSSP-2 is AVEK's groundwater banking program. Projection assumes small withdrawals from WSSP-2 will occur to overcome conveyance constraints and enable utilization of 60–61% of AVEK's SWP allocation.
- ⁽²⁾ Recycled water demands for 2010–2035 reflect existing 2013 municipal and industrial demands.
- ⁽³⁾ Demand includes groundwater extractions.

Key:

AVEK = Antelope Valley-Eastern Kern Water Agency
 SWP = State Water Project
 TSY = total sustainable yield
 WSSP-2 = Water Supply Stabilization project

Table 4.3.1-2 Water Budget Comparison for a Single-Dry Water Year – Antelope Valley				
	2020	2025	2030	2035
Groundwater Storage	Acre-Feet (AF)			
Recharge + Return Flows (TSY)	110,000	110,000	110,000	110,000
WSSP-2 Water Extracted ⁽¹⁾	23,000	23,000	23,000	23,000
Subsurface Flow Loss	0	0	0	0
Direct Deliverables	17,700	17,700	17,700	17,700
Recycle/Reuse⁽²⁾	82	82	82	82
Surface Storage				
Surface Deliveries	4,000	4,000	4,000	4,000
Total Supply	154,800	154,800	154,800	154,800
Demands⁽³⁾				
Urban Demand	103,000	108,000	113,000	118,000
Agricultural Demand	98,000	98,000	98,000	98,000
Total Demand	201,000	206,000	211,000	216,000
Deficit	(46,200)	(51,200)	(56,200)	(61,200)

Source: AVRWMG 2013

Notes:

⁽¹⁾ WSSP-2 is AVEK's groundwater banking program. Projections assume periodic wet years have occurred to allow quantities of SWP deliverables above AVEK demands to fill the water bank.

⁽²⁾ Recycled water demands for 2010–2035 reflect existing 2013 municipal and industrial demands.

⁽³⁾ Demand includes groundwater extractions.

Key:

AVEK = Antelope Valley-Eastern Kern Water Agency.

SWP = State Water Project.

TSY = total sustainable yield.

WSSP-2 = Water Supply Stabilization project.

Table 4.3.1-3 Water Budget Comparison for a Multi-Dry Water Year – Antelope Valley				
	2020	2025	2030	2035
Groundwater Storage	Acre-Feet (AF)			
Recharge + Return Flows (TSY)	110,000	110,000	110,000	110,000
WSSP-2 Water Extracted ⁽¹⁾	6,000	6,000	6,000	6,000
Subsurface Flow Loss	0	0	0	0
Direct Deliverables	54,700	54,700	54,700	54,700
Recycle/Reuse⁽²⁾	82	82	82	82
Surface Storage				
Surface Deliveries	4,000	4,000	4,000	4,000
Total Supply	174,800	174,800	174,800	174,800
Demands⁽³⁾				
Urban Demand	103,000	108,000	113,000	118,000
Agricultural Demand	98,000	98,000	98,000	98,000
Total Demand	201,000	206,000	211,000	216,000
Deficit	(26,200)	(31,200)	(36,200)	(41,200)

Source: AVRWMG 2013

Notes:

Values assume 4-year dry period begins in the year shown and are rounded to the nearest 100.

⁽¹⁾ Assumes periodic wet years have occurred to allow quantities of SWP deliverables above AVEK demands to fill the water bank. Full bank storage is evenly distributed over the 4-year dry period, rounding to about 6,000 AFY each year.

⁽²⁾ Recycled water demands for 2010–2035 reflect existing 2013 municipal and industrial demands

⁽³⁾ Demand includes groundwater extractions.

Key:

AFY = acre-feet per year.

AVEK = Antelope Valley-Eastern Kern Water Agency.

SWP = State Water Project.

TSY = total sustainable yield.

WSSP-2 = Water Supply Stabilization project.

The Antelope Valley IRWMP groundwater budget presented in the preceding tables shows a deficit between projected supply and demand for single-dry and multiple-dry water years, with deficits ranging from 26,200 to 61,200 AFY. The groundwater deficit will have minimal impact on AVEK supplies to its customers as most of its supplies are from the SWP (144,844 AFY versus 3,550 AFY groundwater availability post rampdown). The IRWMP budget potentially underestimates the recharge capacity of AVEK's project supplies related to water banking, which were projected to provide 36,000 AF during single-dry and multiple-dry years. The Antelope Valley IRWMP groundwater budget does indicate that additional water supplies and/or increased water conservation will be required for the region.

The groundwater supply budget also does not account for changes in groundwater allotment that will result from the application of the Judgement that will be implemented in coming years.

5. Conclusions

The Project's water requirements would be most demanding during the initial 8-month construction phase, which is anticipated to require approximately 200 AF of water for dust suppression to maintain regional air quality standards. The Applicant intends to meet water demand by pumping groundwater from one of three existing wells located within approximately 7 miles of the Project site. During Project operations, water demand would decrease considerably to 5 AFY.

As described in this WSA, water supplies in the Antelope Valley have been stressed by agricultural practices and population growth combined with very limited sources of surface water within the AVGB. Due to existing overdraft conditions within the AVGB, groundwater water rights for the Project will likely be restricted through the recent Judgement in order to enforce regional water use limits that will be used to maintain long-term stability of the AVGB. Water supplemented by the SWP has been important to extending water supply to increased demands and has reduced pressure on groundwater resources in some parts of the AVGB. It is expected that additional storage and recharge to the groundwater basin will result from future adjudication requirements and regional water banking. The Project location lies within the adjudication judgment boundary and could be affected by any adjudication judgment from the Watermaster. However, groundwater supplies in the AVGB are adequate to supply the Project over a 25-year period.

A natural recharge estimate of 60,000 AFY was assumed in the Judgement, which set an average safe yield of 110,000 AFY. Reduction in groundwater pumping following the Judgement resulted in reported estimated groundwater extractions in 2016 of approximately 96,005 AFY, which is within the total safe yield of 110,000 AFY set in the Judgement.

The total water requirement for the Camino Solar Project is 315 AF over a 25-year period. The AVGB can easily absorb the required amount of water without exceeding the safe yield budget. Therefore, no additional resources will be needed to supply the Project.

Based on this assessment, it is determined that long-term water supply demands for the Project are relatively minor and can be met by available groundwater sources within the AVGB during normal, single-dry, and multiple-dry years.

6. References

- Antelope Valley-East Kern Water Agency (AVEK). 2016. 2015 Antelope Urban Water Management Plan (Final Draft). http://www.avek.org/fileLibrary/file_476.pdf. and http://www.avek.org/fileLibrary/file_453.pdf. Accessed June 24, 2019.
- _____. 2017. Annual Water Resources Report. https://www.avek.org/fileLibrary/file_932.pdf. Accessed June 24, 2019.
- Antelope Valley Regional Water Management Group (AVRWMG). 2013. Antelope Valley Integrated Regional Water Management Plan, 2013 Update (Final Version). https://dpw.lacounty.gov/wwd/avirwmp/docs/finalplan/AVIRWMP_Full%20Document.pdf. Accessed June 24, 2019.
- _____. 2019. Antelope Valley Regional Water Management Plan Announcements. <http://www.avwaterplan.org/>. Accessed June 25, 2019.
- Antelope Valley Watermaster (Watermaster). 2017. Final Antelope Valley Watermaster 2016 Annual Report, August 1, 2017. https://www.avwatermaster.net/wp-content/uploads/2018/03/180220_Final_2016_Annual_Report1.pdf. Accessed June 25, 2019.
- _____. 2019. Antelope Valley Watermaster Resources. <https://avwatermaster.net/>. Accessed June 25, 2019.
- California Environmental Protection Agency (CalEPA). 2017. The Water Rights Process. http://www.waterboards.ca.gov/waterrights/board_info/water_rights_process.shtml. Accessed June 24, 2019.
- California City Water Department. 2017. Urban Water Management Plan 2015 Update for California City, CA. <http://www.californiacity-ca.gov/CC/images/stories/Cal-City-2015-UWMP-Final.pdf>. Accessed June 24, 2019.
- California Department of Water Resources (DWR). 2003. Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001: to assist water suppliers, cities, and counties in integrating water and land use planning. <http://www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf. Accessed June 24, 2019.
- _____. 2004. Antelope Valley Groundwater Basin. Bulletin 118. <http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/6-44.pdf>. Accessed June 24, 2019.
- _____. 2014. California Water Plan, Update 2013. <https://water.ca.gov/Programs/California-Water-Plan/Water-Plan-Updates#collapse-Public-Review-Draft-PRD8b8f6c1f-566c-4025-9690-38f5b66f1dee>. Accessed June 24, 2019.
- _____. 2017. The State Water Project Final Delivery Capability Report 2017. <https://water.ca.gov/Library/Modeling-and-Analysis/Central-Valley-models-and-tools/CalSim-2/DCR2017>. Accessed June 24, 2019.
- _____. 2018. California Water Plan, Update 2018. <https://water.ca.gov/Programs/California-Water-Plan/Water-Plan-Updates#collapse-Public-Review-Draft-PRD8b8f6c1f-566c-4025-9690-38f5b66f1dee>. Accessed June 24, 2019.
- _____. 2019. Groundwater Information Center. <https://water.ca.gov/Water-Basics/Groundwater>. Accessed June 24, 2019.
- City of Tehachapi. 2016. Greater Tehachapi Area – 2015 Regional Urban Water Management Plan, May 2016. <http://www.liveuptehachapi.com/DocumentCenter/View/3308/RUWMP-Draft?bidId=>. Accessed June 25, 2019.
- Freemont Basin Regional Water Management Group). 2018. Freemont Basin Integrated Regional Water Management Plan, Public Draft, October 2018. https://californiacity-ca.gov/CC/images/Fremont-Basin-IRWMP_PUBLIC-DRAFT_2018-10-10.pdf. Accessed June 25, 2019.
- Rosamond Community Services District (Rosamond CSD). 2017. 2015 Urban Water Management Plan, September 11, 2017. <http://www.rosamondcsd.com/home/showdocument?id=1195>. Accessed June 25, 2019

Water Supply Assessment

State Water Resources Control Board: Annual Water Use Reporting.

https://www.waterboards.ca.gov/waterrights/water_issues/programs/diversion_use/water_use.html. Accessed June 24, 2019.

_____. 2019a. California Drinking Water Watch City of Tehachapi Water System Details.

https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=1752&tinwsys_st_code=CA. Accessed June 25, 2019.

_____. 2019b. California Drinking Water Watch Rosamond CSD Water System Details.

https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=1750&tinwsys_st_code=CA. Accessed June 25, 2019.

_____. 2019c. California Drinking Water Watch Mojave PUD Water System Details.

https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=1746&tinwsys_st_code=CA. Accessed June 25, 2019.

_____. 2019d. California Drinking Water Watch Rosamond CSD Water System Details.

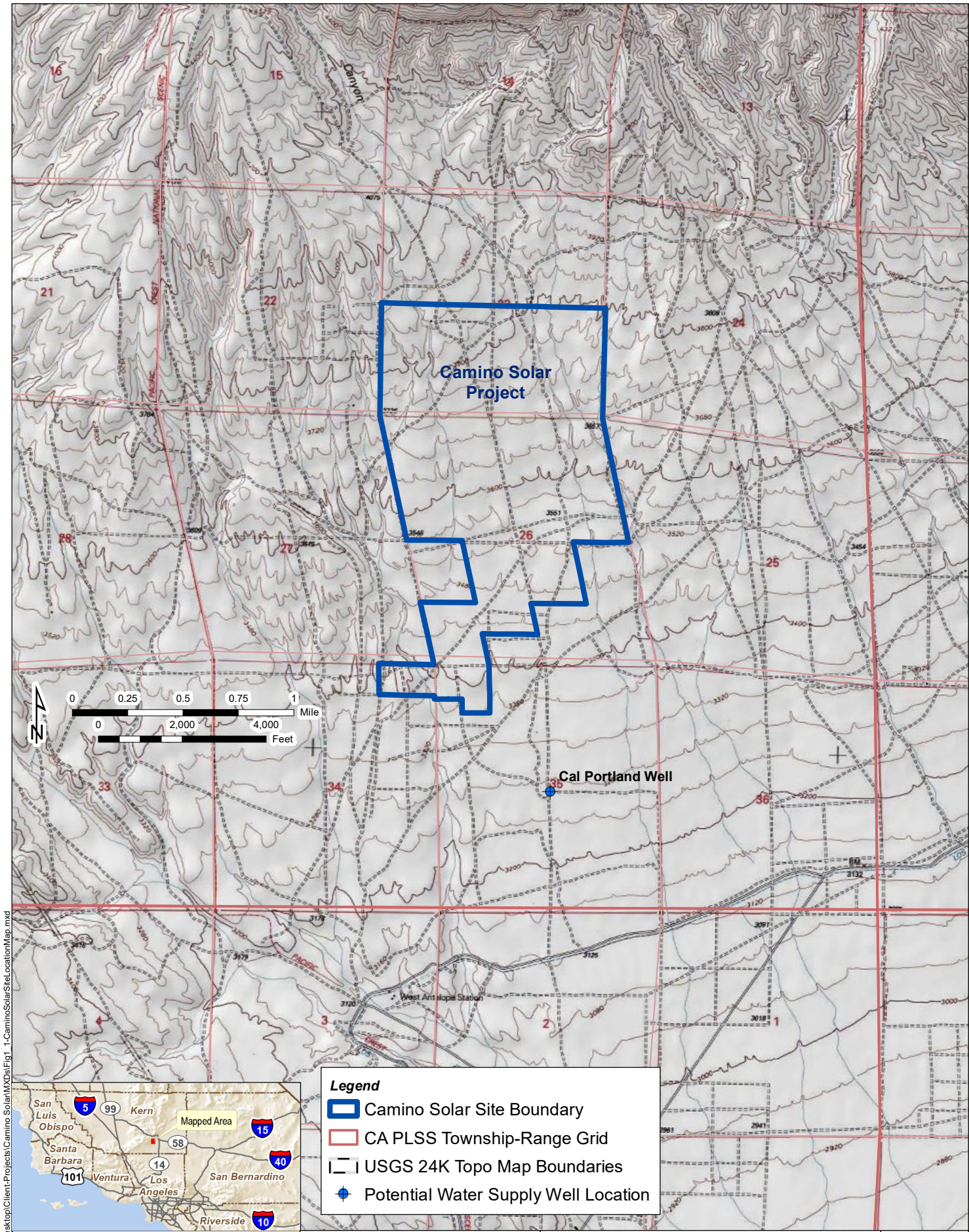
https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=1763&tinwsys_st_code=CA. Accessed June 25, 2019.

United States Geological Survey (USGS). 1987. Lowell and Duell. Geohydrology of the Antelope Valley Area, California, and Design for a Ground-Water-Quality Monitoring Network. Water-Resource Investigations Report 84-4081. <https://pubs.usgs.gov/wri/1984/4081/report.pdf>. Accessed June 24, 2019.

_____. 2014. Groundwater-Flow and land-Subsidence Model of Antelope Valley, California. Scientific Investigations Report 2014-5166. Available online at <https://pubs.usgs.gov/sir/2014/5166/pdf/sir2014-5166.pdf>. Accessed June 24, 2019.

Western Regional Climate Center (WRCC). 2019. Tehachapi, California (048826), Period of Record Monthly Climate Summary (7/2/1948 to 12/31/2005). <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?cateha+sca>. Accessed June 25, 2019.

Figures

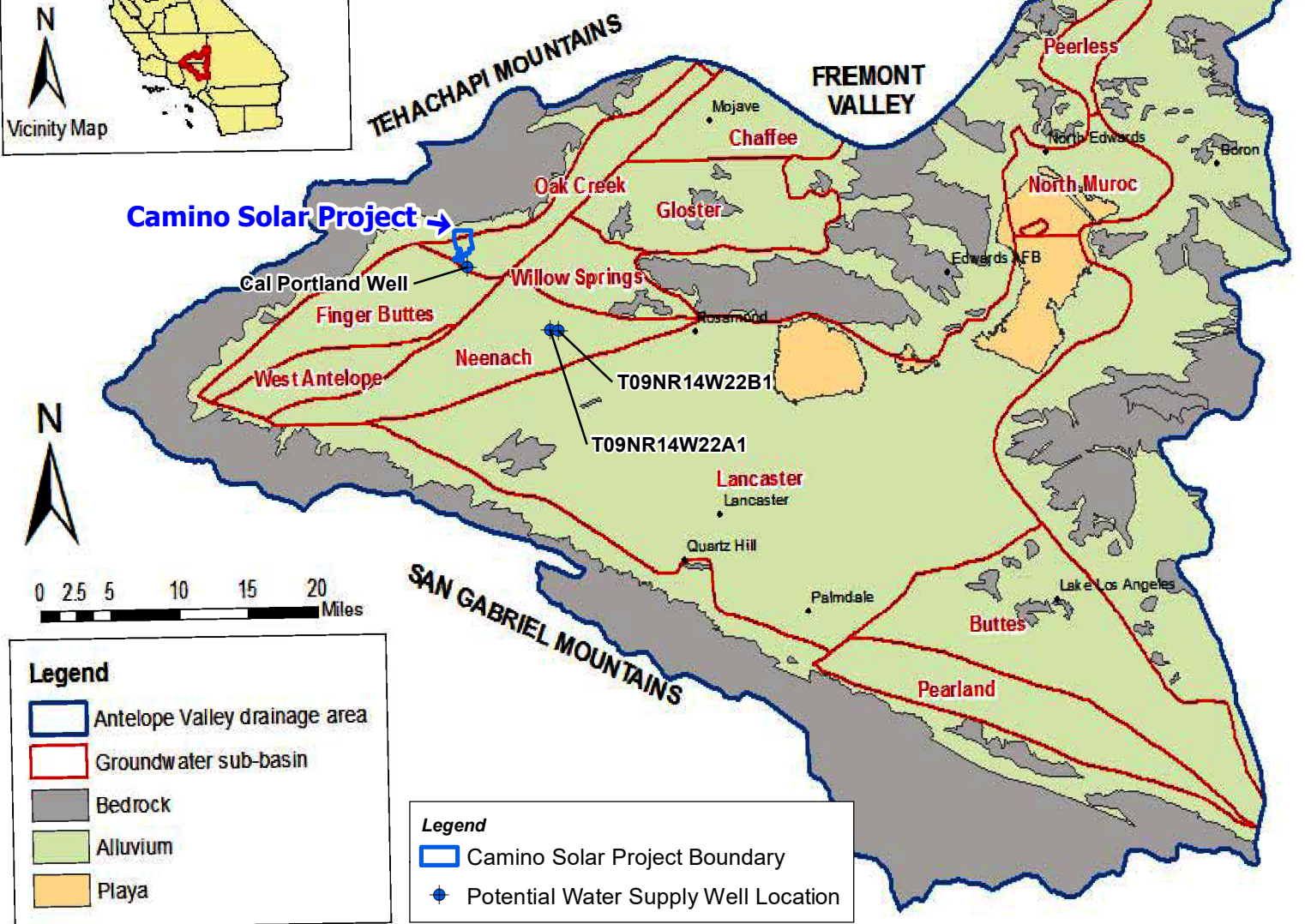
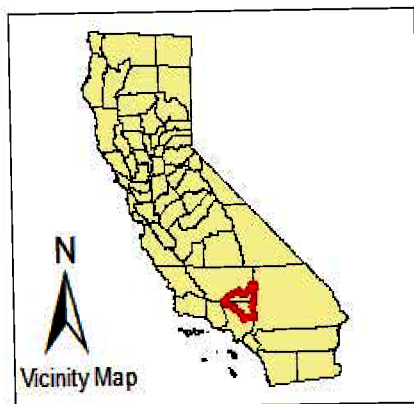


Legend

- Camino Solar Site Boundary
- CA PLSS Township-Range Grid
- USGS 24K Topo Map Boundaries
- Potential Water Supply Well Location



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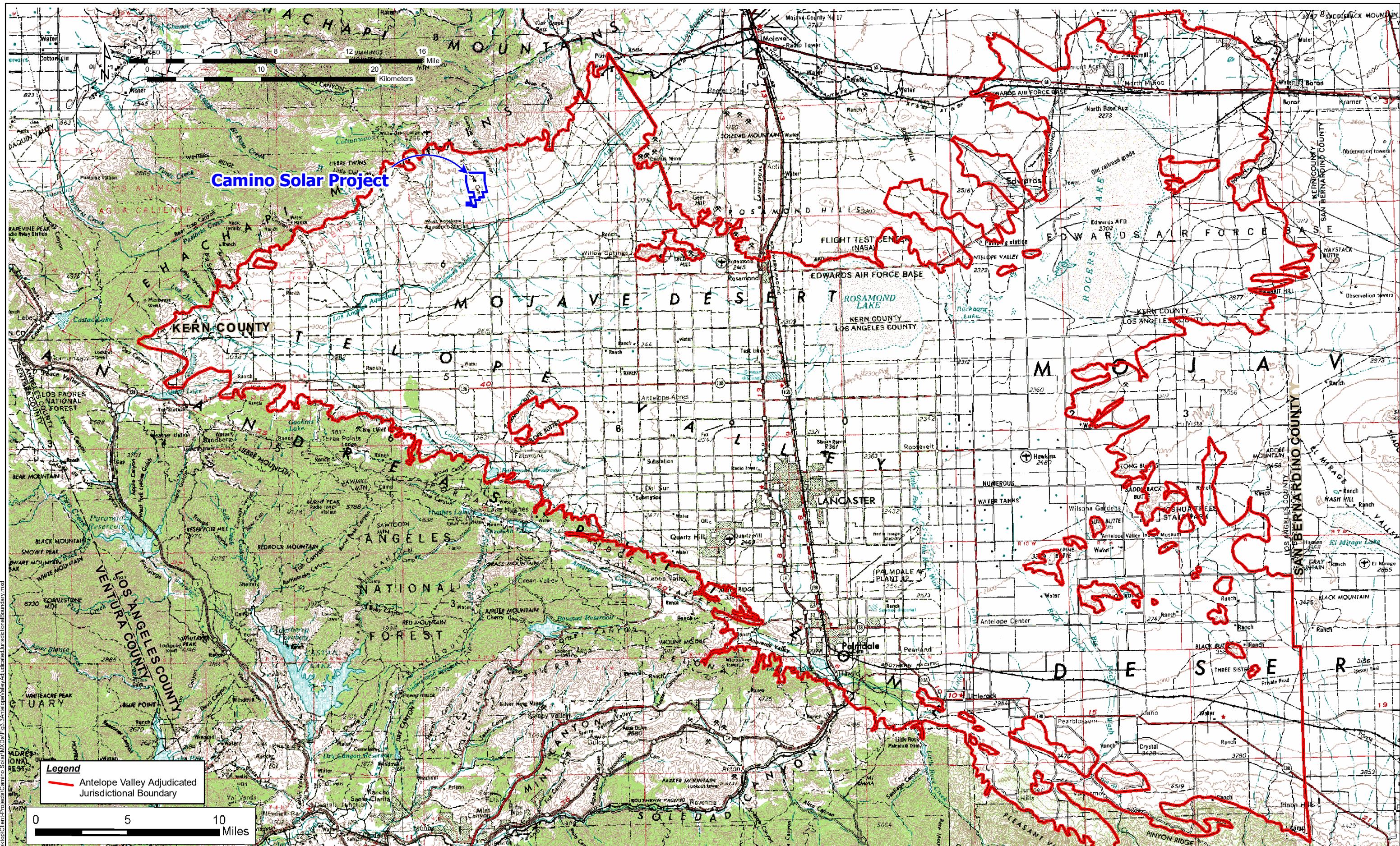
Avangrid Renewables, LLC
Camino Solar Project
Kern County

AECOM

Source: Figure 2-1: Groundwater Sub-Basin Boundary Map, 2014 Salt and Nutrient Management Plan for the Antelope Valley, Page 2-2.

Figure 3.2 Antelope Valley Watershed and Groundwater Subbasins

2019



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Avangrid Renewables, LLC
Camino Solar Project
Kern County

AECOM

Source: [1] Lugdorff & Scalmanini Consulting Engineers; Accessed online 2/26/2018
<http://www.juniperhills-ca.org/jhtc/PDF%20Versions/Groundwater%20Rights%20-%20Adjudicated%20Boundary.pdf>

Figure 3.3 Antelope Valley Adjudicated Jurisdictional Boundary

2019

Appendix A

Will Serve Letter

Homer LLC

113 South La Brea Avenue Los Angeles, CA 90036

July 29, 2019

To Whom it May Concern,

Aurora Solar LLC, has contacted Homer LLC about the purchase of construction and operation water for a solar project in early 2021. Aurora Solar estimates using approximately 200 acre-feet of water for 8 months during the construction period and 5 acre-feet of water during the operations period.

Homer has intentions of providing that water from its well numbers T09NR14W22A1 or T09NR14W22B1, for a cost to be determined by Homer LLC at that time, barring any unknown circumstances understanding that this project is at least 1-2 years away.

Any and all off-site facilities required by the project will be furnished at no cost to Homer. The facilities required may include, but not limited to: storage reservoirs and booster pump stations or pipelines.

*****THIS WILL SERVE LETTER IS SUBJECT TO TERMINATION AT ANY TIME*****

If you have any questions, please feel free to call Andrew Werner at 323-936-9303.

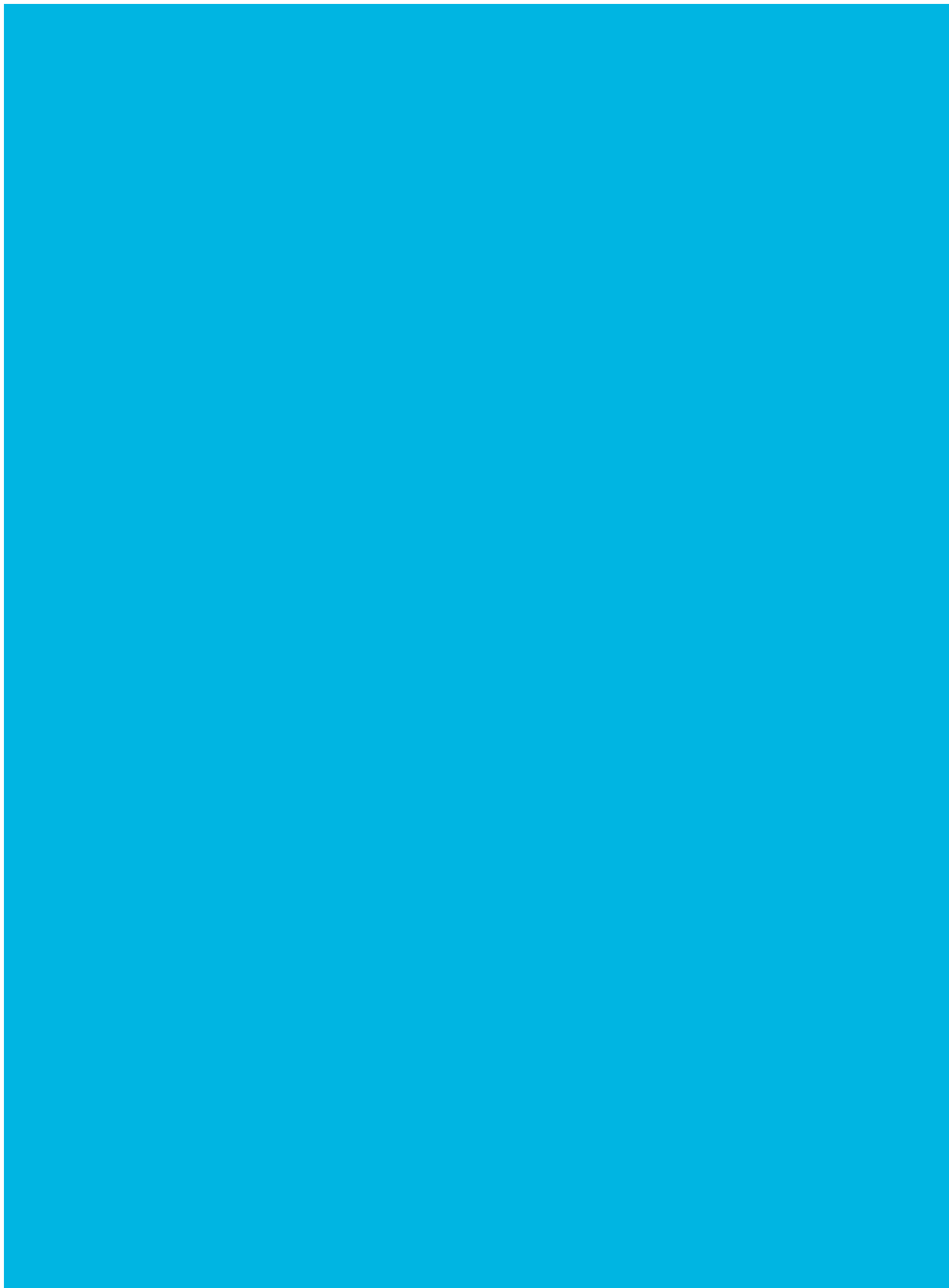
Thank you,

Homer LLC

By: 

Name: J. Ann Swilley

Title: Authorized Signatory



Appendix J

Noise Memorandum prepared for the Camino Solar Project





ENVIRONMENTAL CONSULTANTS

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www.swca.com

TECHNICAL MEMORANDUM

To: Matthew Hutchinson
Avangrid Renewables
1125 NW Couch Street, Suite 700
Portland, Oregon 97209

From: Brad Sohm (Environmental Planner) and Pauline Roberts (Project Manager)

Date: September 20, 2018

Re: Noise Memorandum for the Camino Solar Project, Kern County, California

SWCA Environmental Consultants (SWCA) has prepared this technical memorandum to provide a qualitative analysis of the construction and operational noise impacts associated the development of the Camino Solar Project (Project) in Kern County, California. This memorandum describes the Project; provides a summary of the environmental setting including a description of the existing conditions within the proposed Project area; the regulatory setting; assessment methodology; thresholds of significance; discussion of ground borne vibration impacts; and a summary of Project-related construction and operational noise impacts.

Based on the analysis presented in this memo, SWCA recommends the following measures be considered during the construction of the Project:

1. Require construction contractor(s) to have a Hearing Conservation Program during the construction period. This program should be in compliance with 29 Code of Federal Regulations (CFR) 1910.95, including providing hearing protection devices, employee training and education, and recordkeeping. The construction contractor(s) should be able to provide proof of compliance if requested.
2. Construction contracts should specify that all construction equipment, fixed or mobile, be equipped with properly functioning and maintained mufflers and other state-required noise attenuation devices.
3. During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.
4. Construction activities shall not take place outside of the allowable hours specified by Section 8.36.020 of the Kern County Noise Ordinance.

Operation noise outputs of solar projects are minimal, and generally limited to inverter noise, and SWCA anticipates that Project operational noise sources would not increase ambient noise levels above the baseline condition at the Project property boundary. Thus, ambient noise levels at the nearest noise sensitive receptor (NSR) property boundary would not be affected. Existing ambient baseline noise levels are discussed in the Existing Conditions section. The closest noise sensitive receptors to the proposed

Project site are residences located approximately 1.2 miles to the west of the Project.

SWCA recommends the measures listed above be incorporated into the environmental documentation as mitigation or Project design features, and included in the building specifications. With implementation of these measures, noise impacts to sensitive receptors are expected to be considered less than significant.

PROJECT DESCRIPTION

The Camino Solar Project (Project) is the proposed development of a photovoltaic (PV) solar energy generating facility and associated infrastructure necessary to generate a combined 44 megawatts (MW) of renewable electricity in Kern County, California. The permanent facilities would include: solar panels mounted on single-axis tracking systems; service roads; on-site battery storage systems; communication cables; overhead and underground electrical transmission lines; and electrical switchyards including inverters and transformers

The Project site is located within the existing Manzanita Wind Power Project boundary in a sparsely populated area of the western Mojave Desert. The primary land use of the surrounding area is for renewable wind energy production, recreational off-road vehicle use, hiking and dry land grazing. There are no existing structures on the Project site other than the operation and maintenance O&M facility for the Manzanita Wind Project, which would also be used for the proposed Project.

Construction activities for the Project are not proposed to be phased and would consist of three main activities: (1) site preparation, including surveying staking and installation of erosion control measures, road construction, geotechnical studies, and site grading; (2) system installation, including trenching and installation of underground electrical system in solar field assembling array foundations and installing solar array fields and constructing the collector line between the solar field and the Manzanita substation; and (3) testing commissioning and cleanup, including restoring temporarily disturbed areas in accordance with the approved revegetation plan. Blasting is not anticipated to be required for this Project. The entire process is estimated to take up to approximately 6 months. The onsite construction workforce for the Project is expected to peak at 200 individuals; however, the average workforce is expected to be 100 construction, supervisory, support, and construction management personnel onsite during construction.

The proposed Project would include maintenance personnel that are expected to visit the proposed Project site several times per year for routine maintenance. Proposed Project traffic volumes are expected to be minimal during facility operations.

ENVIRONMENTAL SETTING

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to noise is diverse and is influenced by the type of noise, the perceived importance of the noise, and the appropriateness of the noise in relation to its setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual.

The following section provides an overview of noise fundamentals, vibration fundamentals, a discussion on construction-related noise sources, operational-related noise sources, and the existing conditions related to the environmental setting of the Project

Noise Fundamentals

The decibel (dB) scale is commonly used in noise measurements and evaluation. The dB scale is logarithmic: A 100-fold increase in sound energy corresponds to an increase of 20 dB, not 100 dB. A logarithmic scale uses the logarithm of a physical quantity instead of the quantity itself and is useful for representing quantities such as sound levels that can vary over a large range. Logarithmic units also add differently than linear units. For example, if one object is 6 feet long and another object is twice as long, the second object is 12 feet long. However, if one sound level is 50 dB and another sound is twice as loud, the level of the latter is approximately 53 dB, not 100 dB.

A variety of descriptors of time-averaged noise levels are used to account for fluctuations of noise intensity over time. The noise descriptors used in this analysis to describe environmental noise are defined below:

- A-weighted Sound Level, describes a receiver's noise at any moment in time. A-weighting is an internationally standardized frequency weighting used to account for the relative loudness as perceived by the human ear at different frequencies.
- Maximum Sound Level (L_{\max}), describes the highest noise level occurring during a single noise event.
- Minimum Sound Level (L_{\min}), describes the lowest noise level occurring during a single noise event.
- The Equivalent Sound Level (L_{eq}) describes the average noise exposure from all events over a specified period of time.
- The Day-Night Average Sound Level (L_{dn}) describes the cumulative noise exposure from all events over a full 24 hours, with events between 10pm and 7am increased by 10 decibels to account for greater nighttime sensitivity to noise.
- Community Noise Level (CNEL), similar to L_{dn} , but with a 5 dBA penalty added to evening noise (7pm-10pm) and a 10 dBA penalty to night noise (10 pm to 7 am).
- L_{50} , represents the noise level in dBA that is exceeded 50% of the time.
- L_{90} , represents the sound level exceeded 90 percent of the time during the measurement period.

The relative dBA of various qualitative sound levels for common sounds measured in the environment and industry are provided in Table 1.

Table 1. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level in A-weighted Decibels (dBA)	Qualitative Description
Carrier deck jet operation	140	Harmfully loud
	130	Pain threshold
Jet takeoff (200 feet)	120	Deafening
Auto horn (3 feet)	110	Regular exposure over 1-minute risks permanent hearing loss
Jet takeoff (1,000 feet) Shout (0.5 foot)	100	No more than 15-minute exposure recommended
Heavy truck (50 feet) Power mower	90	Very loud/annoying; Hearing damage (8-hour, continuous exposure)
Pneumatic drill (50 feet)	80	Annoying; Interferes with conversation
Living room music	70	Loud/Intrusive (telephone use difficult)
Air conditioning unit (20 feet) Human voice (3 feet)	60	Comfortable
Light auto traffic (50 feet) Residential air conditioner (50 feet)	50	Moderate/Quiet
Living room/Bedroom Bird calls	40	Quiet
Library Soft whisper (5 feet)	30	Very quiet
Broadcasting/Recording studio	20	Faint
Normal breathing	10	Just audible
	0	Threshold of human audibility

Source: Adapted from Table E, "Assessing and Mitigating Noise Impacts" (New York Department of Environmental Conservation 2001) and "Handbook of Environmental Acoustics: (Cowan, James P. 1993).

Noise level from a point source, such as concentrated construction activity, will decrease by 6 dBA for every doubling of the distance from the noise source. This concept is known as geometric spreading and is based on the inverse square law. This law states the intensity of the influence at any given radius is the source strength divided by the area of the sphere. The energy twice as far from the source is spread over four times the area, hence the sharp drop off in intensity. Sound intensity follows the inverse square law, assuming there are no reflections or reverberations, or consideration for ground cover.

The lack of a common standard by which to evaluate individual thresholds of annoyance and habituation to noise means that an important way of determining a person's subjective reaction to a new noise is to compare it to the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual. Therefore, an important metric to determine a person's subjective reaction to a new noise source is to compare it to the existing (i.e., ambient) environment. Table 2 illustrates the human perception of a change in decibel levels.

Table 2. Human Perception of Noise Level Changes

Change in Decibel Level	Result
1 dBA	Insignificant
3 dBA	Barely discernible
5 dBA	Noticeable community response
10 dBA	Causes an adverse community response

Note: dBA = A-weighted decibels.

As shown above, when comparing similar sounds (e.g., changes in traffic noise levels), a 3-dBA change in sound-pressure level is considered detectable by the human ear in most situations. A 5-dBA change is readily noticeable by most people, and a 10-dBA change is perceived to be a doubling or halving of sound or noise.

Vibration Fundamentals

The effects of ground-borne vibration may include perceptible movement of building floors, interference with vibration-sensitive instruments, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds that result from the radiation of the noise from the motion of the room surfaces. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance would be well below the damage threshold for normal buildings. Ground-borne vibration is almost never annoying to people who are outdoors; without the effects associated with the shaking of a building, the rumble noise of vibrations is not perceptible.

Unlike noise, human response to vibration is not dependent on existing vibration levels. Humans respond to a new source of vibration based on the frequency of such events.

Construction-Related Noise

The construction of the Project would require various pieces of construction equipment. Table 3 provides the anticipated construction equipment required for the Project and the estimated sound generated by the equipment at 50 feet from the equipment. The loudest proposed construction equipment is estimated to emit sound of 85 dBA at 50 feet, which is considered “annoying – interferes with conversation”, but below the dBA thresholds that could result in hearing loss, pain, or harm (see Table 1).

Table 3. Estimated Construction Equipment Sound Levels at 50 Feet

Construction Equipment	Estimated Sound Level (dBA) at 50 feet
Crane	81
Excavator	81
Grader	85
Roller	80
Scraper	84
Tractor/Loader/Backhoe	84
Trencher	81

Source: U.S. Department of Transportation Federal Highway Administration's Roadway Construction Noise Model (RCNM) Version 1.1 December 8, 2008.

Note: dBA = A-weighted decibels.

Based on standard attenuation screening estimates that sound reduces 6 dBA per a doubling of distance, Table 4 illustrates how sound would attenuate over distance for a piece of construction equipment that emits sound at 85 dBA at 50 feet.

Table 4. Sound Attenuation over Distance for Construction Equipment Emitting 85 dBA at 50 Feet

Distance (Feet)	Sound Level (dBA)	Human Response
50	85	Annoying – Interferes with conversation
100	79	Loud/Intrusive (telephone use difficult)
200	73	Loud/Intrusive (telephone use difficult)
400	67	Comfortable
800	61	Comfortable
1,600	55	Moderate/Quiet
3,200	49	Quiet
6,400	43	Quiet

Notes: Assumes flat soft ground without any obstructions (e.g., manmade structures) or topographic relief that would absorb sound.

Site preparation and construction activities would temporarily increase noise levels at the Project site. The noise would occur mainly from heavy-duty construction equipment. However, when construction equipment is used in combination, as it would be during construction, noise levels would be higher.

A study conducted for the U.S. EPA in 1971 estimated noise levels of multiple pieces of construction equipment associated with the overall various stages of construction.¹ As previously discussed, sound levels decrease with distance, resulting in a reduction of sound pressure level of 6 dB per doubling of distance from the source. Using this reduction, the distance at which construction phase noises are reduced to 60 dBA, 55 dBA, and 50 dBA are provided in Table 5. The calculations do not account for

¹ U.S. Environmental Protection Agency (USEPA). 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.

effects such as terrain and height between noise sources and receptor that could reduce noise at lesser distances.

Table 5. Typical Construction Phase Noise Levels at 50 Feet from Sound Source and Distances at which Noise Reductions Would Occur

Construction Phase	Noise Level at 50 feet (L_{eq} dBA)	Distance (feet) to 60 dBA	Distance (feet) to 55 dBA	Distance (feet) to 50 dBA
Ground Clearing (Grading)	85	793	1,410	2,510
Excavation	89	1,410	2,510	4,460
Foundations	78	397	706	1,260
Erection (Installation)	87	1,120	1,990	3,540
Finishing (Clean-up)	89	1,410	2,510	4,460

Source: U.S. Environmental Protection Agency (USEPA). 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.

Notes: Values correspond to a typical range of noise levels at an office building, hotel, hospital, school, or public works construction site.

Construction noise would be anticipated to be the greatest during scraping and grading. The noise level from excavation would be anticipated to attenuate to 60 dBA at a distance of 1,410 feet from the construction activity.

Operational-Related Noise

Once constructed, it is anticipated that operational noise sources would not increase ambient noise levels above the baseline condition at the property boundary as a solar facility makes no appreciable noise. Furthermore, noise from the adjacent turbines at the Manzanita Wind Power site adds to the baseline ambient noise at the Project location. There would be the hum of electrical equipment, including the inverter and transformer for each solar array, but this would be similar to existing electrical facilities in the Project area. In addition, because solar panels produce power only when the sun is shining, the inverters would be silent at night. Any noise at night caused by operation of the batteries at the facility is not expected to exceed ambient noise levels at the Project property boundary. Furthermore, central inverters are usually surrounded on all sides by the solar panel arrays whose electricity they manage, which further distances them from anyone who might happen to be nearby and would potentially act as a noise buffer.

Construction Ground-borne Vibration

Ground-borne vibration may be induced by traffic and construction activities, such as earthmoving. The erection of the solar arrays would include support structures that may need to be driven into the soil using pneumatic techniques, which could cause localized vibrations. However, significant vibration typically associated with activities such as blasting would not be an activity associated with the Project.

Existing Conditions

Local conditions such as traffic, topography, and winds characteristic of the region can alter background noise conditions. Based on a June 2006 ambient survey performed in support of the Manzanita Wind

Power Project, the CNEL values in the vicinity ranged from 60 to 67 dBA.² Noise from the adjacent turbines at the Manzana Wind Power site adds to that CNEL baseline ambient noise level in the Project vicinity. In addition to natural background, noise sources that contribute to the CNEL values in the vicinity include agricultural activities, low-density traffic on rural roads, recreational activities, and aircraft overflights.

Noise-sensitive receptors are generally defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. The Kern County General Plan Noise element considers the following as noise sensitive areas: residences, hospitals, places of worship, and schools, as well as nature and wildlife preserves, recreational areas, and parks.

Sensitive receptors within 1,000 feet of the Project facility were analyzed for potential impacts as a result of Project construction and operation. The 1,000-foot buffer was selected for the analysis because: 1) the Kern County Noise Ordinance places limitations on hours of construction for projects located within 1,000 feet of an occupied residential dwelling and 2) the sound level of a piece of construction equipment that emits 85 dBA at 50 feet would be attenuated to at or below ambient noise levels beyond 800 feet (see Table 4). As shown in Figure 1, the closest noise sensitive receptors to the proposed Project site are residences located approximately 1.2 miles to the west of the Project. A structure was identified approximately 270 feet south of the southern Project boundary, but is described as a non-continually human-occupied structure. The only other nearby building is the Manzana O&M Building which is not a residential building. In addition, the Pacific Crest Trail is located approximately 1 mile to the west of Project site.

Other sensitive noise receptors, such as schools, hospitals, rest homes, long-term care and mental care facilities, churches, libraries, and parks were not identified within the 1,000-foot buffer, and none are present within a 10-mile radius.

The proposed Project is not located within a Kern County Airport Land Use Compatibility Plan (ALUCP). The nearest airports to the Project site are the Mountain Valley Airport (approximately 10 miles to the north), the Mojave Airport (approximately 13 miles to the northeast) and the Rosamond Airport and Skypark (approximately 14 miles to the west-southwest).

Figure 1 presents the Project site, the Manzana Wind Power Project, the generation tie-in alignments and the location of the nearest NSAs to any Project facility.

REGULATORY SETTING

The following discussion identifies federal, state, and local laws, regulations, ordinances, and guidelines that are pertinent to the proposed Project.

Federal

U.S. Environmental Protection Agency Noise Control Act of 1972

In 1974, the U.S. Environmental Protection Agency (USEPA) published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin on Safety.³ In this publication, the USEPA evaluated the effects of environmental noise with respect to

² Kern County. 2007. Environmental Impact Report for the PdV Wind Energy Project. Bakersfield, California: Kern County Planning and Community Development Department. Available at: <https://kernplanning.com/environmental-doc/pdv-wind-energy-project/>. Accessed June 2018.

³ U.S. Environmental Protection Agency (USEPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.

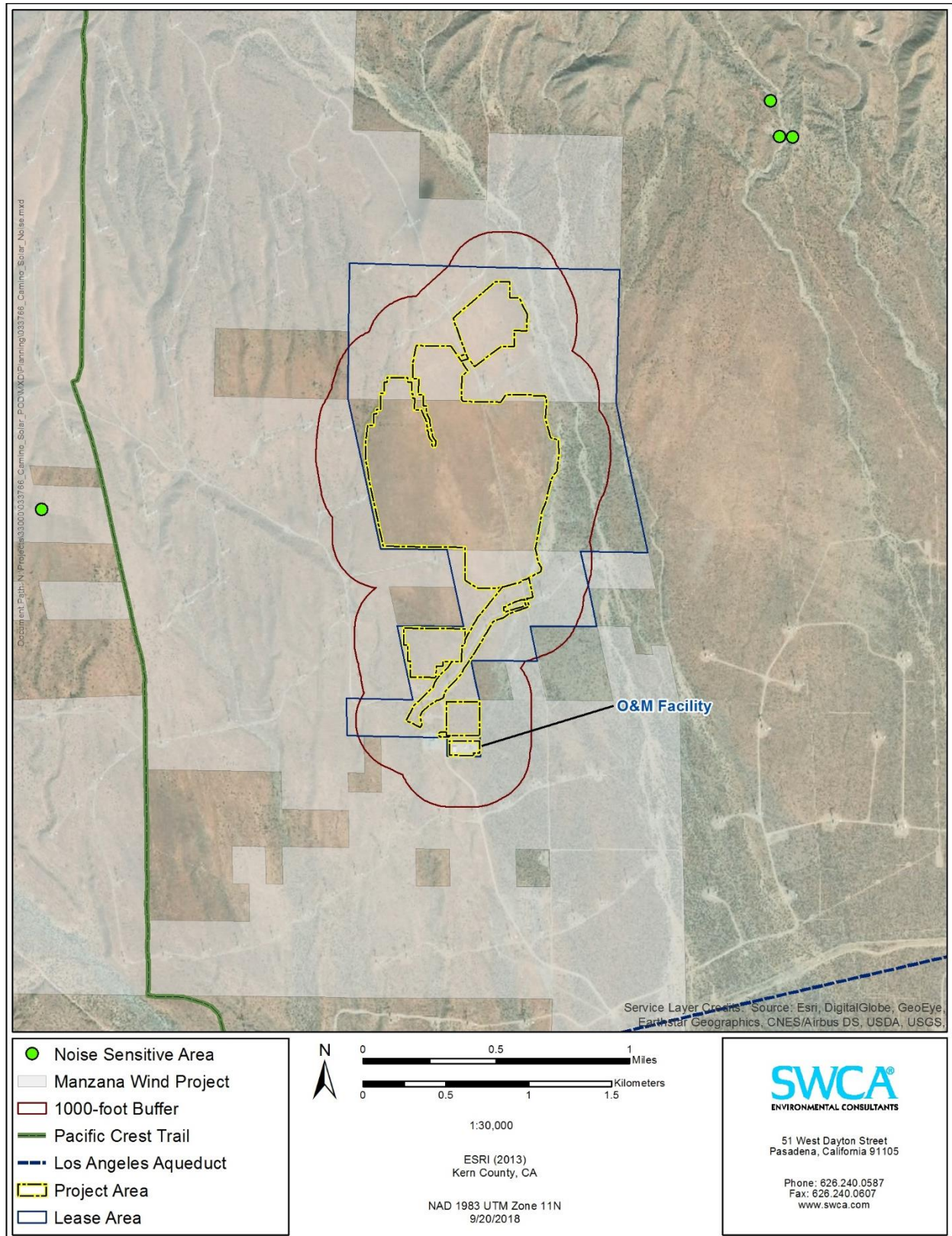


Figure 1. Project Location Map

health and safety, and determined a day-night level (L_{dn}) of 55 dBA (equivalent to a continuous noise level of 48.6 dBA) to be the maximum sound level that would not adversely affect public health and welfare by interfering with speech or other activities in outdoor areas.

Occupational Safety and Health Administration Occupational Noise Exposure; Hearing Conservation Amendment

The OSHA occupational noise exposure standard states that protection against the effects of noise exposure shall be provided for all employees when sound levels exceed 90 dBA over an 8-hour exposure period. Worker hearing protection should consist of feasible administrative or engineering controls. If these controls fail to reduce sound levels to an acceptable level, personal protective equipment should be provided and used by employees to reduce noise exposure. In addition, a Hearing Conservation Program must be instituted by the employer whenever noise exposure equal or exceed the action level of an 8-hour time-weighted average sound level of 85 dBA (29 CFR 1910.95(c)(1)). The Hearing Conservation Program requirements consider periodic area and personal noise monitoring, the performance and evaluation of audiograms, the provision of hearing protection, annual employee training, and recordkeeping.

State

The State of California has identified L_{dn} or CNEL values of 60 dBA or less as normally acceptable outdoor levels for residential areas.^{4,5} In areas exceeding an L_{dn} of 60 dBA, if a multi-family residential building is proposed, Title 24 of the California Administrative Code requires the preparation of a noise mitigation study.

The California Environmental Quality Act (CEQA)

The State of California has also adopted the California Environmental Quality Act (CEQA) to assess the potential for significant noise impacts as a result of a project. In evaluating the impacts of noise for the Project, CEQA requires that the following questions be answered:

- Would the project result in 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?
- Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

CEQA does not define a threshold for “significant increase” with respect to noise exposure; however, based on human response and commonly applied industry standards, the following thresholds of significance would be applied to the proposed Project, as set forth by the CEQA guidelines:

- The project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA to a level at or within the “normally unacceptable” or “clearly unacceptable” noise/land use compatibility category; or
- The project causes any 5 dBA or greater noise increase.

⁴ California Department of Health Services. 1976. Guidelines for Preparation and Content of Noise Elements in General Plans.

⁵ California Governor’s Office of Planning and Research. 2003. State of California General Plan Guidelines. Sacramento, California. Available at: http://opr.ca.gov/docs/General_Plan_Guidelines_2003.pdf. Accessed August 16, 2018.

Local

Kern County Noise Ordinance

The *Kern County Noise Control Ordinance* is codified at Title 8, Chapter 8.36 of the Kern County, California Municipal Code and prohibits a variety of nuisance noises.⁶ Construction noise is regulated by means of a limitation on the hours of construction activity for projects located within 1,000 feet of an occupied residential dwelling. Specifically, the ordinance limits the hours of allowable construction activities from 6:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 9:00 p.m. on weekends, except as provided below:

- The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
- Emergency work is exempt.

Kern County General Plan Noise Element

The *Kern County General Plan Noise Element* seeks to protect public health, minimize adverse effects of noise on the economic well-being of the community, and minimize annoyance caused by noise. The Kern County General Plan Noise Element identifies residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches as noise sensitive. In noise sensitive areas, noise level generated by new projects is to be mitigated to 65 dB Ldn or less in outdoor activity areas and 45 dB Ldn or less within interior living spaces, as specified in the Kern County Zoning Ordinance Section 19.64.140.J. No noise sensitive areas are near the Project.

The General Plan identifies goals and the policies used to meet those goals to promote compatibility between land uses. The goals, policies and implementation measures outlined below are applicable to the proposed Project, particularly Policies 1, 4, and 7.

Goals

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

Goal 2 – Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1 – Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

Policy 3 – Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.

Policy 4 – Utilize good land use planning principles to reduce conflicts related to noise emissions.

⁶ Kern County Planning Department. 2009. Kern County General Plan, Noise Element. Bakersfield, California. September 2009. Available at: <https://kernplanning.com/planning/planning-documents/general-plans-elements/>

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

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

Policy 7 – Employ the best available methods of noise control.

Implementation Measures

Measure A – Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Measure C – Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Measure D – Review discretionary development plans for proposed residential or other noise sensitive land uses in noise-impacted areas to ensure their conformance with the noise standards of 65 dBA Ldn or less in outdoor activity areas and 45 dBA Ldn or less within interior living spaces.

Measure E – Review discretionary development plans to ensure compatibility with adopted Airport Land Use Compatibility Plans.

Measure G – At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

- Be the responsibility of the applicant.
- Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
- Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Measure I – Noise analyses shall include recommended mitigation, if required, and shall:

- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
- Include estimated noise levels, in terms of CNEL, for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.
- Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
- Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Measure J – Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

METHODOLOGY

Potential significant impacts associated with the Project were evaluated on a qualitative/quasi-qualitative basis through a review of existing literature and readily available information. The evaluation of Project impacts is based on significance criteria established by Appendix G of the CEQA Guidelines, which the Lead Agency has determined to be appropriate criteria for this draft Environmental Impact Report (EIR).

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would have a significant impact on noise if it would result in:

- a) exposure of persons to, or generate, 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 generate, 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 noise 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 2 miles of a public airport or public use airport, would the project expose people residing or working 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?

PROJECT IMPACTS

Project impacts related to noise were evaluated against the CEQA significance criteria and are discussed below. This section evaluates potential Project impacts during the construction phase and the operation and maintenance phase.

a: Would the project result in exposure of persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less than significant)

Construction

The Project would generate noise during construction using equipment, such as a crane, excavator, grader, roller, scraper, tractor/loader/backhoe, and trencher. It is estimated that such equipment would generate sound levels between 80 and 85 dBA at 50 feet, which would be considered “annoying” to the human ear. It would require a distance of at least 1,600 feet for the sound level of the loudest pieces of construction equipment to be attenuated to a level that is considered “quiet” by the human ear.

The Kern County Noise Control Ordinance regulates construction-related noise by limiting the hours of construction activity for projects located within 1,000 feet of an occupied residential dwelling. The only other nearby building is the Manzana O&M building which is not a residential building. As presented in Figure 1, no occupied residential dwelling were identified within a 1,000-foot buffer on the Project site.

Other sensitive noise receptors, such as schools, convalescent and acute care hospitals, parks and recreational areas, and churches were not identified within the 1,000-foot buffer.

The Project proponent would be required to adhere to the provisions outlined in the Kern County Noise Control Ordinance (Section 8.36.020) and the Kern County General Plan Noise Element. Although noise levels generated during Project construction are anticipated to be temporary in nature (approximately 6 months) and less than significant (as the closest NSA to the Project site is approximately 1.2 miles to the west). At this distance, construction noise would be attenuated to approximately 43 dBA, which is well below the ambient sound level.

Operation and Maintenance

The main source of noise during Project operations would be the stationary electrical equipment, such as the inverters and transformers. Transformer noise generally contains a pure-tone or “hum” component, as well as noise associated with cooling fans and oil pumps that operate periodically. The transformer L_{eq} is generally equivalent to 65 dBA at 15 feet, and would be attenuated to below ambient noise levels at 30 feet.

Monthly inspections would be performed to assess each required piece of equipment and ensure that no obvious abnormalities exist to the extent possible without taking the solar facility out of service. It is anticipated that periodically, more invasive checks, calibrations, and maintenance on the substation’s components would be performed. All maintenance-related activity would be conducted by a small specialized team during daytime hours, and are not expected to result in noise generating activities. As a result, noise impacts from substation maintenance activities would not expose persons to generation of noise levels in excess of applicable standards and impacts are anticipated to be less than significant.

b: Would the project result in exposure of persons to, or generate, of excessive groundborne vibration or groundborne noise levels? (Less than significant)

Construction

Construction activities (e.g., ground-disturbing activities, including grading and movement of heavy construction equipment) may generate localized groundborne vibration and noise. The greatest potential for vibration impacts would result from pile driving activities. Pile drivers differ in peak particle velocity (PPV) depending on the type of equipment. A sonic pile driver has a typical PPV of 0.170 inches/second at 25 feet, with an upper range of 0.734 inches/second at 25 feet, and an impact pile driver has a typical PPV of 0.644 inches/second at 25 feet, with an upper range of 1.518 inches/second at 25 feet.

Pile driving is anticipated to occur for only approximately 20% of an hour at each solar array. Depending on the day, pile driving could be considered a “Frequent Event” or an “Occasional Event,” with the “Frequent Event” threshold of 0.004 inches/second being the less tolerable of the two. Ground-borne vibration is typically attenuated over short distances (i.e., 25 feet) from the source, whereas the closest sensitive receptors are residences located approximately 1.2 miles to the west of the Project. Even with the highest potential upper range PPV for a pile driver PPV of 1.518 inches/second at 25 feet, the induced vibration would substantially attenuate within the distance to these residences to a level below 0.004 inches/second (“Frequent Events”). Therefore, vibration-related impacts to sensitive receptors are anticipated to be less than significant.

Operation and Maintenance

Equipment associated with operation and maintenance of Project would not produce any groundborne noise or vibration. As a result, no impacts associated with operation and maintenance of Project are anticipated.

c: Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (Less than significant)

Construction

Construction of the Project would involve noise-generating construction equipment. Any increases in ambient noise levels in the Project vicinity during construction would be short term, intermittent, and temporary. As a result, construction of the Project would not cause a substantial permanent increase in ambient noise levels and construction-related noise impacts are anticipated to be less than significant.

Operation and Maintenance

Due to the quiet nature of solar facilities, it is unlikely that long-term noise generated by the Project would exceed existing ambient noise levels. There would be the hum of inverters and transformers, but this would be similar to existing electrical facilities in the Project area. Traffic on the access roads would be for routine maintenance activities and would primarily consist of light duty trucks.

Monthly inspections would be performed on equipment to assess and ensure that no obvious abnormalities exist to the extent possible without taking the solar facility out of service. It is anticipated that periodically, more invasive checks, calibrations, and maintenance on the solar facility's components would be performed. All maintenance-related activity would be conducted by a small specialized team, during daytime hours and are not expected to result in noise generating activities. As a result, noise impacts from operation and maintenance activities are anticipated to be less than significant.

Therefore, the Project would not result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, and impacts are expected to be less than significant.

d: Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (Less than significant)

Construction

Construction of the Project would not result in a substantial temporary increase in ambient noise levels. As shown in Table 4, the noise level from excavation activities would be anticipated to attenuate to 60 dBA at a distance of 1,410 from the construction activity. The nearest NSA (an occupied residence) is approximately 6,300 feet (1.2 miles) to the west. Any increases in ambient noise levels in the Project vicinity during construction would be short term, intermittent, and temporary, resulting in impacts that are expected to be less than significant.

Operation and Maintenance

Maintenance activities performed at Project would typically occur over short timeframes and would not require heavy equipment thereby generating minimal noise. Operation of the Project would not change from existing conditions to result in substantial temporary or periodic increases above existing levels in

ambient noise levels in the Project vicinity. Therefore, noise impacts from operation and maintenance of Project are expected to be less than significant.

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? (No impact)

Not applicable, the project is not located within airport land use plan or within 2 miles of a public airport, and outside of any adopted airport land use plan.⁷

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? (No impact)

There are no private airstrips located within 2 miles of the Project; therefore, no impact is expected.

⁷ Kern County. 2012. Kern County Airport Land Use Compatibility Plan. Planning and Community Development Department. Bakersfield, California. Available at: <https://psbweb.co.kern.ca.us/planning/pdfs/ALUCP2012.pdf>. Accessed August 16, 2018

Appendix K

Traffic Memorandum prepared for the Camino Solar Project





Memorandum

September 16, 2019

To:	SWCA Environmental Consultants	Project:	Camino Solar Project Traffic Analysis
Attn:	Pauline Roberts, PhD		
From:	Gary Mills, Joe Ramirez	Ref/Job No.:	11195934
CC:		File No.:	C2182MEM004.DOCX
RE:	Traffic Analysis		

1. Introduction

The purpose of this memorandum is to present a trip generation estimate and analysis for construction and operation of the Camino Solar Project (Project) in southern Kern County, California (reference Figure 1, Project Location Map). The proposed Project would be a commercial solar-generating facility sited on lands administered by the Bureau of Land Management (BLM) Ridgecrest Field Office and adjacent private lands.

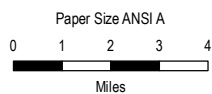
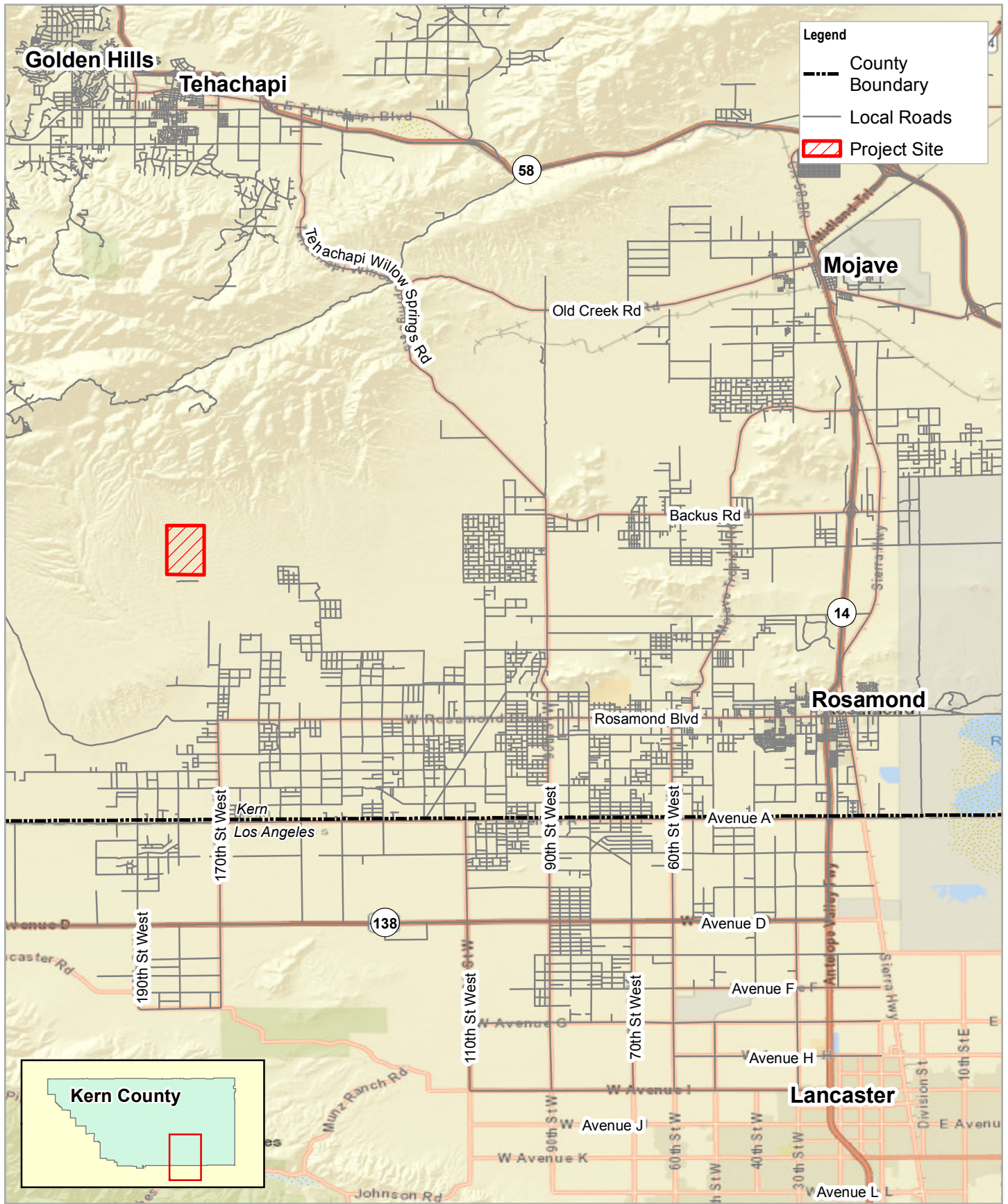
The proposed Project is to construct, operate, maintain, decommission and reclaim a solar energy generation facility with a maximum generating capacity of 44 megawatts (MW) of renewable energy using thin film photovoltaic (PV) technology. Supporting components would include a 34.5-kilovolt (k-V) electrical collection system, and an inner-facility road network. The proposed Project would use the existing substation and transmission line on private lands associated with the Manzana Wind Project.

The information in this memorandum has been prepared using information provided by the project proponent and the Camino Solar Project Plan of Development (SWCA Environmental Consultants, May 2017). Primary users of the transportation system will be during the construction phase (approximately 6 months) and on-site personnel. Personnel is considered under three categories: 1) construction workers, 2) employees charged with operations & maintenance when the facility is operating, and 3) battery storage area.

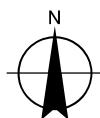
2. Existing Conditions

2.1 Existing Roadway System

Encompassing 8,202 square miles, Kern County is California's third largest county in land area. It is located at the southern end of the Central Valley bounded by Kings, Tulare, and Inyo Counties to the north; San Bernardino County to the east; Los Angeles and Ventura Counties to the south; and Santa Barbara and San Luis Obispo Counties to the west. Kern County includes a diverse geography of mountainous areas, agricultural lands, sparse and high density urban areas, and desert areas.



Horizontal Datum: WGS 1984
Grid: GCS WGS 1984



SWCA ENVIRONMENTAL CONSULTANTS
CAMINO SOLAR PROJECT

PROJECT LOCATION

Project No. 11145114
Revision No. -
Date 5/1/2019

FIGURE 1



Roadways that provide primary circulation in the vicinity of the project site include State Route 14, State Route 138, Rosamond Boulevard, Tehachapi-Willow Springs Road, and 170th Street West.

State Route 14 is a major east-west state route that traverses through Los Angeles County and is used for international, interstate, interregional and intraregional travel and shipping through an urbanized corridor. In addition, it is used as a commuter route. North of Los Angeles County, State Route 14 continues north-easterly into Kern County serving the communities of Rosamond, Mojave and Indian Wells, where it merges with US 395 near Inyo County in eastern California.

Within the vicinity of the study area, State Route 14 is a four-lane divided freeway with a dirt median. Access to State Route 14 is currently provided at the interchange with Rosamond Boulevard (PM 3.018). At the Rosamond Boulevard interchange, State Route 14 currently carries a back annual average daily traffic (AADT) of approximately 35,600 vehicles and an ahead AADT of 20,900 (Source: 2017 Traffic Volumes on the California State Highways, Caltrans Website). Truck traffic on State Route 14 represents approximately 5.8% of the daily traffic at the nearby Los Angeles/Kern County line (Source: 2017 Annual Average Daily Truck Traffic on the California State Highway System published by Caltrans).

State Route 138 (Avenue D) is an east-west state route that traverses through Northern Los Angeles County and is used for interstate, interregional and intraregional travel and shipping through a rural corridor, serving the Northern Los Angeles County area and it also serves as an interregional connector between the San Joaquin Valley and the San Bernardino/Riverside area. In addition, it is used as a commuter route.

Within the vicinity of the study area, State Route 138 is a two-lane undivided roadway system. At 110th St intersection, State Route 138 carries a back annual average daily traffic (AADT) 3,150 and an ahead AADT of 2,750 (Source: 2017 Traffic Volumes on the California State Highways, Caltrans Website). Additionally, this highway segment carries a daily truck traffic of approximately 5.4% (Source: 2017 Traffic Volumes on the California State Highways, Caltrans Website).

Rosamond Boulevard is a major east-west arterial that traverses southern Kern County. This roadway generally extends from 170th Street West east throughout Edward Air Force Base (AFB) and north where it terminates at State Route 58. Within the City of Rosamond, Rosamond Boulevard is a wide (100') 4-lane divided arterial with continuous center left turn lane (east of 35th Street) that provides access to State Route 14, local businesses, schools and residences along the corridor.

Tehachapi-Willow Springs Road provides congestion relief to southern Kern County. According to the most recent Kern County Circulation Element, a majority of traffic between Tehachapi and Antelope Valley uses State Route 14 and State Route 58; however, traffic also uses the 2-lane Tehachapi-Willow Springs Road. The Element further indicates that the County will need better circulation between Tehachapi and Antelope Valley as they



further develop. Currently, Tehachapi-Willow Springs Road extends from State Route 58 in Tehachapi to Rosamond Boulevard, where it continues southward into Los Angeles County as 90th Street West. Tehachapi-Willow Springs Road currently provides access to regional commuters, renewable energy facilities, agricultural lands and sparse residences.

170th Street West will primarily serve as the main access point of the proposed project. This north-south roadway will be utilized via Rosamond Boulevard to get to the private driveway used to provide access to employees and for temporary construction vehicles/equipment used at the site. 170th Street West is a 2-lane roadway that generally extends from State Route 138 (Los Angeles County) to north of Rosamond Boulevard to the project driveway.

90th Street will serve as an additional route to/from the proposed project. This north-south roadway will be utilized via State Route 138 to get to the proposed project. 90th Street is a 2-lane roadway that generally extends from Los Angeles County/Kern County line north where it transitions into Tehachapi-Willow Springs Road.

2.1.1 Existing Traffic Data

Traffic counts near the proposed site were conducted on Thursday, August 25, 2016. Additional counts were collected from local agencies. The following roadway segments are analyzed:

- 170th Street n/o Rosamond Boulevard
- 170th Street s/o Rosamond Boulevard
- 90th Street n/o Rosamond Boulevard
- 90th Street s/o Rosamond Boulevard
- Rosamond Boulevard 170th Street to 90th Street
- Rosamond Boulevard 90th Street to 35th Street
- Rosamond Boulevard 35th Street to State Route 14
- State Route 14 n/o Rosamond Boulevard*
- State Route 14 s/o Rosamond Boulevard*
- State Route 138 w/o 110th Street*
- State Route 138 e/o 110th Street*

** Caltrans 2017 Traffic Volumes on California State Highways were obtained from their website.*

3. Level of Service Methodology

Traffic operations have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection of roadway segment representing progressively worsening traffic conditions. The following section outlines the methodology and analysis parameters used to quantify existing conditions.

3.1 Roadway Capacity

Traffic count LOS were estimated using Highway Capacity Manual (HCM 6th Edition) methodologies. For standard roadways, LOS was estimated using ADT-based LOS thresholds, as presented in Table 3.1.



Table 3.1 Daily Roadway Capacity by Facility Type

Roadway Type	Average Daily Traffic (ADT) – Total of Both Directions				
	A	B	C	D	E
Six-Lane Freeway	42,000	64,800	92,400	111,600	120,000
Four-Lane Freeway	28,000	43,200	61,600	74,400	80,000
Six-Lane Divided Expressway	35,500	42,200	46,200	55,800	60,000
Four-Lane Divided Expressway	23,667	28,133	30,800	37,200	40,000
Four-Lane Divided Arterial	22,000	25,000	29,000	32,500	36,000
Four-Lane Arterial (w/LTL)	22,000	25,000	29,000	32,500	36,000
Four-Lane Arterial (No LTL)	18,000	21,000	24,000	27,000	30,000
Two-Lane Divided Arterial	11,000	12,500	14,500	16,000	18,000
Two-Lane Arterial (w/LTL)	11,000	12,500	14,500	16,000	18,000
Two-Lane Arterial (No LTL)	9,000	10,500	12,000	13,500	15,000
Two-Lane Roundabout Arterial	14,300	16,250	18,850	20,800	23,400
Four-Lane Collector	12,000	15,000	18,000	21,000	24,000
Two-Lane Collector	6,000	7,500	9,000	10,500	12,000
Two-Lane Local	1,000	2,000	3,000	4,000	5,000

Notes:

1. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.
2. No LTL indicates arterials without left turn lanes (LTL) at most major intersections.
3. Daily volume to capacity on freeways does not supplant the need to perform peak-hour HCM-based analysis.

3.2 Existing Traffic Operations

The LOS for the traffic counts were established using the capacities in Table 3.1. Table 3.2 contains a summary of the Existing roadway analysis and LOS conditions.



Table 3.2 Existing Roadway Segment LOS Conditions

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	170th Street	n/o Rosamond Boulevard	Two-Lane Collector	C	90	A
2	170th Street	s/o Rosamond Boulevard	Two-Lane Collector	C	740	A
3	90th Street	n/o Rosamond Boulevard	Two-Lane Collector	C	2,590	A
4	90th Street	s/o Rosamond Boulevard	Two-Lane Collector	C	1,190	A
5	Rosamond Boulevard	170th Street to 90th Street	Two-Lane Collector	C	770	A
6	Rosamond Boulevard	90th Street to 35th Street	Two-Lane Collector	C	1,130	A
7	Rosamond Boulevard	35th Street to State Route 14	Four-Lane Arterial (w/LTL)	C	24,650	B
8	State Route 14	n/o Rosamond Boulevard	Four-Lane Freeway	C	20,900	A
9	State Route 14	s/o Rosamond Boulevard	Four-Lane Freeway	C	35,600	B
10	State Route 138	w/o 110 th Street	Two-Lane Collector	C	3,150	A
11	State Route 138	e/o 110 th Street	Two-Lane Collector	C	2,750	A

Notes:

1. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.
2. Daily volume to capacity on freeways does not supplant the need to perform peak-hour HCM-based analysis.

As presented in Table 3.2, all roadway segments are operating at acceptable LOS C conditions or better under Existing conditions scenario.

4. Project Trip Generation

As indicated in the Introduction the proposed project is a commercial solar-generating facility situated in southern Kern County as identified in Figure 1. Typically, trip generation rates would be estimated utilizing documentation from the Institute of Transportation Engineers (ITE). However, the proposed land use is not represented in ITE Trip Generation (10th Edition). Therefore, in order to calculate trip generation for the proposed project, GHD spoke to the applicant, or project proponent, to discuss operations. Attachment A provides a detailed summary of Camino Solar Project Trip Generation.

4.1 Construction Vehicle and Passenger Car Equivalent (PCE) Trip Generation

Trip generation (Attachment A) was estimated for two phases: 1) Site Preparation and 2) Installation. Each phase describes vehicle purpose and type. The types of vehicles include passenger (commuters), and truck



type (pickup, water, flatbed, gravel, concreted, delivery trucks, etc.). In addition, a passenger car equivalent (PCE) was applied to vehicle type. A PCE is a metric used in transportation engineering to assess traffic-flow rate on a highway. A PCE is essentially the impact that a mode of transport has on highway variable (e.g., headway, speed, density, etc.) compared to a single passenger car. For this analysis, a conservative PCE of 2.0 was applied to account for large trucks. This is consistent with the HCM 6th Edition.

Trip generation for the construction phase is based on the types of vehicles used and the number of workers that are anticipated to report to the job site. Noise from construction limited by Kern County Ordinance 8.36.020 H between the hours of 9:00 p.m. and 6:00 a.m. on the weekdays and between the hours of 9:00 p.m. and 8:00 p.m. on the weekends. Therefore, construction may occur during the a.m. peak (7:00 – 9:00 a.m.) and the p.m. peak (4:00 to 6:00 p.m.) commute periods, even though construction activities will occur throughout the day.

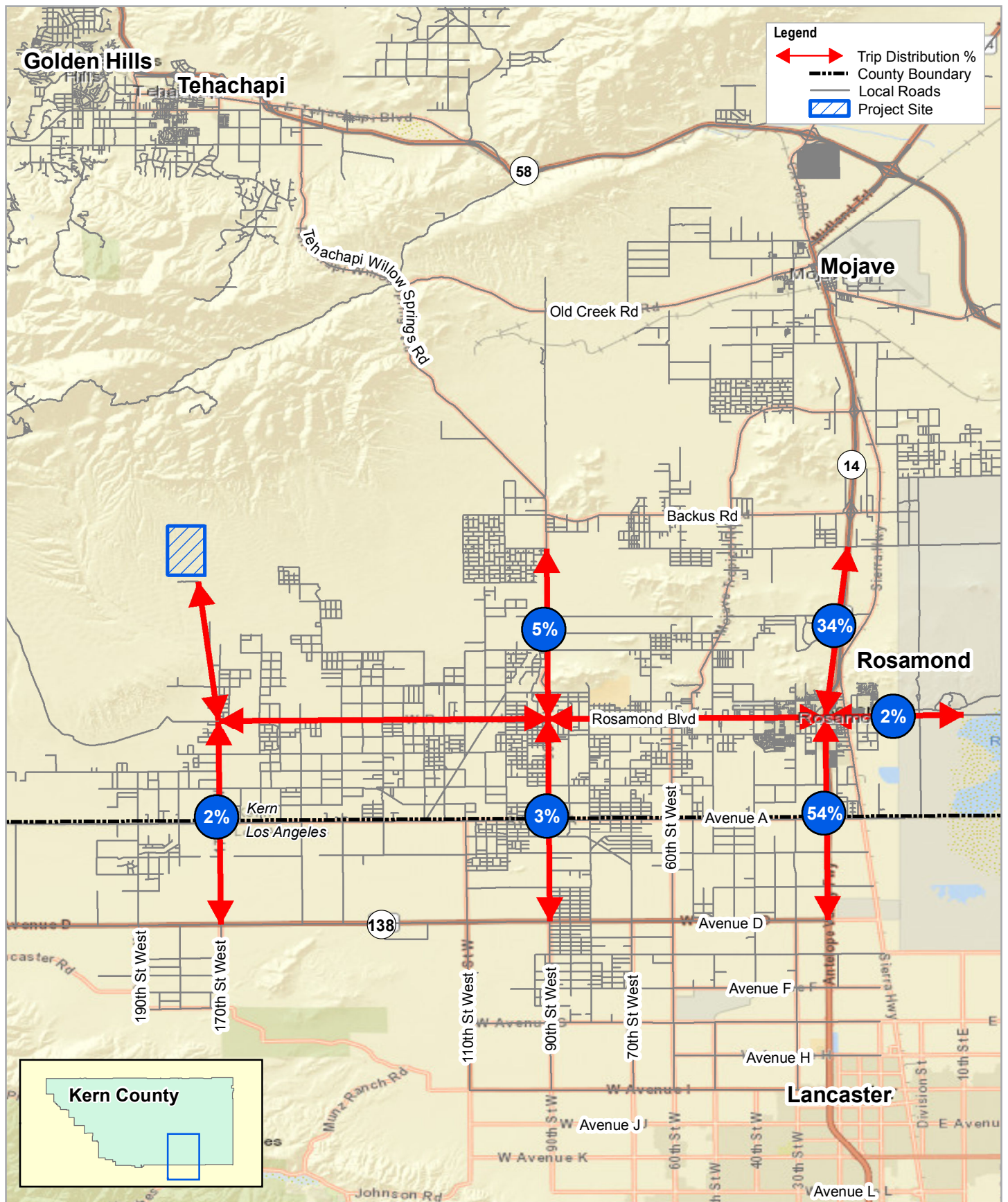
In order to simulate the worst-case trip generation scenario, construction workers are assumed to arrive in the a.m. peak hour and leave during the p.m. peak hour each weekday. Although some construction workers may carpool, this is not assumed under this phase, i.e., each worker will drive alone to/from work. Based upon our understanding of the project, 26 construction workers are anticipated to commute to the proposed project site during the first phase, Site Preparation (approximately 50 days), and 121 workers are expected to commute to the proposed project site during the second phase, Installation (approximately 150 days).

As shown in Attachment A, approximately 340 daily trips (including PCE factor) are forecasted to be generated for short-term construction purposes. This would include short-term AM and PM peak hour trips of 122, respectively, during the construction phases. Following construction, it is estimated that day to day operations and maintenance trips and trips related to the battery storage area would be minimal, i.e., 4 to 5 trips per day.

4.2 Project Trip Distribution

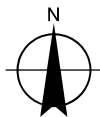
The project is expected to “generate” and “attract” construction-related trips throughout the county and from other locations throughout the region. However, the majority of trips will be from State Route 14. Based upon existing traffic flow patterns, geographical location of project site, location of other similar destinations and previous traffic impact studies. These considerations resulted in a distribution of project trip types throughout the study area shown in Figure 2 and assumed below:

- 2% to/from 170th Street south of Rosamond Boulevard (via State Route 138)
- 3% to/from 90th Street south of Rosamond Boulevard (via State Route 138)
- 5% to/from 90th Street north of Rosamond Boulevard
- 34% to/from State Route 14 north of Rosamond Boulevard
- 54% to/from State Route 14 south of Rosamond Boulevard
- 2% to/from State Route 14 east of Rosamond Boulevard



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SWCA ENVIRONMENTAL CONSULTANTS
CAMINO SOLAR PROJECT

Project Trip Distribution

Project No. 11195934
Date 5/1/2019

FIGURE 2



4.3 Existing plus Project Conditions

Table 4.1 shows the summary of the Existing plus Project roadway analysis and LOS conditions.

Table 4.1 Existing plus Project Roadway Segment LOS Conditions

#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	170th Street	n/o Rosamond Boulevard	Two-Lane Collector	C	430	A
2	170th Street	s/o Rosamond Boulevard	Two-Lane Collector	C	750	A
3	90th Street	n/o Rosamond Boulevard	Two-Lane Collector	C	2,610	A
4	90th Street	s/o Rosamond Boulevard	Two-Lane Collector	C	1,200	A
5	Rosamond Boulevard	170th Street to 90th Street	Two-Lane Collector	C	1,100	A
6	Rosamond Boulevard	90th Street to 35th Street	Two-Lane Collector	C	1,440	A
7	Rosamond Boulevard	35th Street to State Route 14	Four-Lane Arterial (w/LTL)	C	24,960	B
8	State Route 14	n/o Rosamond Boulevard	Four-Lane Freeway	C	21,020	A
9	State Route 14	s/o Rosamond Boulevard	Four-Lane Freeway	C	35,790	B
10	State Route 138	w/o 110 th Street	Two-Lane Collector	C	3,170	A
11	State Route 138	e/o 110 th Street	Two-Lane Collector	C	2,760	A

Notes:

1. w/LTL indicates arterials with either continuous center left turn lane (LTL) or left turn lanes at major intersections.
2. Daily volume to capacity on freeways does not supplant the need to perform peak-hour HCM-based analysis.
3. Average Daily Traffic, ADT

As presented in Table 4.1, all roadway segments are forecasted to operate at acceptable LOS C conditions or better under Existing plus Project conditions scenario.

5. Cumulative Conditions

Under Cumulative conditions, it is necessary to determine approved/pending projects that could potentially generate construction traffic in the vicinity of the project during the same time frame as the Camino Solar Project. A list of proposed East Kern County projects has been developed for solar and non-solar projects. 20 projects were identified and are shown in the Attachment B. Kern County Planning Department requested that a Construction Trip Generation Analysis be completed to evaluate the potential for Project construction that may conflict with other projects within a 6-mile radius. As a result, a cumulative projects map for East Kern County was developed and is also shown in the Attachment C.



Of the 20 projects listed, 9 fall within the 6-mile radius. Of those 9 projects, only one project was listed in the Kern County Planning and Natural Resources Department website as recorded an environmental document, named as Rosamond Solar Array Projects by Rosamond Solar LLC, therefore was included in the cumulative analysis because the project could reasonably contribute construction traffic volumes to the study area roadways during construction.

The remaining 8 projects listed were not included in the cumulative analysis. Per Table 3-5: Cumulative Project List that was provided to Kern County for similar studies, the project status and case type fields were missing information and needed to be updated. In general, these projects have not progressed to the point of being considered pending or approved. Further research regarding the status of the 8 projects was conducted via the online information posted on the Kern County Planning and Natural Resources Department website (Environmental Documents Archive), which did not list any of the 8 projects from the project list that was provided.

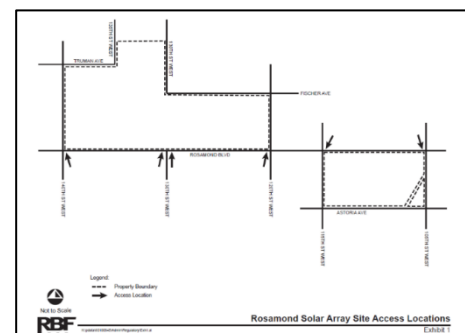
5.1 Project Trip Generation

The Rosamond Solar Array Project encompasses 1,175 acres on two non-contiguous areas approximately 0.5 miles apart. Although the construction period for the Rosamond Solar Array Project cannot be determined with certainty, this analysis conservatively assumes that it would overlap with the Project's construction period. As described in the executive summary of the Rosamond Solar Array Project Traffic Impact Analysis report located within the Rosamond Recirculated DEIR (Attachment D) and in the list of proposed East Kern County projects, the first and larger of the two sites is located north of the intersection of Rosamond Boulevard and 130th Street West. The smaller site is located south of the intersection of Rosamond Boulevard and 110th Street West. The project description from both of these sources affirmed that the project listed in the list of 20 projects is the same project identified in the Rosamond Solar Array Project Traffic Impact Analysis report.

According to the Rosamond Solar Array Project Traffic Impact Analysis report executive summary, construction related activity associated with the proposed project is forecast to generate approximately 964 daily trips, which include approximately 450 a.m. and 450 p.m. peak hour trips.

5.2 Project Trip Distribution

The Rosamond Solar Array project is expected to “generate” and “attract” construction-related trips throughout the county and from other locations throughout the region. Project site access to both sites are noted in Exhibit 1 of the Rosamond Solar Array Project Traffic Impact Analysis report and is copied here (image to right). According to Exhibit 1, the primary route to access the site is Rosamond Boulevard. Likewise, the Camino Solar Farm





proposed project also accesses Rosemond Boulevard as the main roadway segment to the site. Therefore, forecasted project trip distribution for the Rosamond Solar Array project will be consistent with the Camino Solar project trip distribution based upon existing traffic flow patterns and geographical location of project site. Figure 3 illustrates the project trip distribution of the Rosamond Solar Array project in relation to the proposed Camino Solar Farm project.

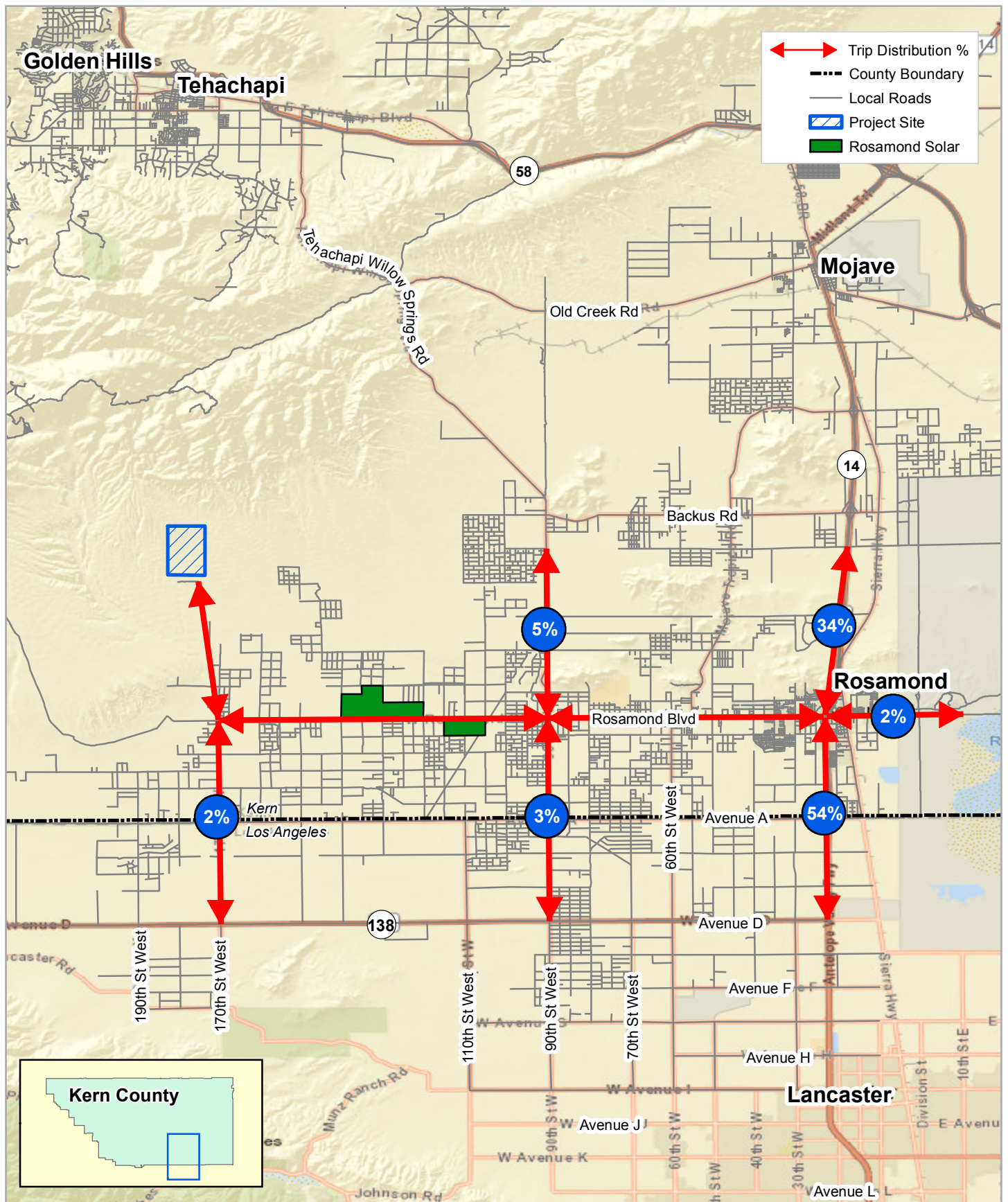
5.3 Existing plus Project plus Cumulative Conditions

Table 5.1 shows the summary of the Existing plus Project plus Cumulative roadway analysis and LOS conditions based on the forecasted 964 daily trips.

Table 5.1 Existing plus Project plus Cumulative Roadway Segment LOS Conditions

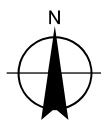
#	Roadway	Location	Facility Type (# of Lanes)	Target LOS	Average Daily Traffic	LOS
1	170th Street	n/o Rosamond Boulevard	Two-Lane Collector	C	430	A
2	170th Street	s/o Rosamond Boulevard	Two-Lane Collector	C	770	A
3	90th Street	n/o Rosamond Boulevard	Two-Lane Collector	C	2,610	A
4	90th Street	s/o Rosamond Boulevard	Two-Lane Collector	C	1,200	A
5	Rosamond Boulevard	170th Street to 90th Street	Two-Lane Collector	C	2,050	A
6	Rosamond Boulevard	90th Street to 35th Street	Two-Lane Collector	C	2,310	A
7	Rosamond Boulevard	35th Street to State Route 14	Four-Lane Arterial (w/LTL)	C	25,830	C
8	State Route 14	n/o Rosamond Boulevard	Four-Lane Freeway	C	21,380	A
9	State Route 14	s/o Rosamond Boulevard	Four-Lane Freeway	C	36,310	B
10	State Route 138	w/o 110 th Street	Two-Lane Collector	C	3,170	A
11	State Route 138	e/o 110 th Street	Two-Lane Collector	C	2,760	A

As presented in Table 5.1, all roadway segments are forecasted to operate at acceptable LOS C conditions or better under Existing plus Project plus Cumulative conditions scenario.



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CAMINO SOLAR PROJECT

**Trip Distribution
Existing + Project + Cumulative**

Project No. 11195934
Date 5/1/2019

FIGURE 3



6. Summary/Conclusion

Based upon the analysis presented in this Memorandum, the proposed project plus cumulative conditions is not expected to have significant traffic related impacts to the existing roadway system. Short-term construction impacts will occur; however, the overall capacity of the study roadways will be able to accommodate additional vehicles and heavy-duty trucks. Day-to-day operations will have a less than significant impact on roadways. Although impacts would be less than significant, the following recommendations are included below:

- Damaged Roads
- Traffic Control Plan
- Encroachment Permits
- Transportation Permits

As indicated in the Camino Solar Project Plan of Development (SWCA Environmental Consultants, May 2017), during construction, no significant excavation or fill would be required for road construction. After use by heavy construction equipment, access road will be regraded and additional rock may be added. Road side ditches would be excavated as needed direct water away from the road surface and maintain natural drainage patterns. Excavated soil and rock would be used for road construction or distributed on site. Additional rock for road surfacing would be obtained from a permitted quarry selected by the contractor. Material sources would not be developed on BLM land.



Attachments

- Attachment A: Camino Solar Project Trip Generation
- Attachment B: Cumulative Project List (Solar/Other Non-solar Projects)
- Attachment C: Cumulative Project Map – Kern County Planning and Natural Resources Department
- Attachment D: Rosamond Recirculated DEIR – Volume 2 Appendices J-R
- Metro Traffic Data
- Caltrans Traffic Volumes/Daily Truck Percentages

Attachment A

Camino Solar Project Trip Generation



Attachment A: Camino Solar Project Construction Phase Trip Generation

Phase		Construction Vehicles				Vehicle Trip Generation							PCE Trip Generation						
						ADT	AM Peak Hour			PM Peak Hour			ADT	AM Peak Hour			PM Peak Hour		
Description	Duration	Description	#	Vehicle Type	PCE		In	Out	Tot	In	Out	Tot		In	Out	Tot	In	Out	Tot
1) Site Preparation	50 Days	Workers	13	Passenger	1.0	26	13		13		13	13	26	13		13		13	13
		Pickup Truck	5	Passenger	1.0	10	5		5		5	5	10	5		5		5	5
		Water, Flatbed, Gravel, Concrete, Delivery Trucks, etc.	8	Large Truck	2.0	16	2	2	4	2	2	4	32	4	4	8	4	4	8
		Subtotal	26			52	20	2	22	2	20	22	68	22	4	26	4	22	26
2) Installation	150 Days	Workers	100	Passenger	1.0	200	100		100		100	100	200	100		100		100	100
		Pickup Truck	6	Passenger	1.0	12	6		6		6	6	12	6		6		6	6
		Water, Flatbed, Gravel, Concrete, Delivery Trucks, etc.	15	Large Truck	2.0	30	4	4	8	4	4	8	60	8	8	16	8	8	16
		Subtotal	121			242	110	4	114	4	110	114	272	114	8	122	8	114	122
		TOTAL TRIPS	147			294	130	6	136	6	130	136	340	136	12	148	12	136	148

PCE = Passenger Car Equivalent

Note: Rounding Errors May Occur

Attachment B

Cumulative Project List (Solar/Other Non-solar Projects)

TABLE 3-5: CUMULATIVE PROJECTS LIST

Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage	Project Status
EAST KERN COUNTY PROJECTS – FIGURE 3-7 [Note to County: “X” indicates info that is missing/should be updated as it was not provided in cumulative list]							
SOLAR PROJECTS							
1. David Firestone	5 miles west of Willow Springs Rd	X	X	20 MW Solar	400-053-02	160	X
2. EDF Renewable Development Inc.- Richard Miller	W. of Rosamond, Southwest of SR 58	X	X	Commercial (100 MW) Solar Photovoltaic Facility	358-021-04	2,250	X
3. EDF Renewable Energy (enXco) / Catalina Solar 2 LL	Backus Rd - w of Tech Will Springs	X	X	Original Project: Catalina 350 MW Wind & Solar Project Current Request: Catalina Solar 2 to amend Catalina 350 MW Wind & Solar Project. This CUP is for the solar facility. Catalina Wind & Solar Project (This CUP is for the temporary batch plants)	X	X	X
4. Kingbird Solar	Northwest corner of 170th Street West and Avenue A	40 MW solar facility	SPA, ZCC, CUP	3/ZCC 16 /CUP 9 Map 233	261-196-07	324 acres	Approved October 2014
5. Mon-Wei Lin	SWC Rosamond Blvd & 130th St. West	X	CUP	Solar facility	359-020-05	321.22	X
6. Renewable Resources/Ru Pal Patel	Between 115 St. West & 190 St. West	X	X	Vacation of public access easements in conjunction with solar project	359-011-0	X	X
7. Rosamond Solar, LLC by First Solar/Rosamond Solar, LLC	Two sites; the larger site is located north of the intersection of Rosamond Boulevard and 130th Street West. The smaller site is located south of the intersection of Rosamond Boulevard and 110th Street West	150 MW solar facility	GPA 14, ZCC 31, CUP 25, Map 232	Info unavailable	Info unavailable	1,177	Approved October 2014
8. Rosamond Solar by SGS Antelope Valley	Portion of Sec 29, 32 and 33 of Sec 9/14	120 MW solar facility	GPA, ZCC, CUP	GPA, ZCC and CUP for a PV solar facility	359-350-01	960 acres	Approved 11/9/2010

TABLE 3-5: CUMULATIVE PROJECTS LIST

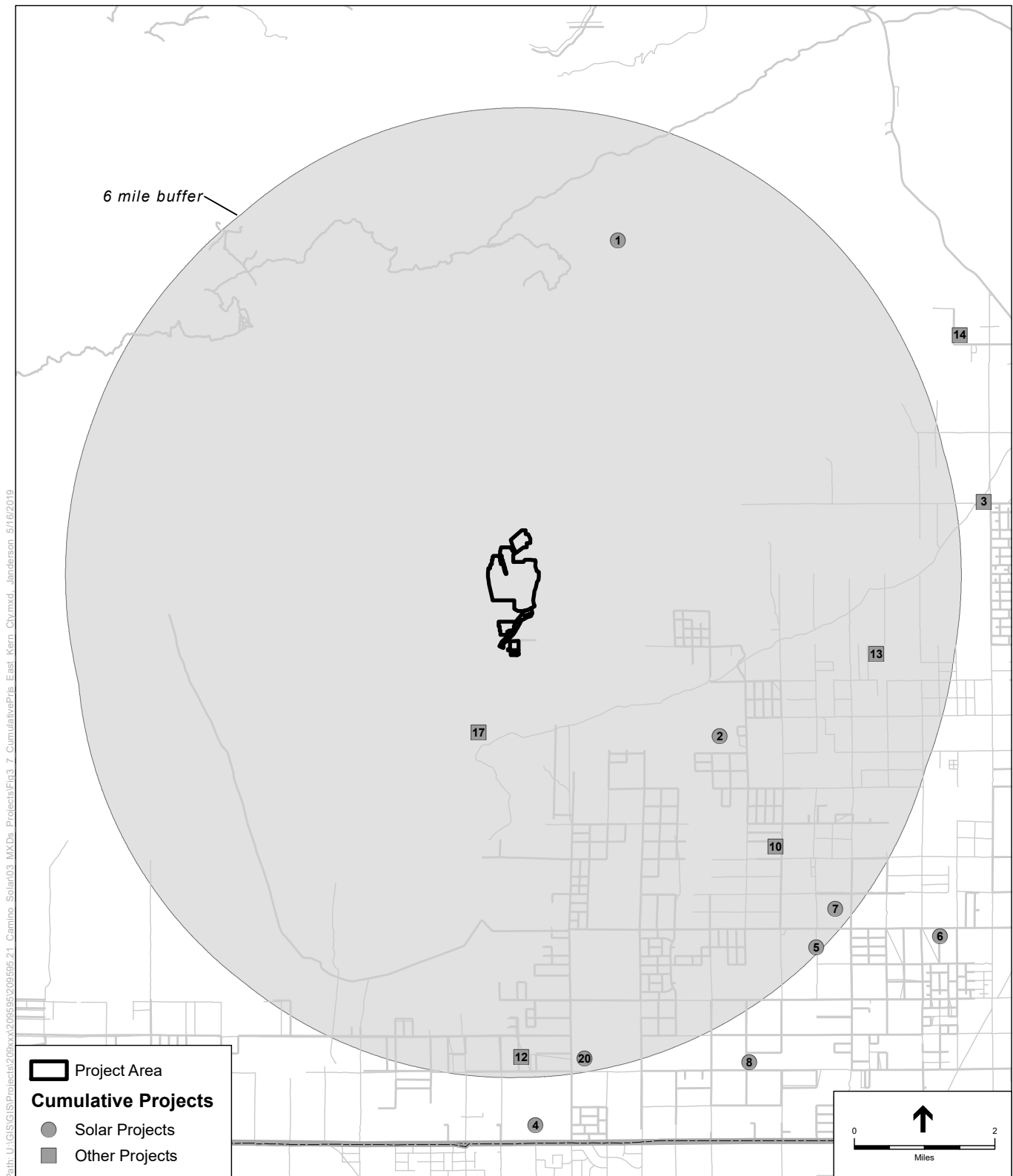
Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage	Project Status
9. Willow Springs Solar Array by First Solar	Northwest of Rosamond	160 MW solar facility	GPA 15, ZCC 32, CUP 26, Map 232	GPA , ZCC, CUP for a PV solar facility, ZCC from SP to A	359-052-02, 359-031-02, 03, 04, 05, 06, 15, 359-032-01, 17	1,402 acres	Approved March 2016
OTHER NON-SOLAR PROJECTS							
10. Bruce Hatchett	14070 Lodestar Avenue, Rosemond	X	X	Wind turbine on 100-foot tower	358-132-07	4.99	X
11. Cameron Canyon Ridgeline Wind Project by Jon Lantz	South of Cameron Canyon Road.	GPA to accommodate small wind energy project; zone change to accommodate small wind energy project	GPA and ZCC	GPA and ZCC for small wind energy project	237-201-10	20.53 acres	Active
12. Dennis Harper	Gaskell and 170th St West	X	X	Easement vacations	261-194-36	X	X
13. EDF Renewable Energy/BAR 13 Solar	125th Street W. Champagne Ave	X	X	Installation of microwave/communication tower with associated uses within a fenced yard	474-131-03	38.58	X
14. Frieling, Diana	11354 115th St. West, Rosamond	X	CUP	Wild animal keeping	474-083-06	40	X
15. Makshanoff, Lena	260th Street/Patterson	X	X	Cargo containers	254-450-23	2.27	X
16. McDaniel, Lowell by Landmark Surveying	2 miles S of Cameron Cyn & Hwy 58	X	X	Lot size	237-241-08	X	X
17. Pacific Wind/ENXCO Development Corp	Intersection of Rosamond Blvd & 170th W	X	X	177- and 277-foot setbacks from APN boundary & public access easements	261-014-15	X	X
18. Renewable Resources Group Holding Company, Inc.		X	X	X	X	X	X
19. Renewable Resources Group Holdings	Rosamond	X	X	X	X	5,698	X
20. WDS CAL II LLC	AVSP	X	X	Street vacations	X	X	X

Attachment C

Cumulative Project Map – Kern County Planning and
Natural Resources Department



KERN COUNTY PLANNING AND NATURAL RESOURCES DEPARTMENT
CAMINO SOLAR PROJECT



Note to Reviewer: Not all projects on the cumulative projects list are located within the extent of this map. Also, numbers 18 and 19 need additional location information from the County before they can be mapped.

Figure 3-7: CUMULATIVE PROJECTS MAP
EAST KERN COUNTY

Attachment D

Rosamond Recirculated DEIR – Volume 2 Appendices J-R

ROSAMOND SOLAR ARRAY PROJECT TRAFFIC IMPACT ANALYSIS



Prepared by



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July 20, 2012

JN 60-100645

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LIST OF EXHIBITS

Exhibit 1	Rosamond Solar Site Access Locations.....	Follows Page 2
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EXECUTIVE SUMMARY

This study analyzes the forecast traffic operations associated with the proposed Rosamond Solar Array project in the unincorporated Rosamond area of the County of Kern. The 1,175 acre *Rosamond Solar Array* project is located approximately 10 miles west of the community of Rosamond in unincorporated County of Kern. It is comprised of 1,175 acres on two non-contiguous areas approximately 0.5 mile apart. The first and larger of the two sites is located north of the intersection of West Rosamond Boulevard and 130th Street West. The second site is located south of the intersection of West Rosamond Boulevard and 110th Street West. The project is generally bordered by Irone Avenue to the north, 105th Street West to the east, Astoria Avenue to the south and 140th Street West to the west.

Construction-related activity associated with the proposed project is forecast to generate approximately 964 daily trips, which include approximately 450 a.m. peak hour trips and approximately 450 p.m. peak hour trips. It should be noted, this is a conservative trip generation assumption for the following reasons:

- All trip generation occurs during the peak hours;
- Trip generation conservatively assumes all construction related employees arrive on the site during the a.m. peak hour and depart the site during the p.m. peak hour;
- Trip generation conservatively assumes no shuttle or carpooling activity to and from the project site by onsite construction employees; and
- All system delivery and construction equipment deliveries occur via truck/motor vehicle with no transport via railroad.

Conservatively assuming all project construction-related trips are added to the study roadways, no significant impacts are forecast to occur for existing with project construction conditions. Since the project trips can be routed to Rosamond Boulevard, Avenue A, and Avenue D (SR-138), no project impacts are forecast at the SR-14/Rosamond Boulevard interchange.

Since the addition of project construction generated trips is forecast to result in no significant impacts at the study roadways, no mitigation measures are recommended.

INTRODUCTION

This study analyzes the forecast traffic operations associated with the proposed Rosamond Solar Array project in the unincorporated Rosamond area of the County of Kern. The 1,175 acre *Rosamond Solar Array* project is located approximately 10 miles west of the community of Rosamond in unincorporated County of Kern. It is comprised of 1,175 acres on two non-contiguous areas approximately 0.5 mile apart. The first and larger of the two sites is located north of the intersection of West Rosamond Boulevard and 130th Street West. The second site is located south of the intersection of West Rosamond Boulevard and 110th Street West. The project is generally bordered by Irone Avenue to the north, 105th Street West to the east, Astoria Avenue to the south and 140th Street West to the west.

Exhibit 1 shows the project site location and site access locations.

Resource Documents

This traffic analysis has been prepared consistent with the following agency documents:

- *Division Nine, Standards For Traffic Engineering, (County of Kern);*
- *Kern County General Plan Circulation Element (March 13, 2007); and*
- *Guide for the Preparation of Traffic Impact Studies (Caltrans, December 2002).*

Study Area

This study evaluates the following three (3) roadway segments in the vicinity of the project site:

1. SR-14 south of Rosamond Boulevard;
2. SR-138 west of 110th Street West; and
3. Rosamond Boulevard east of 90th Street West.

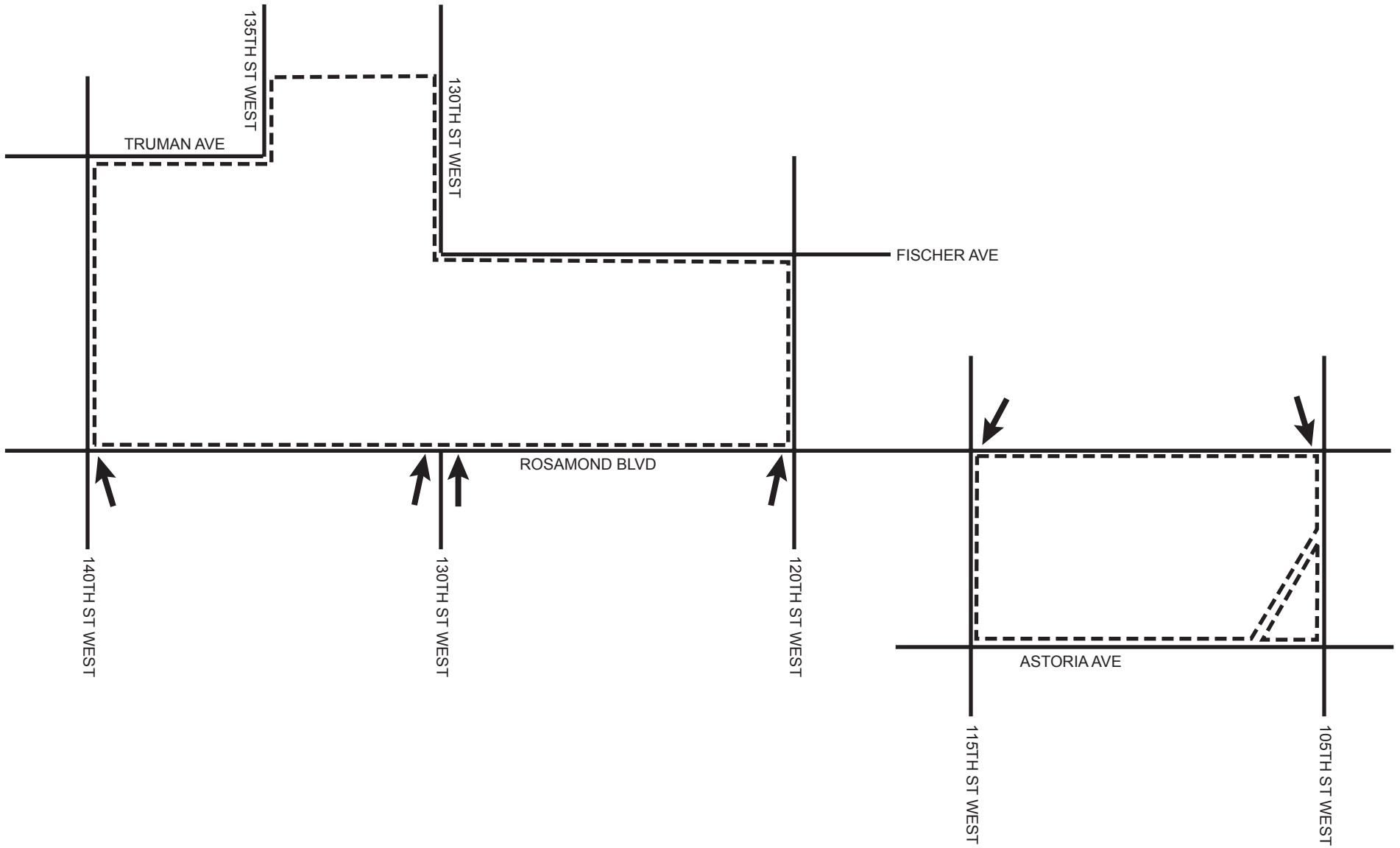
The study roadways are analyzed for the following study scenarios:

- Existing Conditions; and
- Forecast Existing With Project Construction Conditions.

Forecast Existing With Project (Post-Construction) Conditions analysis is not included since the project-related trips during typical operations are negligible and is limited to nominal maintenance and security staff.

Analysis Methodology

Level of service (LOS) is commonly used as a qualitative description of roadway segment operation and is based on the capacity of the roadway segment and the volume of traffic using the roadway segment. This report includes Volume-to-Capacity (V/C) analysis methodology to determine the operating LOS of the roadway segments.



Legend:

- Property Boundary
- ➔ Access Location



Not to Scale



Rosamond Solar Array Site Access Locations

The V/C analysis methodology describes the operation of a roadway segment using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding Volume/Capacity (V/C) ratios shown in Table 1.

Table 1
V/C & LOS Ranges

Roadway Segment	
V/C Ratio	LOS
≤ 0.60	A
$> 0.61 \leq 0.70$	B
$> 0.71 \leq 0.80$	C
$> 0.81 \leq 0.90$	D
$> 0.91 \leq 1.00$	E
> 1.00	F

Source: 1990 Transportation Research Board.

Performance Criteria

As identified in the *Willow Springs Specific Plan*, the target for roadway operation is LOS D or better. As identified in the *Guide for the Preparation of Traffic Impact Studies*, the Caltrans target for peak hour intersection operation is LOS C or better. This report assumes the intersection performance criteria is applicable to the roadway segments.

Thresholds of Significance

The Kern County General Plan Circulation Element has established the following traffic threshold of significance:

- A significant project impact occurs and mitigation is required if development causes affected roadways to fall below Level of Service D. Since the Willow Springs area target is LOS C, a significant project impact is assumed if development causes affected roadways to fall below Level of Service D.

While Caltrans has not established traffic thresholds of significance at intersections, this traffic analysis utilizes the following traffic threshold of significance:

- A significant project impact occurs at a study intersection when the addition of project-generated trips causes the peak hour level of service of the study intersection to change from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E, or F).

EXISTING CONDITIONS

Existing Conditions Traffic Volumes

Table 2 summarizes the 2010 Peak Hour and Annual Average Daily Traffic (AADT) for SR-138 and SR-14 in the project vicinity, based on Caltrans traffic census data.

Table 2
Traffic Volumes for Caltrans Roadways in Project Vicinity

District	Route	County	Post Mile	Description	Peak Hour	Peak Month ADT	Annual AADT
6	14	Kern	0	Los Angeles/Kern County Line	3,000	32,000	31,000
6	14	Kern	3.018	Rosamond Boulevard	2,850	32,500	31,000
6	14	Kern	12.147	Silver Queen Road	2,000	18,800	17,600
7	138	Los Angeles	14.534	245 th Street West	410	4,550	3,900
7	138	Los Angeles	28.054	110 th Street West	480	3,200	2,850
7	138	Los Angeles	36.874	Junction Route 14 North	640	4,200	3,750

Source: Caltrans website (<http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2010all/index.html>).

As shown Table 2, based on Caltrans year 2010 published traffic census data, the SR-14 peak hour volumes in the project vicinity range from 2,000 to 3,000, and the SR-138 peak hour volumes in the project vicinity range from 410 to 640.

Additionally, based on published data provided by Kern County Roads Department, the peak hour traffic volumes on Rosamond Boulevard east of 90th Street West were 196 vehicles in year 2007.

PROPOSED PROJECT

The 1,175 acre *Rosamond Solar Array* project is located approximately 10 miles west of the community of Rosamond in unincorporated County of Kern. It is comprised of 1,175 acres on two non-contiguous areas approximately 0.5 mile apart. The first and larger of the two sites is located north of the intersection of West Rosamond Boulevard and 130th Street West. The second site is located south of the intersection of West Rosamond Boulevard and 110th Street West. The project is generally bordered by Irone Avenue to the north, 105th Street West to the east, Astoria Avenue to the south and 140th Street West to the west.

Project Site Access

Regional access to the project site is provided via State Route 138 (SR-138) and State Route 14 (SR-14). SR-138 is a two-lane highway with at-grade intersections. SR-138 originates on the west at Interstate 5 and terminates on the east at State Route 18 in Crestline (east of Interstate 15).

SR-14 is a four-lane divided freeway with grade-separated interchanges at Rosamond Boulevard and Avenue A. SR-14 originates on the south at Interstate 5 and terminates on the north at US-395. The SR-14/Rosamond Boulevard interchange appears well-designed to

accommodate current traffic demands, and includes traffic signals at the ramps intersections and a four-lane Rosamond Boulevard crossing over SR-14.

A grid system of roadways provides local access to the project site. The following roadways in the project vicinity are paved:

- Rosamond Boulevard;
- Avenue A;
- Avenue D (SR-138);
- 140th Street West south of Avenue A;
- 140th Street West north of Rosamond Boulevard;
- 110th Street West south of Avenue A; and
- 100th Street West between Avenue A and Rosamond Boulevard.

Site access to the project site is planned via six access points Rosamond Boulevard, as shown in Exhibit 1.

Construction-Related Trip Generation

To determine construction-related forecast trip generation for the proposed project, the project description and planned construction staging operations were reviewed to identify construction-related trips and system/materials-related trips. The anticipated maximum number of employees onsite during construction activity is approximately 450 workers. Construction is expected to last for 24 months and would include 1 month of site move-on activities and 23 months for the PV facility grading, installation, testing, and cleanup work. Construction of the PV arrays would be expected to take place at a rate of approximately 2 MW AC per week. This analysis conservatively assumes all construction related employees arrive on the site during the a.m. peak hour and depart the site during the p.m. peak hour. System and Materials Delivery trips are assumed delivered to the site during non-peak periods, and were determined based on the total equipment and deliveries needed for construction, divided by the estimated number of working days.

Trip generation for the morning and evening peak hours, as well as daily traffic is summarized in Table 3 for the following categories:

- Onsite Employees; and
- System/Materials/Concrete Delivery.

Table 3
Forecast Construction-Related Trip Generation of Proposed Project

Trip Generation Source	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
Onsite Employees	450	0	450	0	450	450	900
System/Materials/Concrete Delivery	0	0	0	0	0	0	64
Total Trip Generation	450	0	450	0	450	450	964

As shown in Table 3, construction-related activity associated with the proposed project is forecast to generate approximately 964 daily trips, which include approximately 450 a.m. peak hour trips and approximately 450 p.m. peak hour trips. It should be noted, this is a conservative trip generation assumption for the following reasons:

- All trip generation occurs during the peak hours;
- Trip generation conservatively assumes all construction related employees arrive on the site during the a.m. peak hour and depart the site during the p.m. peak hour;
- Trip generation conservatively assumes no shuttle or carpooling activity to and from the project site by onsite construction employees; and
- All system delivery and construction equipment deliveries occur via truck/motor vehicle with no transport via railroad.

Project Operation and Maintenance-Related Trip Generation

Upon completion of construction activities, the Rosamond Solar Project will operate 365 days a year and would generate power during daylight hours. While the proposed project would be largely self-sufficient upon completion of construction, periodic on-site maintenance and monitoring activities would be required. Once placed into service, the proposed project would have an on-site staff of up to 16 personnel to conduct preventative and corrective maintenance, and to maintain the security of the project site.

Any required maintenance, however, will be scheduled to avoid peak energy load periods, and unplanned maintenance will typically be responded to as needed depending on the event. It should be noted, preventative maintenance kits and certain critical spares will be typically stored onsite, while all other components will be readily available from a remote warehouse facility. During Project operations, routine washing of the PV modules is not anticipated to be required; however, the Project includes provisions for washing the modules up to two times per year, if needed. The water for washing the modules may be supplied by the on-site well or be trucked to the site. As such, trip generation for project operation and maintenance will be minimal and is forecast to not substantially affect the local roadway network.

LEVEL OF SERVICE ANALYSIS

The following peak hour traffic analysis has been prepared to evaluate roadway capacity assuming the addition of project construction-related trips to the nearby roadways. The traffic volume of operation and maintenance vehicles during post-construction conditions is nominal and is, therefore, not forecast to impact the nearby circulation system.

Table 4 summarizes the Volume-to-Capacity (V/C) Ratio calculations for the study roadways assuming all project traffic is added to each study roadway, despite the fact that trips will disperse over the surrounding circulation system.

Table 4
Forecast Existing With Project Construction Conditions

Roadway	Peak Hour Capacity	Existing Conditions		Project ADT Assignment	Existing + Project Construction		
		Peak Hour Volume	V/C – LOS		Peak Hour Volume	V/C – LOS	Significant Impact?
SR-14 South of Rosamond Blvd	8,800	2,850	0.32 – A	450	3,300	0.38 – A	No
SR-138 West of 110 th Street West	3,200	480	0.15 – A	450	930	0.29 – A	No
Rosamond Blvd East of 90 th Street West	3,200	196	0.06 – A	450	646	0.20 – A	No

As shown Table 4, conservatively assuming all project construction-related trips are added to the study roadways, the study roadways will continue to operate at an acceptable LOS (LOS C or better).

As also shown in Table 4, conservatively assuming all project construction-related trips are added to the study roadways, no significant impacts are forecast to occur for existing with project construction conditions.

As discussed, the SR-14/Rosamond Boulevard interchange appears well-designed to accommodate current traffic demands, and includes traffic signals at the ramps intersections and a four-lane Rosamond Boulevard crossing over SR-14. Traffic volumes from the project construction-related trips are expected to utilize multiple roadways and not affect the capacity of nearby local and regional roadways. Since the project trips can be routed to Rosamond Boulevard, Avenue A, and Avenue D (SR-138), no project impacts are forecast at the SR-14/Rosamond Boulevard interchange.

TRAFFIC CONTROL PLANNING

Since traffic volumes on many of the roadways are minimal, utilization of County of Kern accepted traffic control signs are recommended to identify locations where employees or construction-related vehicles turn off of local roadways to access the project site.

MITIGATION MEASURES

Since the addition of project construction generated trips is forecast to result in no significant impacts at the study roadways, no mitigation measures are recommended.

CONCLUSIONS

Construction-related activity associated with the proposed project is forecast to generate approximately 964 daily trips, which include approximately 450 a.m. peak hour trips and approximately 450 p.m. peak hour trips. It should be noted, this is a conservative trip generation assumption for the following reasons:

- All trip generation occurs during the peak hours;
- Trip generation conservatively assumes all construction related employees arrive on the site during the a.m. peak hour and depart the site during the p.m. peak hour;
- Trip generation conservatively assumes no shuttle or carpooling activity to and from the project site by onsite construction employees; and
- All system delivery and construction equipment deliveries occur via truck/motor vehicle with no transport via railroad.

Conservatively assuming all project construction-related trips are added to the study roadways, no significant impacts are forecast to occur for existing with project construction conditions. Since the project trips can be routed to Rosamond Boulevard, Avenue A, and Avenue D (SR-138), no project impacts are forecast at the SR-14/Rosamond Boulevard interchange.

Since the addition of project construction generated trips is forecast to result in no significant impacts at the study roadways, no mitigation measures are recommended.

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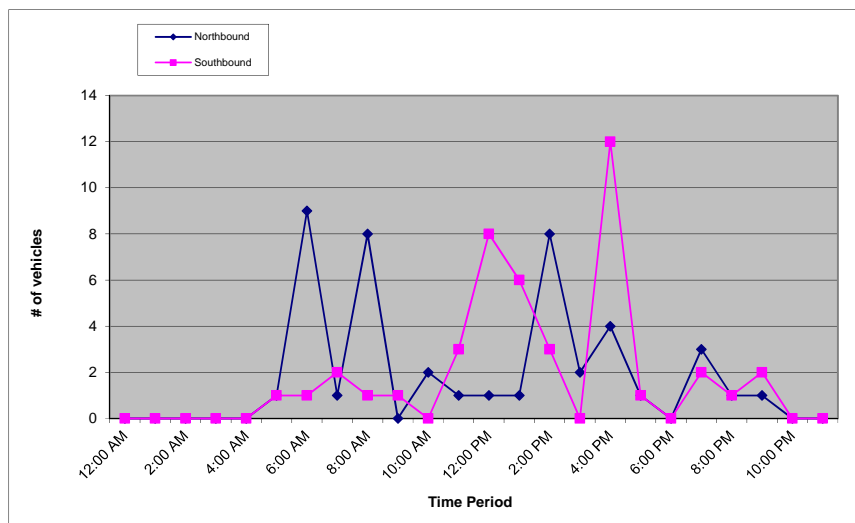
24 Hour Count Report

Prepared For: **OMNI-Means**
 943 Reserve Drive
 Roseville, CA 95678

STREET 170th St
SEGMENT North of Rosamond Blvd
COLLECTION DATE Thursday, August 25, 2016
NUMBER OF LANES 2
LATITUDE 34.8641285
LONGITUDE -118.4323128
WEATHER Clear

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Totals
12:00 AM	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	1	0	0	1	0	0	1	0	1	2
6:00 AM	0	2	6	1	9	0	0	1	0	1	10
7:00 AM	1	0	0	0	1	0	0	0	2	2	3
8:00 AM	1	4	3	0	8	0	1	0	0	1	9
9:00 AM	0	0	0	0	0	1	0	0	0	1	1
10:00 AM	0	0	2	0	2	0	0	0	0	0	2
11:00 AM	1	0	0	0	1	1	2	0	0	3	4
12:00 PM	0	1	0	0	1	1	1	1	5	8	9
1:00 PM	0	1	0	0	1	0	0	3	3	6	7
2:00 PM	0	0	4	4	8	0	0	3	0	3	11
3:00 PM	2	0	0	0	2	0	0	0	0	0	2
4:00 PM	1	0	0	3	4	3	0	6	3	12	16
5:00 PM	0	0	1	0	1	0	1	0	0	1	2
6:00 PM	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	2	0	1	0	3	0	1	0	1	2	5
8:00 PM	0	0	0	1	1	1	0	0	0	1	2
9:00 PM	0	0	1	0	1	1	0	0	1	2	3
10:00 PM	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0
Total	50.0%				44	50.0%				44	
	88										

AM% 35.2% AM Peak 11 6:15 am to 7:15 am AM P.H.F. 0.39
 PM% 64.8% PM Peak 16 4:00 pm to 5:00 pm PM P.H.F. 0.67





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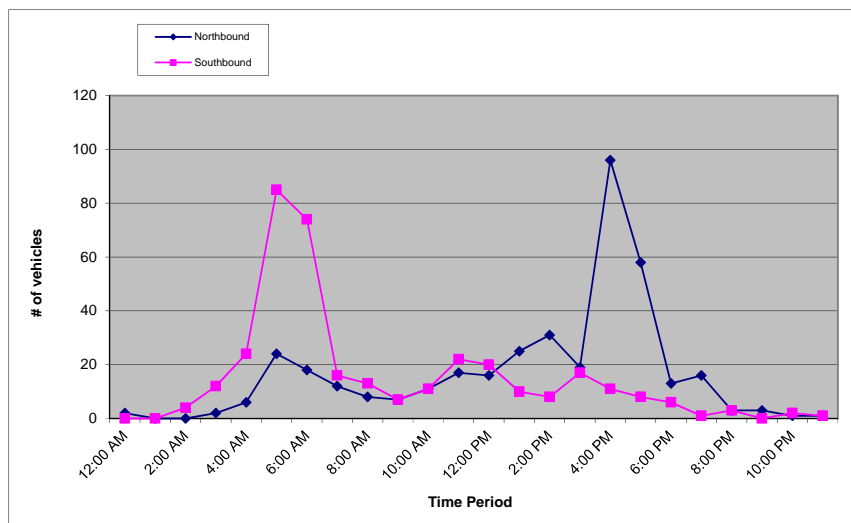
24 Hour Count Report

Prepared For: **OMNI-Means**
 943 Reserve Drive
 Roseville, CA 95678

STREET 170th St
SEGMENT South of Rosamond Blvd
COLLECTION DATE Thursday, August 25, 2016
NUMBER OF LANES 2
LATITUDE 34.8611376
LONGITUDE -118.432416
WEATHER Clear

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Totals
12:00 AM	0	1	0	1	2	0	0	0	0	0	2
1:00 AM	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	1	2	0	1	4	4
3:00 AM	2	0	0	0	2	3	2	4	3	12	14
4:00 AM	0	1	4	1	6	1	4	9	10	24	30
5:00 AM	4	9	8	3	24	21	32	19	13	85	109
6:00 AM	6	9	1	2	18	25	26	17	6	74	92
7:00 AM	2	5	3	2	12	1	1	8	6	16	28
8:00 AM	3	0	3	2	8	0	10	2	1	13	21
9:00 AM	1	2	0	4	7	4	0	2	1	7	14
10:00 AM	1	1	8	1	11	1	1	8	1	11	22
11:00 AM	5	2	2	8	17	7	6	3	6	22	39
12:00 PM	5	2	6	3	16	1	6	3	10	20	36
1:00 PM	9	3	4	9	25	2	0	5	3	10	35
2:00 PM	6	3	14	8	31	3	0	4	1	8	39
3:00 PM	6	5	3	5	19	3	6	4	4	17	36
4:00 PM	11	13	53	19	96	4	1	3	3	11	107
5:00 PM	7	15	28	8	58	2	3	1	2	8	66
6:00 PM	5	2	2	4	13	2	4	0	0	6	19
7:00 PM	1	9	3	3	16	0	1	0	0	1	17
8:00 PM	0	2	1	0	3	1	2	0	0	3	6
9:00 PM	0	2	0	1	3	0	0	0	0	0	3
10:00 PM	0	0	1	0	1	1	1	0	0	2	3
11:00 PM	1	0	0	0	1	0	0	0	1	1	2
Total	52.3%				389	47.7%				355	
	744										

AM% 50.4% AM Peak 115 5:15 am to 6:15 am AM P.H.F. 0.70
 PM% 49.6% PM Peak 107 4:00 pm to 5:00 pm PM P.H.F. 0.48





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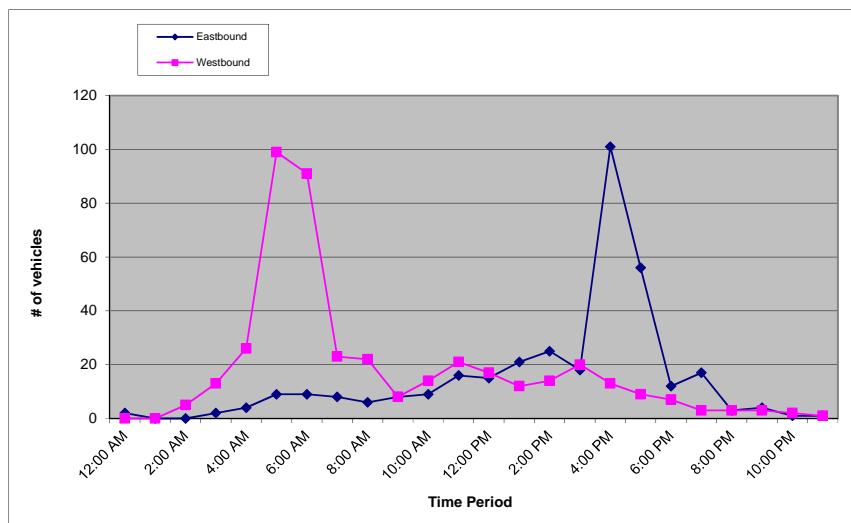
24 Hour Count Report

Prepared For: **OMNI-Means**
 943 Reserve Drive
 Roseville, CA 95678

STREET Rosamond Blvd **LATITUDE** 34.8626287
SEGMENT East of 170th Street **LONGITUDE** -118.4304902
COLLECTION DATE Thursday, August 25, 2016 **WEATHER** Clear
NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Totals
12:00 AM	0	1	0	1	2	0	0	0	0	0	2
1:00 AM	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	1	3	0	1	5	5
3:00 AM	2	0	0	0	2	2	4	4	3	13	15
4:00 AM	0	1	1	2	4	1	6	10	9	26	30
5:00 AM	1	3	4	1	9	24	36	25	14	99	108
6:00 AM	1	5	1	2	9	33	31	20	7	91	100
7:00 AM	2	2	3	1	8	3	4	9	7	23	31
8:00 AM	4	0	0	2	6	1	13	7	1	22	28
9:00 AM	2	3	0	3	8	4	0	3	1	8	16
10:00 AM	0	2	7	0	9	1	1	11	1	14	23
11:00 AM	4	3	3	6	16	8	6	2	5	21	37
12:00 PM	5	2	5	3	15	2	8	2	5	17	32
1:00 PM	9	2	1	9	21	2	5	2	3	12	33
2:00 PM	5	3	9	8	25	3	0	6	5	14	39
3:00 PM	6	5	2	5	18	3	6	5	6	20	38
4:00 PM	11	11	56	23	101	3	3	3	4	13	114
5:00 PM	6	15	27	8	56	2	4	1	2	9	65
6:00 PM	5	2	2	3	12	2	4	0	1	7	19
7:00 PM	2	10	2	3	17	2	1	0	0	3	20
8:00 PM	1	1	1	0	3	1	1	0	1	3	6
9:00 PM	1	2	0	1	4	0	0	1	2	3	7
10:00 PM	0	0	1	0	1	1	1	0	0	2	3
11:00 PM	1	0	0	0	1	0	1	0	0	1	2
Total	44.9%				347	55.1%				426	
	773										

AM% 51.1% AM Peak 117 5:15 am to 6:15 am AM P.H.F. 0.75
 PM% 48.9% PM Peak 114 4:00 pm to 5:00 pm PM P.H.F. 0.48





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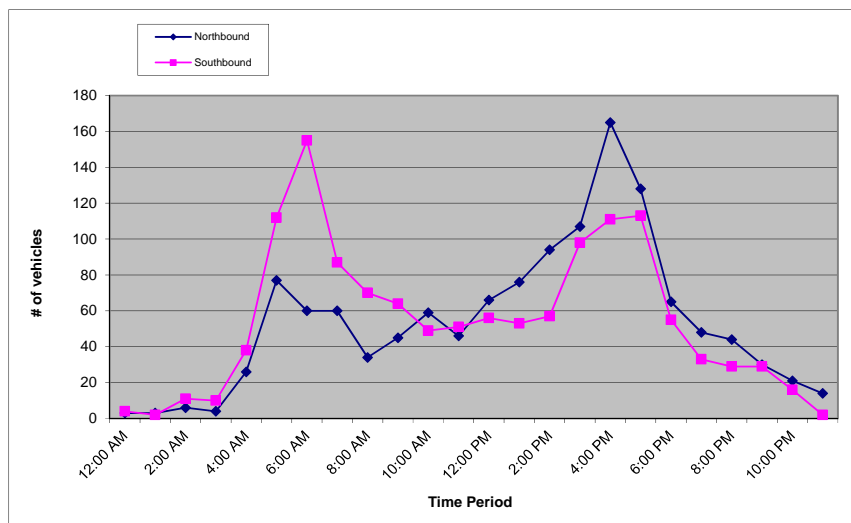
24 Hour Count Report

Prepared For: **OMNI-Means**
 943 Reserve Drive
 Roseville, CA 95678

STREET Tehachapi Willow Springs Rd **LATITUDE** 34.8658176
SEGMENT North of Rosamond Blvd **LONGITUDE** -118.2910314
COLLECTION DATE Thursday, August 25, 2016 **WEATHER** Clear
NUMBER OF LANES 2

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Totals
12:00 AM	1	1	1	0	3	3	0	0	1	4	7
1:00 AM	1	1	1	0	3	1	0	0	1	2	5
2:00 AM	0	1	4	1	6	6	0	2	3	11	17
3:00 AM	0	1	1	2	4	1	3	1	5	10	14
4:00 AM	3	2	10	11	26	8	13	4	13	38	64
5:00 AM	20	28	16	13	77	28	24	31	29	112	189
6:00 AM	13	15	15	17	60	35	52	36	32	155	215
7:00 AM	14	19	15	12	60	20	27	23	17	87	147
8:00 AM	14	7	10	3	34	24	24	12	10	70	104
9:00 AM	9	10	14	12	45	8	24	15	17	64	109
10:00 AM	14	21	9	15	59	12	10	13	14	49	108
11:00 AM	12	12	9	13	46	19	7	9	16	51	97
12:00 PM	11	17	12	26	66	10	20	10	16	56	122
1:00 PM	16	22	17	21	76	10	16	16	11	53	129
2:00 PM	23	13	29	29	94	18	11	12	16	57	151
3:00 PM	24	27	27	29	107	23	12	32	31	98	205
4:00 PM	38	18	49	60	165	35	25	20	31	111	276
5:00 PM	29	31	37	31	128	34	22	29	28	113	241
6:00 PM	17	18	15	15	65	16	16	12	11	55	120
7:00 PM	20	9	9	10	48	11	11	2	9	33	81
8:00 PM	14	9	12	9	44	9	6	7	7	29	73
9:00 PM	6	7	13	4	30	9	3	8	9	29	59
10:00 PM	4	8	4	5	21	1	9	3	3	16	37
11:00 PM	4	2	5	3	14	0	0	1	1	2	16
Total	49.5%				1281	50.5%				1305	
	2586										

AM% 41.6% AM Peak 215 6:00 am to 7:00 am AM P.H.F. 0.80
 PM% 58.4% PM Peak 276 4:30 pm to 5:30 pm PM P.H.F. 0.76





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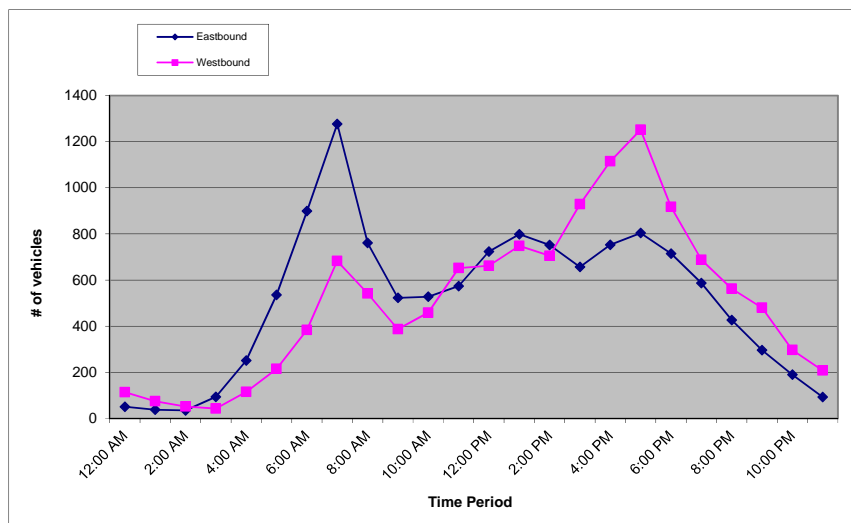
24 Hour Count Report

Prepared For: **OMNI-Means**
 943 Reserve Drive
 Roseville, CA 95678

STREET Rosamond Blvd **LATITUDE** 34.8642231
SEGMENT West of SR 14 **LONGITUDE** -118.174708
COLLECTION DATE Thursday, August 25, 2016 **WEATHER** Clear
NUMBER OF LANES 2

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Totals
12:00 AM	19	15	10	7	51	31	40	23	20	114	165
1:00 AM	12	11	9	6	38	26	18	12	19	75	113
2:00 AM	5	8	12	10	35	17	14	12	9	52	87
3:00 AM	12	23	28	31	94	13	7	8	15	43	137
4:00 AM	47	65	66	73	251	13	19	32	51	115	366
5:00 AM	111	134	160	131	536	47	64	40	64	215	751
6:00 AM	169	228	253	249	899	84	79	100	121	384	1283
7:00 AM	344	339	352	242	1277	184	200	137	162	683	1960
8:00 AM	182	165	231	183	761	185	147	118	92	542	1303
9:00 AM	135	145	112	131	523	95	97	91	104	387	910
10:00 AM	143	139	126	120	528	90	117	122	130	459	987
11:00 AM	133	139	163	139	574	161	177	149	165	652	1226
12:00 PM	152	207	179	186	724	161	152	161	188	662	1386
1:00 PM	178	200	242	179	799	199	173	187	189	748	1547
2:00 PM	184	224	190	154	752	163	163	182	197	705	1457
3:00 PM	160	162	169	166	657	185	188	294	262	929	1586
4:00 PM	203	162	169	219	753	228	293	289	305	1115	1868
5:00 PM	207	209	182	206	804	321	353	272	306	1252	2056
6:00 PM	185	184	183	163	715	260	232	208	217	917	1632
7:00 PM	143	162	141	141	587	170	191	185	142	688	1275
8:00 PM	130	119	107	71	427	169	150	128	116	563	990
9:00 PM	85	63	72	76	296	119	125	119	117	480	776
10:00 PM	71	49	41	29	190	99	82	69	47	297	487
11:00 PM	29	19	26	19	93	60	58	55	35	208	301
Total	50.2%				12364	49.8%				12285	
	24649										

AM% 37.7% AM Peak 1960 7:00 am to 8:00 am AM P.H.F. 0.91
 PM% 62.3% PM Peak 2072 4:30 pm to 5:30 pm PM P.H.F. 0.92



Turning Movement Report

Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

LOCATION Rosamond Blvd @ 170th Street

LATITUDE 34.8626

COUNTY Kern

LONGITUDE -118.4324

COLLECTION DATE Thursday, August 25, 2016

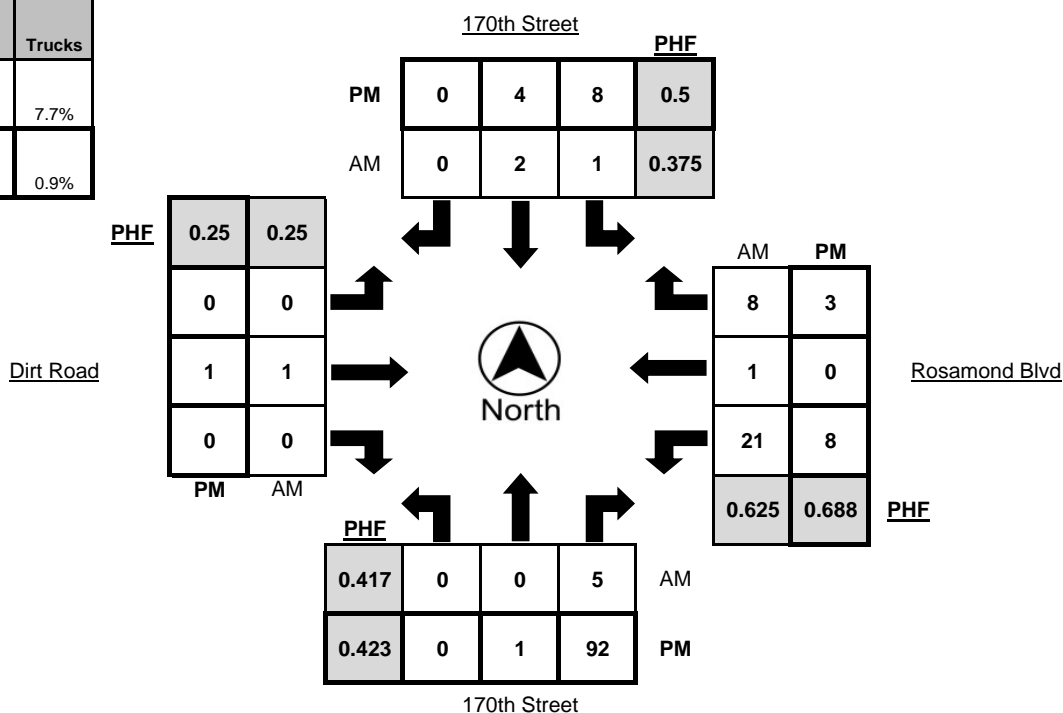
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	0	4	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
7:30 AM - 7:45 AM	0	0	2	1	0	0	0	0	0	0	0	0	9	1	0	1
7:45 AM - 8:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	4	0	0	0
8:00 AM - 8:15 AM	0	0	3	0	0	0	0	0	0	1	0	0	3	0	1	1
8:15 AM - 8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	5	0	7	0
8:30 AM - 8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0
8:45 AM - 9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0
TOTAL	0	0	11	1	1	2	0	0	0	1	0	0	35	1	9	2

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	0	9	1	1	2	0	0	0	0	0	0	2	0	1	0
4:15 PM - 4:30 PM	0	0	15	0	0	0	0	0	0	1	0	0	1	0	0	0
4:30 PM - 4:45 PM	0	0	55	0	5	1	0	0	0	0	0	0	3	0	0	0
4:45 PM - 5:00 PM	0	1	13	0	2	1	0	0	0	0	0	0	2	0	2	0
5:00 PM - 5:15 PM	0	0	7	0	0	0	0	0	0	0	0	0	5	0	0	0
5:15 PM - 5:30 PM	0	0	15	0	1	0	0	0	0	0	0	0	1	0	0	0
5:30 PM - 5:45 PM	0	1	25	1	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM - 6:00 PM	0	0	8	0	0	0	0	0	0	0	0	0	2	0	0	0
TOTAL	0	2	147	2	9	4	0	0	0	1	0	0	17	0	3	1

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	0	0	5	1	1	2	0	0	0	1	0	0	21	1	8	2
4:00 PM - 5:00 PM	0	1	92	1	8	4	0	0	0	1	0	0	8	0	3	0

	PHF	Trucks
AM	0.750	7.7%
PM	0.457	0.9%





Metro Traffic Data Inc.
 310 N. Irwin Street - Suite 20
 Hanford, CA 93230
 800-975-6938 Phone/Fax
 www.metrotrafficdata.com

Turning Movement Report

Prepared For:

OMNI-Means
 943 Reserve Drive
 Roseville, CA 95678

LOCATION Rosamond Blvd @ 170th Street

LATITUDE 34.8626

COUNTY Kern

LONGITUDE -118.4324

COLLECTION DATE Thursday, August 25, 2016

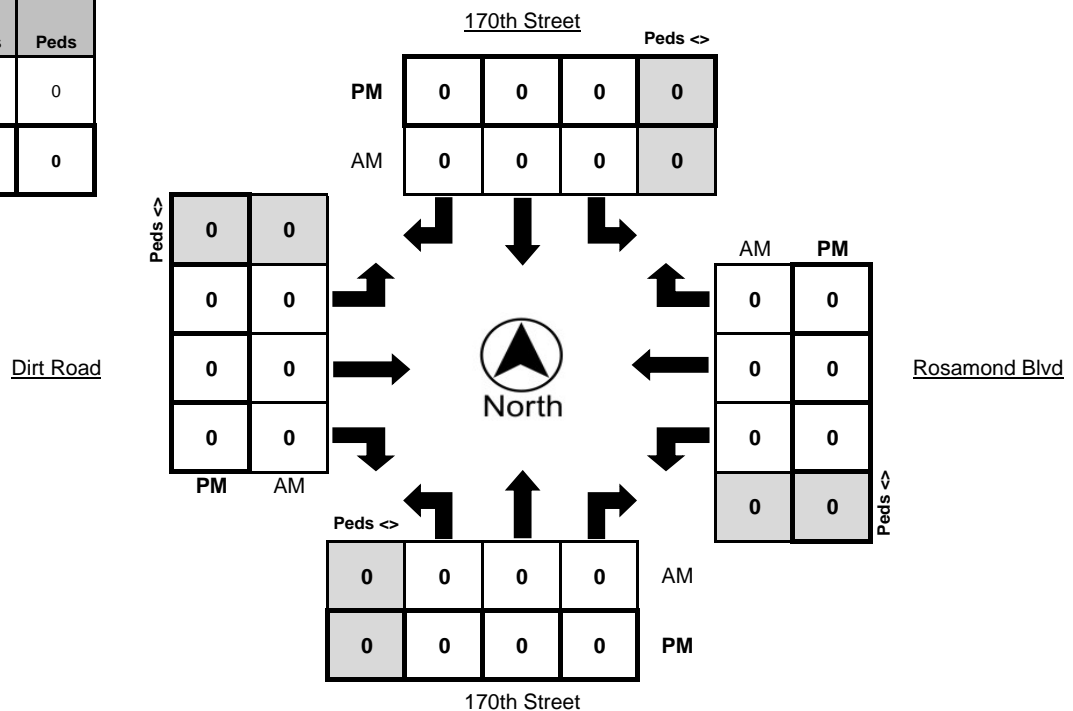
WEATHER Clear

Time	Northbound Bikes			N.Leg Peds	Southbound Bikes			S.Leg Peds	Eastbound Bikes			E.Leg Peds	Westbound Bikes			W.Leg Peds
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time	Northbound Bikes			N.Leg Peds	Southbound Bikes			S.Leg Peds	Eastbound Bikes			E.Leg Peds	Westbound Bikes			W.Leg Peds
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEAK HOUR	Northbound Bikes			N.Leg Peds	Southbound Bikes			S.Leg Peds	Eastbound Bikes			E.Leg Peds	Westbound Bikes			W.Leg Peds
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	0	0
PM Peak Total	0	0





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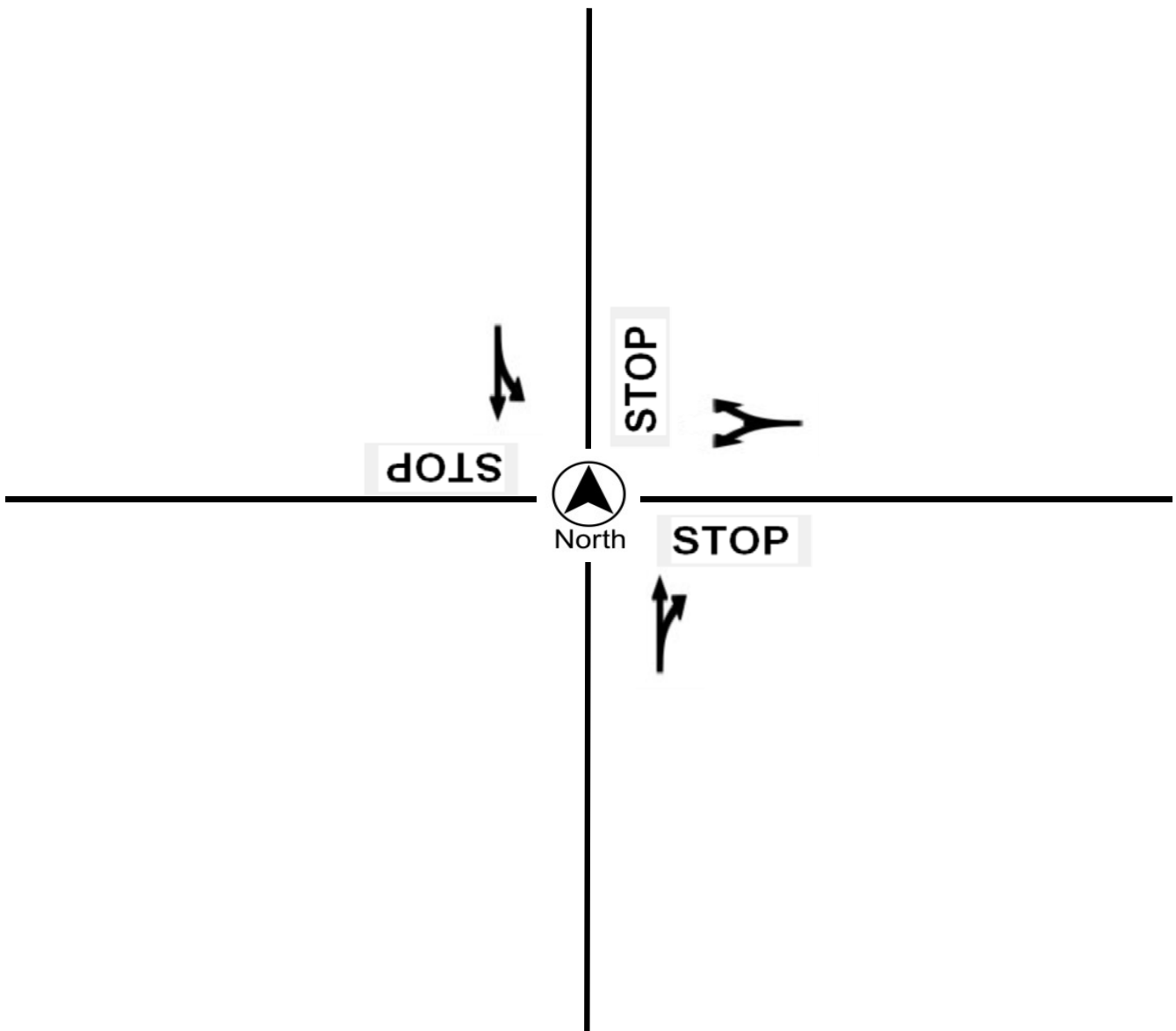
Prepared For:

OMNI-Means
943 Reserve Drive
Roseville, CA 95678

LOCATION Rosamond Blvd @ 170th Street
COUNTY Kern
COLLECTION DATE Thursday, August 25, 2016
CYCLE TIME N/A

N/S STREET 170th Street
E/W STREET Rosamond Blvd
WEATHER Clear
CONTROL TYPE All-Way Stop

COMMENTS





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Turning Movement Report

Prepared For:

OMNI-Means
 943 Reserve Drive
 Roseville, CA 95678

LOCATION Rosamond Blvd @ 90th St / Willow Springs Rd

LATITUDE 34.8636

COUNTY Kern

LONGITUDE -118.2910

COLLECTION DATE Thursday, August 25, 2016

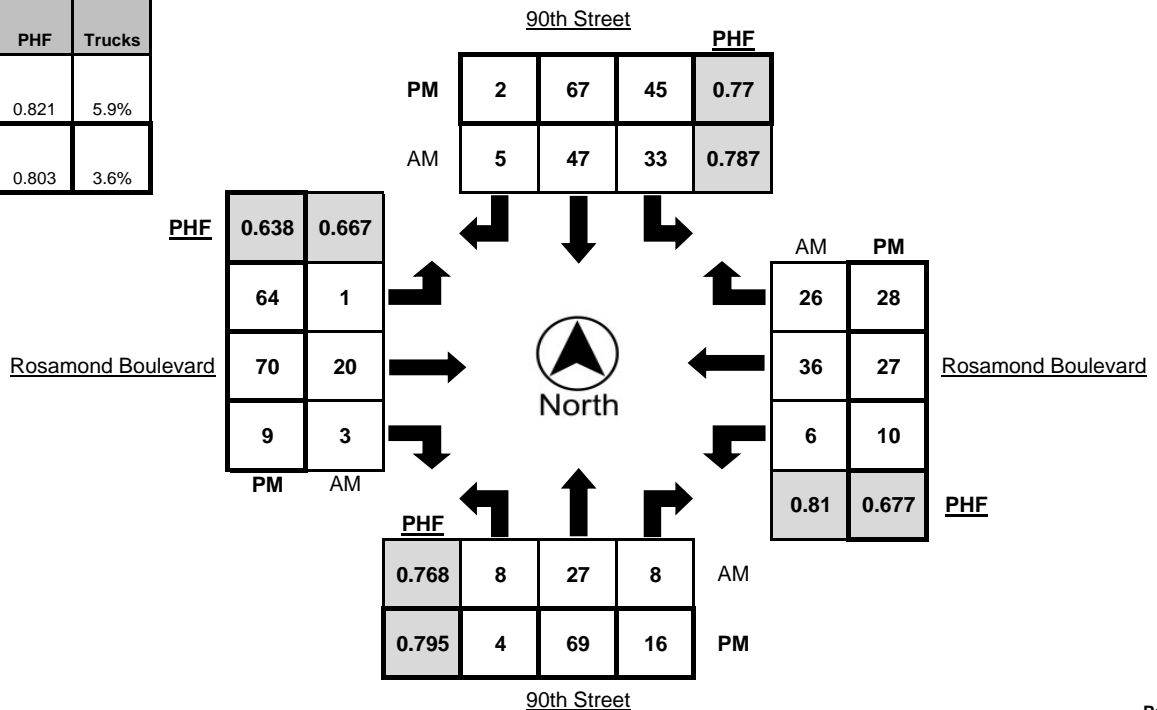
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	7	1	0	9	8	0	2	0	7	2	0	2	11	7	1
7:15 AM - 7:30 AM	3	8	2	1	8	16	3	1	1	5	0	0	3	11	7	0
7:30 AM - 7:45 AM	3	8	3	1	10	11	2	3	0	2	1	0	1	7	4	0
7:45 AM - 8:00 AM	2	4	2	0	6	12	0	1	0	6	0	1	0	7	8	2
8:00 AM - 8:15 AM	1	7	3	0	5	10	2	2	0	4	3	1	2	3	3	2
8:15 AM - 8:30 AM	1	3	0	0	6	13	6	1	0	8	1	0	0	4	6	0
8:30 AM - 8:45 AM	0	3	2	0	2	6	3	0	0	2	2	0	1	2	5	0
8:45 AM - 9:00 AM	0	2	2	0	2	7	1	0	1	1	1	0	0	4	2	0
TOTAL	10	42	15	2	48	83	17	10	2	35	10	2	9	49	42	5

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	21	7	5	12	23	2	0	6	11	5	1	0	6	7	0
4:15 PM - 4:30 PM	0	13	3	1	9	16	0	0	3	7	0	0	5	4	5	0
4:30 PM - 4:45 PM	2	13	4	1	8	12	0	1	26	27	2	0	3	10	11	1
4:45 PM - 5:00 PM	2	22	2	4	16	16	0	0	29	25	2	0	2	7	5	1
5:00 PM - 5:15 PM	0	11	2	2	13	15	1	1	4	18	0	0	0	7	16	0
5:15 PM - 5:30 PM	1	11	2	1	13	10	1	1	6	10	2	1	3	2	5	0
5:30 PM - 5:45 PM	0	14	2	0	10	18	1	0	20	20	2	0	3	5	4	0
5:45 PM - 6:00 PM	1	15	4	2	8	14	2	2	3	10	2	2	0	5	7	0
TOTAL	6	120	26	16	89	124	7	5	97	128	15	4	16	46	60	2

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 8:00 AM	8	27	8	2	33	47	5	7	1	20	3	1	6	36	26	3
4:00 PM - 5:00 PM	4	69	16	11	45	67	2	1	64	70	9	1	10	27	28	2

	PHF	Trucks
AM	0.821	5.9%
PM	0.803	3.6%





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 Roseville, CA 95678

LOCATION Rosamond Blvd @ 90th St / Willow Springs Rd

LATITUDE 34.8636

COUNTY Kern

LONGITUDE -118.2910

COLLECTION DATE Thursday, August 25, 2016

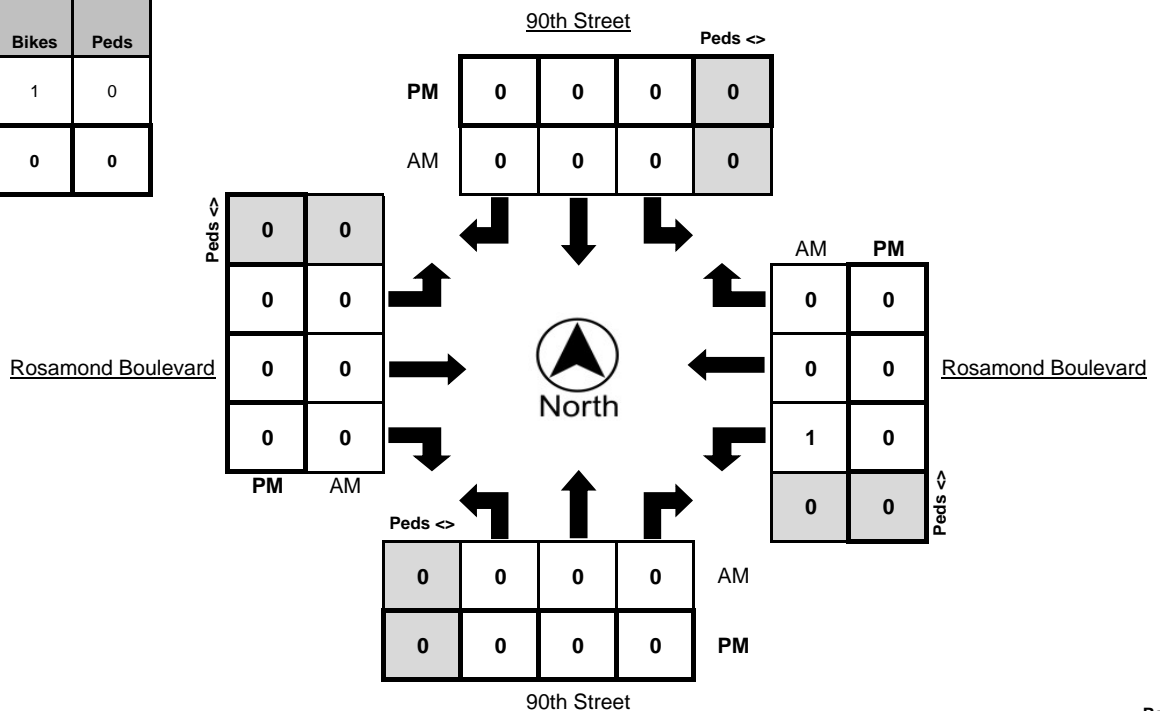
WEATHER Clear

Time	Northbound Bikes			N.Leg Peds	Southbound Bikes			S.Leg Peds	Eastbound Bikes			E.Leg Peds	Westbound Bikes			W.Leg Peds
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0

Time	Northbound Bikes			N.Leg Peds	Southbound Bikes			S.Leg Peds	Eastbound Bikes			E.Leg Peds	Westbound Bikes			W.Leg Peds
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEAK HOUR	Northbound Bikes			N.Leg Peds	Southbound Bikes			S.Leg Peds	Eastbound Bikes			E.Leg Peds	Westbound Bikes			W.Leg Peds
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	1	0
PM Peak Total	0	0





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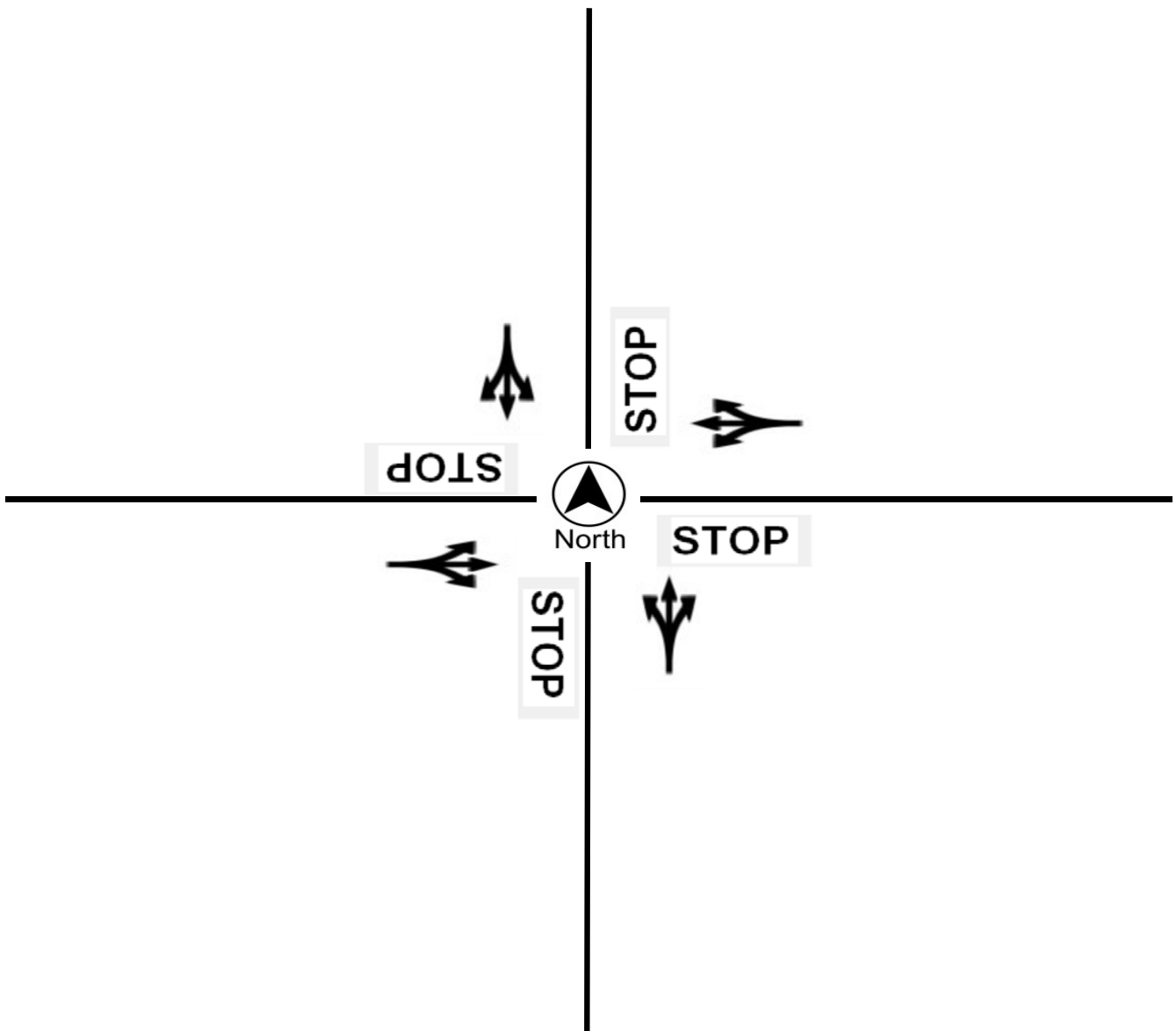
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OMNI-Means
943 Reserve Drive
Roseville, CA 95678

LOCATION Rosamond Blvd @ 90th St / Willow Springs Rd
COUNTY Kern
COLLECTION DATE Thursday, August 25, 2016
CYCLE TIME N/A

N/S STREET 90th Street
E/W STREET Rosamond Boulevard
WEATHER Clear
CONTROL TYPE All-Way Stop

COMMENTS



Caltrans Traffic Volumes/Daily Truck Percentages

2017 Daily Truck Traffic

				L		VEHICLE	TRUCK	TRUCK		TRUCK	AADT	TOTAL	%	TRUCK	AADT		EAL	YEAR
138	07	LA	OR	A	JCT. RTE. 5, GOLDEN STATE FWY INTERCHANGE	2225	458	20.57	31	25	11	391	6.78	5.42	2.35	85.45	280	03E
138	07	LA	36.874	B	JCT. RTE. 14 NORTH, ANTELOPE VALLEY FWY	3800	537	14.10	37	33	13	454	6.84	6.15	2.39	84.62	163	02V
138	07	LA	43.418	A	JCT. RTE. 14 SOUTH	35000	1888	5.39	1,018	361	121	388	53.96	19.11	6.39	20.54	220	03V
138	07	LA	51.41	A	PALMDALE, PEARLBLOSSOM	18100	1690	9.34	785	414	165	326	46.45	24.50	9.76	19.29	202	02V
138	07	LA	51.41	B	PALMDALE, PEARLBLOSSOM	14500	1030	7.10	206	166	80	578	20.01	16.15	7.74	56.10	234	03V
138	07	LA	69.3	B	JCT. RTE. 18, PALMDALE RD	14000	1343	9.59	478	179	129	557	35.61	13.31	9.57	41.51	244	02E
138	07	LA	69.3	A	JCT. RTE. 18, PALMDALE RD	9200	876	9.52	318	117	75	366	36.30	13.36	8.56	41.78	159	02V
138	07	LA	74.973	O	LOS ANGELES/SAN BERNARDINO COUNTY LINE	9500	904	9.52	328	121	77	378	36.30	13.36	8.56	41.78	164	02E
138	08	SBD	0	O	LOS ANGELES/SAN BERNARDINO COUNTY LINE	9500	904	9.52	328	121	77	378	36.30	13.36	8.56	41.78	164	02E
138	08	SBD	6.662	B	JCT. RTE. 2 WEST	19300	2663	13.80	1,220	88	53	1,302	45.80	3.30	2.00	48.90	508	93E
138	08	SBD	R15.20:	B	JCT. RTE. 15	18500	1961	10.60	1,133	75	39	714	57.80	3.80	2.00	36.40	299	92V
138	08	SBD	R15.20:	A	JCT. RTE. 15	4500	582	12.90	512	58	12	0	88.10	9.90	2.00	0.00	25	88E
138	08	SBD	R23.95:	A	JCT. RTE. 173 EAST	1550	197	12.70	165	20	8	4	83.70	10.20	4.10	2.00	10	88E
138	08	SBD	R37.84:	B	JCT. RTE. 18	6800	374	5.50	354	7	7	6	94.60	2.00	1.90	1.50	16	88E

(2017)

Post Mile

Back Peak Hour Back Peak Hour MADT Back AADT Ahead Peak Hour Ahead Peak MADT Ahead AADT

↓ ↓ ↓ ↓ ↓ ↓

BACK_T BACK_PE BACK_F AHEAD_PE AHEAD_PEAK AHEAD_AAD

DIS	RTER	CNTY	PM	PM	PM	DESCRIPTION	BACK	BACK	PE	BACK	/	AHEAD	PE	/	AHEAD	PE	/	AHEAD	ADD
07	138	LA			0.000	R	JCT. RTE. 5, BEGIN RIGHT ALIGN												
07	138	LA			1.392	R	END RIGHT ALIGN	410	2550	2225			410		2550			2225	
07	138	LA			0.000	L	BEGIN LEFT ALIGN												
07	138	LA			1.392	L	END LEFT ALIGN						410		2550			2225	
07	138	LA			1.711		GORMAN POST RD	410	2550	2225									
07	138	LA			4.110		OLD RIDGE ROUTE ROAD	810	5100	4450			550		4250			3600	
07	138	LA			14.534		245TH ST WEST	550	4250	3600			520		3950			3400	
07	138	LA			28.054		110TH STREET WEST	450	3800	3250			420		3550			3050	
07	138	LA			36.874		JCT. RTE. 14 NORTH	700	3550	3150			620		3100			2750	
07	138	LA			43.418		JCT. RTE. 14 SOUTH	860	4300	3800			860		4300			3800	
07	138	LA			44.424		PALMDALE, SIERRA HIGHWAY	860	4300	3800			3000		36000			35000	
07	138	LA			44.692		PALMDALE, 10TH STREET EAST	2000	24800	23700			2050		24600			23500	
07	138	LA			45.710		PALMDALE, 20TH STREET EAST	2000	24100	23000			1900		22700			21700	
07	138	LA			46.730		PALMDALE, 30TH STREET EAST	1900	22700	21700			1800		22200			21100	
07	138	LA			47.251		PALMDALE, 35TH STREET EAST	1800	22200	21100			1700		20700			19600	
07	138	LA		R	48.520		50TH ST/PALMDALE BLVD	1700	20700	19600			1600		19500			18500	
07	138	LA			51.410		PALMDALE, PEARLBLOSSOM HIGHWAY/AVENUE T	1650	20200	19000			930		11800			10700	
07	138	LA			53.551		LITTLE ROCK CREEK	1250	15900	14500			1650		23700			18100	
07	138	LA			56.170		96TH STREET EAST	1600	22600	17200			1600		22600			17200	
07	138	LA			60.170		LONGVIEW ROAD	1350	19500	14900			1400		19700			15000	
07	138	LA			63.680		165TH STREET EAST	1300	18500	14100			1200		16900			12800	
07	138	LA			69.300		JCT. RTE. 18	1200	17000	12900			1200		17300			13100	
07	138	LA			74.973		LOS ANGELES/SAN BERNARDINO COUNTY LINE	1300	18500	14000			930		9300			9200	
08	138	SBD			0.000		LOS ANGELES/SAN BERNARDINO COUNTY LINE	770	9600	9500									
08	138	SBD			2.906		PHELAN RD LT GREEN RD R						850		9900			9500	
08	138	SBD			5.764		SHEEP CREEK ROAD	1200	13700	13200			1450		16700			16100	
08	138	SBD			6.662		JCT. RTE. 2 WEST	1450	16700	16100			1750		20100			19400	
08	138	SBD		R	15.203		JCT. RTE. 15	1700	20000	19300			2050		21200			18500	
08	138	SBD		R	23.959		JCT. RTE. 173 EAST	2050	21200	18500			500		5200			4500	
08	138	SBD		R	26.478		CLEGHORN CANYON ROAD	480	4950	4300			160		1650			1550	
08	138	SBD			33.660		OLD MILL ROAD	160	1650	1550			160		1650			1550	
08	138	SBD			35.740		WATERS DRIVE	160	1650	1550			180		1850			1750	
08	138	SBD			36.270		CRESTLINE, KNAPPS CUTOFF	180	1850	1750			580		6000			5650	
08	138	SBD			36.710		CRESTLINE, CREST FOREST DRIVE	580	6000	5650			280		2850			2700	
08	138	SBD		R	37.848		JCT. RTE. 18	350	3600	3400			670		6900			6500	
								700	7200	6800									

Appendix L

AB 52 Consultation Compilation for the Camino Solar Project



Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: <http://pcd.kerndsa.com/>



**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

May 4, 2017

FILE: CUP No. 7, Map No. 216;

Twenty-Nine Palms Band of Mission Indians
Attn: Anthony Madrigal Jr., Tribal Grants
Administrator
46-200 Harrison Place
Coachella, CA 92236

RE: AB 52 Tribal Consultation – Camino Solar Project by Aurora Solar, LLC. (Avengrid Renewables); (PP17125)

Dear Mr. Madrigal,

The Kern County Planning and Natural Resources Department is in receipt of a request to process an application for a Conditional Use Permit No. 7, in Zone Map 216, for a 44 Megawatt Solar Facility. The proposed project is on a 339 acre portion of an 869 acre group of 10 parcels located in Sections 23, 26, 34, and 35 T10N/R15W of unincorporated Kern County.

In compliance with AB 52, this Department is requesting your review and comments on the potential impacts on cultural places associated with your tribe by this proposal. Your participation is important at this early stage of processing to ensure that cultural places important to your tribe are identified, and the potential impacts associated with implementation of the project are mitigated.

If you have not responded by **June 15, 2017**, this Department will assume your tribe has declined consultation as per Public Resources Code (PRC) 21080.3.1.

If you have any questions, comments or wish to request a consultation regarding this proposal please contact me at (661) 862-8793 or by email at mayesj@co.kern.ca.us.

Sincerely,

A handwritten signature in blue ink that reads "Janice Mayes".

Janice Mayes, Planner
Advanced Planning Unit

Enclosure: Vicinity Map



TWENTY-NINE PALMS BAND OF MISSION INDIANS

46-200 Harrison Place . Coachella, California . 92236 . Ph. 760.863.2444 . Fax: 760.863.2449

May 11, 2017

Janice Mayes, Planner
Kern County – Planning and Natural Resources Dept.
2700 “M” Street, Suite 100
Bakersfield, CA 93301-2323

RE: AB 52 Tribal Consultation – Camino Solar Project by Aurora Solar, LLC. (Avengrid Renewables); (PP17125)

Dear Ms. Mayes:

in regards to consultation in compliance with AB 52 (California Public Resources Code § 21080.3.1) for the Camino Solar Project, the Tribal Historic Preservation Office (THPO) is not aware of any archaeological/cultural sites or properties in the project area that pertain to the Twenty-Nine Palms Band of Mission Indians. We currently have no interest in this project and defer to the comments of other affiliated tribes. If there are inadvertent discoveries of archaeological remains or resources, construction should stop immediately, and the appropriate agency and tribe(s) should be notified.

Please do not hesitate to contact the THPO at (760) 775-3259 or by email:
TNPConsultation@29palmsbomi-nsn.gov.

Sincerely,

Anthony Madrigal, Jr.
Tribal Historic Preservation Officer

cc: Darrell Mike, Twenty-Nine Palms Tribal Chairman
Sarah Bliss, Twenty-Nine Palms Tribal Cultural Specialist

From: "Sarah Bliss" <sbliss@spotlight29.com>
To: "mayesj@co.kern.ca.us" <mayesj@co.kern.ca.us>
CC: TNP Consultation <TNPConsultation@29palmsbomi-nsn.gov>
Date: 05/11/2017 1:11 PM
Subject: Camino Solar Project (Aurora Solar LLC.)
Attachments: [LETTER_5-11] Kern County Camino Solar Project.pdf

Dear Ms. Mayes:

Attached, please find a copy of the letter dated May 11th, in regards to the Camino Solar Project (Aurora Solar LLC.), located in an unincorporated area of Kern County.

Thank you,
Sarah
Sarah Bliss
Twenty-Nine Palms Band of Mission Indians
Tribal Cultural Specialist
46-200 Harrison Place, Coachella, CA 92236
Ofc: (760) 863-2489
E-mail: sbliss@29palmsbomi-nsn.gov<mailto:sbliss@29palmsbomi-nsn.gov>

[Description: cid:image001.png@01D20D9D.FA633D40]

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Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: <http://pcd.kerndsa.com/>



**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

May 4, 2017

FILE: CUP No. 7, Map No. 216;

Twenty-Nine Palms Band of Mission Indians
Attn: Darrell Mike, Tribal Chairman
46-200 Harrison Place
Coachella, CA 92236

RE: AB 52 Tribal Consultation – Camino Solar Project by Aurora Solar, LLC. (Avengrid Renewables); (PP17125)

Dear Mr. Mike,

The Kern County Planning and Natural Resources Department is in receipt of a request to process an application for a Conditional Use Permit No. 7, in Zone Map 216, for a 44 Megawatt Solar Facility. The proposed project is on a 339 acre portion of an 869 acre group of 10 parcels located in Sections 23, 26, 34, and 35 T10N/R15W of unincorporated Kern County.

In compliance with AB 52, this Department is requesting your review and comments on the potential impacts on cultural places associated with your tribe by this proposal. Your participation is important at this early stage of processing to ensure that cultural places important to your tribe are identified, and the potential impacts associated with implementation of the project are mitigated.

If you have not responded by **June 15, 2017**, this Department will assume your tribe has declined consultation as per Public Resources Code (PRC) 21080.3.1.

If you have any questions, comments or wish to request a consultation regarding this proposal please contact me at (661) 862-8793 or by email at majesj@co.kern.ca.us.

Sincerely,

A handwritten signature in blue ink that reads "Janice Mayes".

Janice Mayes, Planner
Advanced Planning Unit

Enclosure: Vicinity Map

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: <http://pcd.kerndsa.com/>



**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

May 4, 2017

FILE: CUP No. 7, Map No. 216;

Torres Martinez Desert Cahuilla Indians
Attn: Michael Mirelez, Cultural Resources
Coordinator
P.O. Box 1160
Thermal, CA 92274

RE: AB 52 Tribal Consultation – Camino Solar Project by Aurora Solar, LLC. (Avengrid Renewables); (PP17125)

Dear Mr. Mirelez,

The Kern County Planning and Natural Resources Department is in receipt of a request to process an application for a Conditional Use Permit No. 7, in Zone Map 216, for a 44 Megawatt Solar Facility. The proposed project is on a 339 acre portion of an 869 acre group of 10 parcels located in Sections 23, 26, 34, and 35 T10N/R15W of unincorporated Kern County.

In compliance with AB 52, this Department is requesting your review and comments on the potential impacts on cultural places associated with your tribe by this proposal. Your participation is important at this early stage of processing to ensure that cultural places important to your tribe are identified, and the potential impacts associated with implementation of the project are mitigated.

If you have not responded by **June 15, 2017**, this Department will assume your tribe has declined consultation as per Public Resources Code (PRC) 21080.3.1.

If you have any questions, comments or wish to request a consultation regarding this proposal please contact me at (661) 862-8793 or by email at mayesj@co.kern.ca.us.

Sincerely,

A handwritten signature in blue ink that reads "Janice Mayes".

Janice Mayes, Planner
Advanced Planning Unit

Enclosure: Vicinity Map

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
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**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

May 4, 2017

FILE: CUP No. 7, Map No. 216;

San Manuel Band of Mission Indians
Attn: Daniel F. McCarthy MS, RPA,
Director-CRM Department
26569 Community Center Drive
Highland, CA 92346

RE: AB 52 Tribal Consultation – Camino Solar Project by Aurora Solar, LLC. (Avengrid Renewables); (PP17125)

Dear Mr. McCarthy,

The Kern County Planning and Natural Resources Department is in receipt of a request to process an application for a Conditional Use Permit No. 7, in Zone Map 216, for a 44 Megawatt Solar Facility. The proposed project is on a 339 acre portion of an 869 acre group of 10 parcels located in Sections 23, 26, 34, and 35 T10N/R15W of unincorporated Kern County.

In compliance with AB 52, this Department is requesting your review and comments on the potential impacts on cultural places associated with your tribe by this proposal. Your participation is important at this early stage of processing to ensure that cultural places important to your tribe are identified, and the potential impacts associated with implementation of the project are mitigated.

If you have not responded by **June 15, 2017**, this Department will assume your tribe has declined consultation as per Public Resources Code (PRC) 21080.3.1.

If you have any questions, comments or wish to request a consultation regarding this proposal please contact me at (661) 862-8793 or by email at mayesj@co.kern.ca.us.

Sincerely,

A handwritten signature in blue ink that reads "Janice Mayes".

Janice Mayes, Planner
Advanced Planning Unit

Enclosure: Vicinity Map

From: Diane Versaggi <dversaggi@sanmanuel-nsn.gov>
To: "mayesj@co.kern.ca.us" <mayesj@co.kern.ca.us>
Date: 06/02/2017 11:36 AM
Subject: Camino Solar Project by Aurora Solar, LLC (PP17125), Kern County, CA

Dear Ms. Mayes:

On May 8, 2017, the Cultural Resources Management Department for San Manuel Band of Mission Indians (SMBMI) received your correspondence regarding the Camino Solar Project by Aurora Solar, LLC (PP17125), located in unincorporated Kern County, CA. I am writing today to inform you and the County of Kern that the above-referenced project exists outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status under AB 52 nor requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates.

Should you have any questions about the content of this communication, please do not hesitate to contact Ms. Lee Clauss at your convenience.

Respectfully,

Diane Versaggi on Behalf of
Lee Clauss
Cultural Resources Management Director

[cid:image003.jpg@01D22AF3.5EAE0C90]

O: (909) 864-8933 x3248

M: (909) 633-5851

lclauss@sanmanuel-nsn.gov<https://owa.sanmanuel.com/owa/redir.aspx?REF=D4Ut_P_FCtq41YsL4-v0AfR18gUoPof2BwUIZWGdUHB7FuT6PajTCAfTYWlsdG86bGNsYXXVzc0BzYW5tYW51ZWwtbnNuLmdvdg..>

26569 Community Center Drive
Highland, CA 92346

Diane Versaggi

SENIOR ADMINISTRATIVE ASSISTANT

O: (909) 864-8933 x503096

Internal: 50-3096

M: (909) 838-2173

26569 Community Center Dr, Highland CA 92346

[cid:image92e0b1.PNG@98da9ad8.4a814029]<<http://www.sanmanuel-nsn.gov>>

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Thank You

From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
To: "mayesj@co.kern.ca.us" <mayesj@co.kern.ca.us>
Date: 05/31/2017 3:53 PM
Subject: Camino Solar Project by Aurora Solar, LLC (PP17125)

Dear Janice,

On 8 May 2017, the Cultural Resources Management Department for San Manuel Band of Mission Indians (SMBMI) received correspondence regarding the Camino Solar Project by Aurora Solar, LLC (PP17125) located in Kern County. I am writing today to inform you and Kern County that the above-referenced project exists just outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status under AB 52 nor requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates. Please inform SMBMI if the protect area changes, as it may then lie within Serrano ancestral territory.

Respectfully,

Jessica Mauck

CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909)725-9054
26569 Community Center Drive, Highland California 92346
[cid:image9fc15c.PNG@8ffd1c5d.4d949d44]-<<http://www.sanmanuel-nsn.gov>>

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Thank You

Appendix M

Environmental Assessment Reference Documents



Appendix M1 : Environmental Assessment Mitigation Measures

Appendix M-1

Environmental Assessment Mitigation Measures

Air Resources

MM 4.3-1: Implement Diesel Emission-Reduction Measures During Construction. To control PM emissions during construction, the project proponent/operator and/or its contractor(s) shall implement the following measures during construction of the project, subject to verification by the County and the Bureau of Land Management (BLM):

- a) Off-road equipment engines over 25 horsepower shall be equipped with EPA Tier 3 or higher engines, unless Tier 3 construction equipment is not locally available.
- b) All equipment shall be maintained in accordance with the manufacturer's specifications.
- c) Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.
- d) Notification shall be provided to trucks and vehicles in loading or unloading queues that their engines shall be turned off when not in use for more than 5 minutes.
- e) Electric equipment shall be used to the extent feasible in lieu of diesel or gasoline-powered equipment.
- f) All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order.
- g) On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.
- h) Existing electric power sources shall be used to the extent feasible. This measure would minimize the use of higher polluting gas or diesel generators.
- i) The hours of operation of heavy-duty equipment and/or the quantity of equipment in use shall be limited to the extent feasible.

M 4.3-2: Implement Fugitive Dust Control Plan During Construction. To control fugitive PM emissions during construction, prior to the issuance of grading or building permits and any earthwork activities, the project proponent shall prepare a comprehensive Fugitive Dust Control Plan for review by the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM). The plan shall include all EKAPCD-recommended measures, including but not limited to, the following:

- a) All soil being actively excavated or graded shall be sufficiently water to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soils areas. Watering shall take place a minimum of three times daily where soil is being actively disturbed, unless dust is otherwise controlled by rainfall or use of a dust suppressant.

- b) Vehicle speed for all on site (i.e., within the project boundary) construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. Signs identifying construction vehicle speed limits shall be posted along onsite roadways, at the site entrance/exit, and along unpaved site access roads.
- c) Vehicle speeds on all offsite unpaved roads (i.e., outside the project boundary) construction vehicles shall not exceed 25 mph. Signs identifying vehicle speed limits shall be posted along unpaved site access roads and at the site entrance/exit.
- d) All onsite unpaved roads and offsite unpaved public project-site access road(s) shall be effectively stabilized of dust emissions using water or EKAPCD-approved dust suppressants/palliatives, sufficient to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. If water is used, watering shall occur a minimum of three times daily, sufficient to keep soil moist along actively used roadways. During the dry season, unpaved road surfaces and vehicle parking/staging areas shall be watered immediately prior to periods of high use (e.g., worker commute periods, truck convoys). Reclaimed (non-potable) water shall be used to the extent available and feasible.
- e) The amount of the disturbed area (e.g., grading, excavation) shall be reduced and/or phased where possible.
- f) All disturbed areas shall be sufficiently watered or stabilized by EKAPCD-approved methods to prevent excessive dust. On dry days, watering shall occur a minimum of three times daily on actively disturbed areas. Watering frequency shall be increased whenever wind speeds exceed 15 mph or, as necessary, to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. Reclaimed (non-potable) water shall be used to the extent available and feasible.
- g) All clearing, grading, earth moving, and excavation activities shall cease during periods when dust plumes of 20 percent or greater opacity affect public roads or nearby occupied structures.
- h) All disturbed areas anticipated to be inactive for periods of 30 days or more shall be treated to minimize wind-blown dust emissions. Treatment may include, but is not limited to, the application of an EKAPCD-approved chemical dust suppressant, gravel, hydro-mulch, revegetation/seedling, or wood chips.
- i) All active and inactive disturbed surface areas shall be compacted, where feasible.
- j) Equipment and vehicle access to disturbed areas shall be limited to only those vehicles necessary to complete the construction activities.
- k) Where applicable, permanent dust control measures shall be implemented as soon as possible following completion of any soil-disturbing activities.
- l) Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate methods sufficient to reduce visible dust emissions to a limit of 20 percent opacity. If necessary and where feasible, three-sided barriers shall be constructed around storage piles and/or piles shall be covered by use of tarps, hydro-mulch, woodchips, or other materials sufficient to minimize wind-blown dust.

- m) Water shall be applied prior to and during the demolition of onsite structures sufficient to minimize wind-blown dust.
- n) Where acceptable to the fire department and feasible, weed control shall be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering.
- o) All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with California Vehicle Code Section 23114.
- p) Gravel pads, grizzly strips, or other material track-out control methods approved for use by EKAPCD shall be installed where vehicles enter or exit unpaved roads onto paved roadways.
- q) Haul trucks and off-road equipment leaving the site shall be washed with water or high-pressure air, and/or rocks/grates at the project entry points shall be used, when necessary, to remove soil deposits and minimize the track-out/deposition of soil onto nearby paved roadways.
- r) During construction paved road surfaces adjacent to the site access road(s), including adjoining paved aprons, shall be cleaned, as necessary, to remove visible accumulations of track-out material. If dry sweepers are used, the area shall be sprayed with water prior to sweeping to minimize the entrainment of dust. Reclaimed water shall be used to the extent available.
- s) Portable equipment, 50 horsepower or greater, used during construction activities (e.g., portable generators) shall require California statewide portable equipment registration (issued by CARB) or an EKAPCD permit.
- t) The Fugitive Dust Control Plan shall identify a designated person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures, as necessary, to minimize the transport of dust off site and to ensure compliance with identified fugitive dust control measures. Contact information for a hotline shall be posted on site should any complaints or concerns be received during working hours and holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the EKAPCD Compliance Division prior to the start of any grading or earthwork.
- u) Signs shall be posted at the project site entrance and written notifications shall be provided a minimum of 30 days prior to initiation of project construction to residential land uses located within 1,000 feet of the project site. The signs and written notifications shall include the following information: (a) Project Name; (b) Anticipated Construction Schedule(s); and (c) Telephone Number(s) for designated construction activity monitor(s) or, if established, a complaint hotline.
- v) The designated construction monitor shall document and immediately notify EKAPCD of any air quality complaints received. If necessary, the project operator and/or contractor will coordinate with EKAPCD to identify any additional feasible measures and/or strategies to be implemented to address public complaints.

MM 4.3-3: Minimize Exposure to Potential Valley Fever–Containing Dust. To minimize personnel and public exposure to potential Valley Fever–containing dust on and off site, the following control measures shall be implemented during project construction:

1. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved off site to other work locations.
2. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground.
3. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.
4. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying.
5. All heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system.
6. Workers shall receive training to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department and BLM within 5 days of the training session.
7. A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department.
8. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health–approved respirators shall be provided to onsite personal, upon request. Evidence of training shall be provided to the Kern County Planning and the Bureau of Land Management (BLM).

MM 4.3-4: Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of \$3,200 for Valley Fever public awareness programs.

Biological Resources

MM 4.4-1: Prior to the issuance of grading or building permits the project proponent/operator shall retain a qualified biologist(s) who meets the qualifications of an authorized biologist as defined by U.S. Fish and Wildlife Service (USFWS) to oversee compliance with protection measures for all listed and other special-status species that may be affected by the construction of the proposed project. The following measures pertain to qualified biologists on site:

1. The qualified biologist(s) shall be on the project site during construction of perimeter fencing, clearing of vegetation, grading activities, and similar ground- disturbance activities that will be associated with the construction phase.
2. The qualified biologist(s) shall have the right to halt all activities that are in violation of the special-status species mitigation measures, as well as any regulatory permits from the California Department of Fish and Wildlife and/or USFWS. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk.
3. The qualified biologist(s) shall have in her/his possession a copy of all the compliance measures while work is being conducted on the project site.
4. Contact information for the qualified biologist(s) shall be submitted to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM).
5. Any individuals who undertake biological monitoring and mitigation tasks shall be supervised by the qualified biologist(s) and shall have the appropriate education and experience to accomplish biological monitoring and mitigation tasks. Biological monitors shall comply with the above measures.

MM 4.4-2: If during grading, construction, and decommissioning, an authorized biologist determines the presence of Robbins' nemacladus, short-bracted bird's-beak, Mt. Pinos larkspur, Latimer's woodland-gilia, Lemmon's syntrichopappus, Mojave spineflower, Clokey's cryptantha, and/or Tejon poppy onsite:

1. Sturdy, highly visible, orange plastic construction fencing (or equivalent material verified by the authorized biologist) shall be installed around all locations of detected special-status plants to protect from impacts during the construction phase, until they can be relocated. The fence shall be securely staked and installed in a durable manner that would be reasonably expected to withstand wind and weather events and last at least through the construction period. Fencing shall be removed upon completion of the project construction.
2. If any plants which are either listed as DRECP focus species or BLM special status species are found on the project area, a setback of 0.25 mile from project infrastructure will be implemented. With Bureau of Land Management (BLM) approval, a lesser setback may be implemented.
3. Any Robbins' nemacladus, short-bracted bird's-beak, Mt. Pinos larkspur, Latimer's woodland-gilia, Lemmon's syntrichopappus, Mojave spineflower, Clokey's cryptantha, and/or Tejon poppy onsite populations that cannot feasibly be avoided in

final project design shall have seed collected prior to construction for sowing into suitable onsite habitat or in nearby suitable offsite habitat covered with a conservation easement. A seed harvesting and storage plan including a planting plan shall be prepared and approved by the County and BLM, prior to ground disturbance of these areas.

MM 4.4-3: Prior to the issuance of a grading permit, the project proponent/operator shall develop a Joshua Tree Impact Plan. The Plan shall be prepared by a qualified biologist pre-approved by the County and shall be approved by the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM) prior to implementation. At a minimum, the plan shall include the following:

1. Indicate how reasonable efforts will be made to avoid Joshua trees within project site. All Joshua trees not designated for removal and Joshua trees present immediately adjacent to construction work areas shall be protected through clear delineation and marking of construction work areas.
2. Indicate the number of trees that would be impacted, including a discussion of Joshua tree population age, health, and number of Joshua trees that could be relocated within suitable adjacent areas.
3. Methods shall be specified for avoiding specific Joshua trees and suitable candidates for translocation identified. Detail methods of relocation efforts including the preservation of the tree root ball, how it will be removed (preferably a tree spade). Success of relocated trees shall be a minimum of 90 percent after three years. The Plan shall identify the appropriate time of year for transplanting Joshua trees, and shall consider the plant's original and transplanted physical orientation, prevailing wind direction, soil type of the original and transplanted locations, and other related attributes which may affect the successful transplantation of the Joshua trees. In-lieu fee monetary funding may be applied for any tree not meeting the 90 percent success rate.
4. Detail of a three-year maintenance program for any planned relocated Joshua trees on the site, such as weed maintenance, supplemental irrigation, and support stakes.
5. Post-Monitoring of all translocated Joshua trees, if any, shall be required for a minimum of three-years following relocation to verify the trees have adapted and are in good health. The Plan shall identify contingency measures if a tree or group of trees die, such as replanting and continued monitoring, or an in-lieu payment.
6. The plan shall specify that a qualified biologist or biological monitor shall monitor construction and all Joshua trees removed or damaged. A monitoring report shall be submitted to the Kern County Planning and Natural Resource Department and BLM to document the condition of the Joshua trees annually for three-years if any Joshua trees are relocated.

MM 4.4-5: Prior to the issuance of grading or building permits, and for the duration of construction activities, the project proponent shall demonstrate that it has in place a Construction Worker Environmental Awareness Training and Education Program for all new construction workers at the project site, laydown area and/or transmission routes.

Construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and consultation with the California Department of Fish and Wildlife and/or USFWS. All construction workers shall attend the Program at least within a minimum of one week of initial ground disturbance and one week prior to participating in construction activities and shall attend a refresher Program annually. Therefore, employees will be subject to the following:

Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training and Education Program prior to starting work on the project and on an annual basis.

The Program will be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The training may be presented in video form. Program shall include the components described below.

1. Information on the identification and life history of the burrowing owl, golden eagle, California condor, Swainson's hawk, nesting birds, and desert kit fox; as well as other wildlife, special-status plant species, and the California Department of Fish and Wildlife-regulated drainages that may be affected during construction activities. The program shall also discuss the legal protection status of each species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements. Identification and information regarding regulated native plants such as Joshua tree shall also be provided to construction personnel.
2. An acknowledgement form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site.
3. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education Program and signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM).
4. A copy of the training transcript, training video or informational binder for specific procedures (including such information as trenching protection for kit fox requirements) shall be kept available for all personnel to review and be familiar with as necessary.
5. A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education Program. Construction workers shall not be permitted to operate equipment within the construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.

MM 4.4-6: During construction, operations and maintenance, and decommissioning, the project proponent/operator shall implement the general avoidance and protective measures described below:

1. No more than 14 days prior to conducting vegetation clearing or grading activities associated with construction or decommissioning, a qualified biologist or biological monitor that has been approved by the qualified biologist shall survey the area, and immediately prior to conducting these activities to ensure that no special-status animals are present. A qualified biologist or biological monitor shall monitor all initial construction and decommissioning ground-disturbance activities. A report of those activities shall be submitted to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM) within 30 days of completion of activities.
2. Based on the results of pre-construction surveys, if any evidence of occupation of the project site by listed or other special-status animal species is observed, a no-disturbance buffer shall be established by a qualified biologist that results in sufficient avoidance, as described below. If sufficient avoidance cannot be established or if special-status animal species are found, construction shall cease in the vicinity of the animal, and the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate depending on the species, shall be contacted for further guidance and consultation on additional measures required.
3. All proposed impact areas, including solar fields, generation-tie lines, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid natural resources (i.e., special-status animal species, jurisdictional drainages, nesting birds, etc.) where possible. Construction-related activities, and decommissioning-related activities, outside of the impact zone shall be avoided. All site plans shall delineate proposed impact areas, including solar fields, generation-tie line, staging area and access routes.
4. Access roads that are planned for use during construction or decommissioning shall not extend beyond the planned impact area. All vehicle traffic shall be contained within the planned impact area or in previously disturbed areas. Where new access routes are required, the route will be clearly marked (i.e. flagged and/or staked) prior to construction.
5. If exclusion fencing is required by any consulting Resource Agency (i.e. California Department of Fish and Wildlife, and U.S. Fish and Wildlife Service), the project site shall be fenced with a temporary exclusion fence to keep special-status terrestrial wildlife species, including desert tortoise, from entering during construction. This exclusion fencing shall be constructed of silt fence material, metal flashing, plastic sheeting, or other materials that will prohibit wildlife from climbing the fence or burrowing below the fence. The fencing shall be buried approximately 12 inches below the surface and extend a minimum of 30 inches above grade. Fencing shall be installed prior to issuance of grading or building permits and shall be maintained during all phases of construction and decommissioning. The fencing shall be inspected by an authorized biologist approved by the Resource Agencies weekly and immediately after all major rainfall events through the duration of construction and decommissioning.

activities. Any needed repairs to the fence shall be performed on the day of their discovery. Exclusion fencing shall be removed once construction or decommissioning activities are complete. Outside temporarily fenced exclusion areas, the project proponent/operator shall limit the areas of disturbance. Parking areas, new roads, staging, storage and excavation locations shall be confined to the smallest areas possible. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas. When consultation with the Resource Agency is required, such Resource Agency may impose additional requirements. Along with construction of tortoise exclusionary fencing, excavation of known or potential burrows cannot be accomplished without authorization from CDFW.

6. To prevent inadvertent entrapment of desert kit foxes, badgers, or other animals during construction, all excavated, steep-walled holes or trenches (defined as a 45-degree slope or greater) shall be covered with plywood or similar materials at the close of each working day. A small metal mesh material shall be stapled to the edges of the plywood and then secured to the ground using at least 10-inch long rebar or staples every 12 inches along the outer edge of the metal mesh material at the end of each working day and during the day when not actively being worked on/in. Non-covered holes or trenches shall be thoroughly inspected for trapped animals by a qualified biologist or their biological monitor at the beginning and end of each day, including non-work days. Immediately before such holes or trenches are filled, they shall again be thoroughly inspected by trained staff approved by the retained qualified biologist for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a listed species is trapped, the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate for the species, BLM, and Kern County Planning and Natural Resources Department shall be contacted immediately. A hand-written log shall be prepared of the daily inspections during all activity requiring the trenching protection referenced above, and records from that log shall be furnished to the Kern County Planning and Natural Resources Department and BLM upon request.
7. Burrowing owls, mammals, and nesting birds can use construction pipes, culverts, or similar structures for refuge or nesting. All construction pipes, culverts, or similar structures with a diameter of 12 inches or less that have not been stored on the project overnight shall be thoroughly inspected for special-status wildlife or nesting birds before moving, burying, or otherwise using such pipe. All construction pipes, culverts, or similar structures with a diameter of 12 inches or less shall be capped prior to storing such materials at a construction site for one or more overnight periods. All construction pipes, culverts, or similar structures with a diameter of 12 inches or less that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved or disturbed in any way until a qualified biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by a qualified biologist holding the appropriate handling permits from the Resource Agencies. No one shall be

allowed to touch a listed species without authorization from the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife. All necessary authorization permits shall be obtained from the appropriate resource agencies, and copies of all such final authorization permits shall be submitted to the Kern County Planning and Natural Resources Department and BLM.

8. No vehicle or equipment parked on the project site shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of wildlife. If present, the animal shall be left to move on its own, or relocated by a qualified biologist holding the appropriate handling permits from the Resource Agencies. No one shall be allowed to touch a listed species without authorization from the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.
9. Vehicular traffic to and from the project site shall use existing routes of travel. Cross country vehicle and equipment use outside designated work areas shall be prohibited.
10. A speed limit of 10 miles per hour shall be enforced within the limits of the proposed project.
11. Spoils shall be stockpiled in disturbed areas that lack native vegetation. Best Management Practices (BMPs) shall be employed to prevent erosion in accordance with the project's approved Stormwater Pollution Prevention Plan (SWPP) or Soil Erosion and Sedimentation Control Plan (SESCP) (see Section 4.7, *Geology and Soils*, for more details on SESCO requirements). All detected erosion shall be remedied within 2 days of discovery or as described in the SWPP or SESCO. Spoils that have been stockpiled and inactive for greater than 10 days shall be inspected by a qualified biologist for signs of special-status wildlife before moving or disturbing the spoils.
12. Fueling of equipment shall take place within existing roads. No refueling within or adjacent to drainages or native desert habitats (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.
13. Prior to any clearing and ground disturbing activities, the project proponent/operator shall submit a Maintenance, Trash Abatement, and Pest Management Program to the Kern County Planning and Natural Resources Department and BLM for review and approval. The program shall include, but not be limited to the following:
 - a) The project proponent/operator shall clear debris from the project area at least twice per year once the project is operational; this can be done in conjunction with regular panel washing and site maintenance activities.
 - b) Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.
 - c) The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses

shall be submitted to the Kern County Planning and Natural Resources Department and BLM.

- d) The project proponent/operator shall implement a regular trash removal and recycling program once per month on an ongoing basis during construction, including a recycling program. Barriers/locking systems to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.
 - i. The following stipulation shall be included: All vegetation, debris or any other natural material collected as part of mowing, clearing or preparing the site for construction shall be removed the same day of such activities. Stockpiling is permitted for a period which shall not exceed ten (10) consecutive hours.
- 14. Workers shall be prohibited from bringing pets and firearms to the project site and from feeding wildlife.
- 15. Intentional killing or collection of any plant or wildlife species shall be prohibited.
- 16. Perimeter fencing during operations shall be made wildlife friendly by raising the bottom up 7 inches from the ground and knuckling back the bottom edge to allow movement of desert kit foxes and desert tortoises.
- 17. Prior to use of pesticides, the project proponent shall consult with CDFW and USFWS regarding the necessary authorization permits from those agencies. All necessary authorization permits shall be obtained from those agencies, and copies of all such final authorization permits shall be submitted to the Kern County Planning and Natural Resources Department and BLM.

MM 4.4-7: To protect special status animal species from disturbance during construction, a qualified biologist (approved by the appropriate agency) shall monitor all initial ground-disturbance activities and remain on-call throughout construction in the event a special-status animal species wanders into the project site. In addition, a preconstruction survey of special status animal species shall be completed. Methodology for preconstruction surveys shall be appropriate for each potentially occurring special-status animal species including, American badger, desert kit fox, burrowing owl, Swainson's hawk, and migratory birds, and shall follow U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife preconstruction survey guidelines available. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days of the portion of the project site being disturbed. If any evidence of occupation of the project site special-status species is observed, a buffer shall be established by a qualified biologist that results in sufficient avoidance, as described below:

- 1. Preconstruction surveys shall be conducted by qualified biologists for the presences of American badger or Desert kit fox dens within 14 days prior to commencement of construction and decommissioning activities. The surveys shall be conducted for the entire area being disturbed in phases.
- 2. If active dens are observed and avoidance of den disturbance is feasible, the following buffers are required during construction activities;
 - a. American badger active den: 30 feet

- b. Desert kit fox active den: 100 feet (or 200 feet if during the breeding season, as required below).
- 3. If potential kit fox dens are observed, the following measures are required to avoid potential adverse effects to kit fox;
 - a. If the qualified biologist determines that the potential dens may be active during the breeding season (December 1 through June 30), the biologist shall implement a 200-foot avoidance buffer and shall notify California Department of Fish and Wildlife, California State Lands Commission, the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM). No destruction of active dens is to occur during the breeding season.
 - b. If an active kit fox den is discovered with the potential to be occupied by a desert kit fox during the non-breeding season (July 1 through November 31), the den openings shall be avoided by at least 100 feet.
 - c. If an active kit fox den cannot be avoided during the non-breeding season, entrances to the dens shall be monitored for at least 5 consecutive days using infra-red cameras. The den entrance can be blocked with soil, sticks, and debris during those 5 days to discourage use of these dens prior to proposed project disturbance. The den entrances shall be blocked to an incrementally greater degree over the 5-day period. After the qualified biologist determines that kit fox have stopped using active dens within the proposed project boundary, the dens shall be immediately had-excavated with a shovel, filled and compacted to prevent re-use during construction.
 - d. A qualified biologist shall be onsite each day that will result in new ground disturbance (initial activity and any lapse in activity for 14 days or more) and during ground disturbing operation and maintenance activities to ensure the buffers are maintained and that kit fox are not being impacted. A qualified biologist shall remain on call throughout construction and decommissioning in the event a desert kit fox wanders onto the site.
 - e. Perimeter fencing during operations shall be made wildlife friendly by raising the bottom up 7 inches from the ground with the bottom edge knuckled back to allow movement of desert kit foxes and desert tortoises.
 - f. If the qualified biologist determines that potential dens are inactive, the dens that cannot be avoided shall be excavated by hand under the direct supervision of a qualified biologist with a shovel, filled and compacted to prevent desert kit fox from reusing them during construction. Identified inactive dens will be confirmed inactive by monitoring of the burrow with cameras and track plates for 5 consecutive days to confirm no usage.

MM 4.4-8: The project proponent/operator shall implement the following measures, based on the California Department of Fish and Wildlife (CDFW) 2012 Staff Report on Burrowing Owl Mitigation, to ensure potential impacts to burrowing owl resulting from project implementation and decommissioning activities will be avoided and minimized to less than significant levels: The survey(s) shall occur no more than 14 days prior to ground-disturbing activities (i.e., exploratory geotechnical drilling, vegetation clearance, grading,

etc.), including start or re-start of construction or decommissioning activities, as applicable. The survey(s) need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days of the portion of the project site being disturbed. The survey methodology shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting and mapping any potential burrows with burrowing owl signs or presence of burrowing owls. A biologist shall prepare a preconstruction survey report that shall be submitted to CDFW, the Kern County Planning and Natural Resources Department, and Bureau of Land Management (BLM).

1. A qualified biologist shall conduct an additional pre-construction survey of all impact areas within 24-hours of start or restart (as the case may be) of ground disturbing activities associated with construction or decommissioning activities to identify any additional burrowing owls or burrows necessitating avoidance, minimization, or mitigation measures.

If active burrowing owl burrows are detected on site, they shall be protected in place through the use of visual screens or through CDFW-identified restricted activity dates and setback distances (presented in **Table 4.4-3, Burrowing Owl Burrow Restricted Activity Dates and Setback Distances**, below), or other measures as described in the 2012 CDFW Staff Report and/or approved by CDFW for the project to minimize disturbance impacts unless otherwise authorized by CDFW. Burrowing owls shall not be moved or excluded from burrows during the breeding season.

TABLE 4.4-3: BURROWING OWL RESTRICTED ACTIVITY DATES AND SETBACK DISTANCES

Time of Year	Level of Disturbance (meters)		
	Low	Medium	High
April 1 – August 15	200	500	500
August 16 – October 15	200	200	500
October 16 – March 31	50	100	500

SOURCE: CDFW 2012.

2. If avoidance of active burrows is infeasible, the owls can be passively displaced from their burrows according to recommendations made in the 2012 CDFW Staff Report on Burrowing Owl Mitigation, or alternative methods approved CDFW. Burrowing owls shall not be excluded from burrows according to the following requirements, or alternative methods approved by CDFW:
 - a. Occupied burrows shall not be disturbed during the nesting season generally defined as February 1 through August 31.
 - b. Before excluding owls during the non-nesting season, generally defined as September 1 through January 31, a qualified biologist meeting the Biologist Qualifications set forth in the 2012 CDFW Staff Report, shall verify through noninvasive methods through visual observations, followed by use of a burrow

scope that either: (1) the owls have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season.

- c. A Burrowing Owl Exclusion Plan is developed and approved by the applicable local CDFW office and submitted to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM). The plan shall include, at a minimum:
 - i. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;
 - ii. Type of scope and appropriate timing of scoping to avoid impacts;
 - iii. Occupancy factors to look for and what will guide determination of vacancy and excavation timing, one-way doors shall be left in place a minimum of 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily, and monitored for evidence that owls are inside and can't escape (i.e., look for sign immediately inside the door);
 - iv. How the burrow(s) will be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that owls do not reside in the burrow);
 - v. Removal of other potential owl burrow surrogates or refugia on site;
 - vi. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;
 - vii. How the impacted site will continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.
- d. Permanent loss of occupied burrow(s) and habitat is mitigated in accordance with the measures described below.
- e. Temporary exclusion is mitigated in accordance with the measures described below.
- f. Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Conduct daily monitoring for 1 week to confirm young of the year have fledged if the exclusion will occur immediately after the end of the breeding season.
- g. In accordance with the Burrowing Owl Exclusion Plan, a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow and monitored for at least 48 hours after installation.

If burrows will not be directly impacted by the project, one-way doors shall be installed to prevent use and shall be removed after ground disturbing activities have concluded in the area. Only burrows that will be directly impacted by the project shall be excavated and filled.

- h. During construction activities, monthly and final compliance reports shall be provided to the CDFW, Kern County Planning and Natural Resources Department, BLM, and other applicable resources agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project.
- i. If passive relocation is required, compensatory mitigation for lost breeding and/or wintering habitat shall be implemented on- offsite in accordance with Burrowing Owl Staff Report guidance. The following recommendations shall be implemented:
 - i. Temporarily disturbed habitat shall be restored, to pre-project conditions, including decompacting soil and revegetating. If restoration is not feasible, then the project proponent/operator shall consult with the CDFW when determining offsite mitigation acreages, but shall be no less than 160 acres.
 - ii. In order to protect habitat, the measures described below shall be implemented.
 - 1) Permanently conserve similar vegetation communities (grassland, scrublands, desert, and agriculture [grazing lands]) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non- breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. Conservation shall occur in areas that support burrowing owl habitat and can be enhanced to support more burrowing owls.
 - 2) Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW-approved burrowing owl conservation bank, the project proponent/operator may purchase available burrowing owl conservation bank credits.
 - 3) Develop and implement a mitigation land management plan in accordance with Burrowing Owl Staff Report guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls.
 - 4) Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.
 - 5) Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to CDFW-approved management, monitoring and reporting plans (including construction of artificial burrows if necessary), and the endowment or

other long-term funding mechanism is in place or security is provided until these measures are completed.

- 6) Mitigation lands shall be on, adjacent to, or in proximity to the impact site, where feasible, and where habitat is sufficient to support burrowing owls.

MM 4.4-9: To mitigate for potential impacts to nesting birds, special-status birds, and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.

1. During the avian nesting season (February 1 – August 31), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 7 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 7 days prior to clearing or disturbance in specific areas of the site. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. At no time shall the biologist be allowed to handle an active nest or its eggs. The survey shall cover all reasonably potential nesting locations on and within 500 feet of the project site, including ground nesting species, such as horned lark and western meadowlark, nests in shrubs that could support nests, and suitable raptor nest sites such as nearby trees and power poles. Access shall be granted on private offsite properties prior to conducting surveys on private land. If access is not obtainable, the biologist shall survey these areas from the nearest vantage point with use of spotting scopes or binoculars.
2. If construction is scheduled to occur during the non-nesting season (September 1 through February 1), no preconstruction surveys or additional measures are required for non-listed avian species.
3. If construction begins in the non-nesting season and proceeds continuously into the nesting season within any particular construction or decommissioning area, no surveys are required for non-listed avian species so long as all suitable nesting sites have been cleared from active construction/decommissioning areas.
4. If active nests are found, a 100-foot no-disturbance buffer shall be created around non-listed avian species' nests unless adjusted by the qualified biologist based on the needs and sensitivities of individual species, and a 300-foot no-disturbance buffer around raptor species' nests (or a suitable distance otherwise determined in consultation with California Department of Fish and Wildlife [CDFW]). Any nest of a federal- or state-listed bird species shall require consultation with the appropriate agency (U.S. Fish and Wildlife Service or the CDFW) to determine the appropriate buffer distance surrounding the nest to provide adequate nest protection. These buffers shall remain in effect until a qualified wildlife biologist has determined that the birds have fledged or the proposed project component(s) have been redesigned to avoid the area. All no-disturbance buffers shall be delineated in the field with visible flagging or fencing material.

- MM 4.4-10:** Prior to the issuance of grading or building permits, a Raven Management Plan shall be developed for the project site in consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. This plan shall include but is not limited to:
1. Identification of all raven nests within the project area during construction;
 2. Weekly inspection under all nests in the project area for evidence of raven predation on local wildlife (bones, carcasses, etc.), and, if evidence of listed-species predation is noted, submit a report to California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, the Kern County Planning and Natural Resources Department, and the Bureau of Land Management (BLM) within 5 calendar days;
 3. Provisions for the management of trash and water that could attract common ravens during the construction and operation phases of the proposed project.
 4. The project proponent/operator shall be required to participate in the regional comprehensive raven management plan, to address biological resources; the project proponent/operator shall be subject to compensation through the payment of a one-time fee not to exceed \$150 and no less than \$105 per disturbed acre, as established by the Desert Managers Group. Payment shall be made prior to starting construction activities. Evidence of the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife determination and evidence payment of any required fees shall be submitted to the Kern County Planning and Natural Resources Department and BLM.
- MM 4.4-11:** The project proponent/operator shall avoid and minimize impacts to scale broom scrub and any other DRECP riparian vegetation type by implementing a 200-foot avoidance buffer. The avoidance buffer can be reduced, but only after receiving approval from the Bureau of Land Management (BLM) that the permitted construction activities can be classified as a minor incursion as defined with the DRECP. Impacts within the 200-foot avoidance buffer will not be permitted without BLM approval.
- MM 4.4-12:** Prior to issuance of any grading or building permit, the project proponent/operator shall submit a report detailing how all identified ephemeral drainages are avoided by permanent facilities. A copy of this report shall also be provided to the Lahontan Regional Water Quality Control Board (RWQCB), the County and Bureau of Land Management (BLM). The report shall include information as shown below as a plan if necessary and shall outline compliance to the following:
1. Avoidance of potential jurisdictional features (ephemeral drainages). This may be shown in plan form.
 2. Any material/spoils generated from project activities shall be located away from jurisdictional areas and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.
 3. Fuel or hazardous materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and be placed generally at least 50 feet from the top of bank.
 4. Any spillage of fuel or hazardous material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed.

For all spills, the project foreman or designated environmental representative will be notified.

MM 4.4-13: If potential jurisdictional features cannot be avoided, the project proponent/operator shall be subject to provisions as identified below:

1. If avoidance is not practical, prior to ground disturbance activities that could impact these aquatic features, the project proponent/operator shall file a complete Report of Waste Discharge with the RWQCB to obtain Waste Discharge Requirements and shall also consult with California Department of Fish and Wildlife (CDFW) on the need for a streambed alteration agreement. Correspondence and copies of reports shall be submitted to the County and BLM.
2. Based on consultation with RWQCB and CDFW, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources.
3. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified and secured prior to disturbance of the features at a minimum 1:1 ratio, or as approved by the RWQCB or CDFW. Mitigation may be either through onsite or offsite mitigation, or purchasing credits from an approved mitigation bank.
4. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall be provided to the County and Bureau of Land Management (BLM).
5. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW.
 - a. If onsite mitigation is proposed, the HMMP shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site).
 - b. The HMMP shall include remedial measures in the event that performance criteria are not met.
 - c. If mitigation is implemented off site, mitigation lands shall be comprised of similar or higher quality and preferably located in the vicinity of the site or watershed. Offsite land shall be preserved through a deed restriction or conservation easement and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land.
 - d. Copies of any coordination, permits, etc., with RWQCB and CDFW shall be provided to the County and BLM.

Implementation of Mitigation Measures MM 4.1-4 (see Visual Resources section below), MM 4.7-4 (see Geology/Mineral Resources/Energy Production section below) and 4.9-2 (see Wastes section below) would also be required.

Cultural Resources

MM 4.5-1: The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011), to carry out all mitigation measures related to archaeological and unique historical resources. The contact information for this Lead Archaeologist shall be provided to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM) prior to the commencement of any construction activities on-site. Further, the Lead Archaeologist shall be responsible for ensuring the following employee training provisions are implemented during implementation of the project:

1. Prior to commencement of any ground-disturbing activities, the Lead Archaeologist shall conduct a Cultural Resources Sensitivity Training for all personnel working on the proposed project. A Cultural Resources Sensitivity Training Guide approved by the Lead Archaeologist shall be provided to all personnel. A copy of the Cultural Resources Sensitivity Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. A copy of the proposed training materials shall be provided to the Planning and Natural Resources Department prior to the issuance of any grading or building permit.
2. The training shall include an overview of potential cultural resources that could be encountered during ground-disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist for further evaluation and action, as appropriate, and of the penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources.
3. The project proponent/operator shall ensure all employees or onsite workers who have not participated in earlier cultural resources sensitivity trainings shall meet the provisions specified above.
4. A copy of the Cultural Resources Sensitivity Training Guide/Materials shall be kept on-site and available for all personnel to review and be familiar with as necessary. It is the responsibility of the Lead Archaeologist to ensure all employees receive appropriate training before the work on-site.

MM 4.5-2: In the event archaeological materials are encountered during any ground disturbing activities, including grading, construction and decommissioning, the project proponent/contractor shall cease any ground-disturbing activities. The services of an archaeological monitor working under the supervision of the Lead Archaeologist shall be retained by the project proponent/operator to monitor on a full-time basis, ground-disturbing activities associated with project-related activities, as follows:

1. All ground-disturbing activities within 50 feet of prehistoric archaeological sites shall be monitored.
2. For all other ground-disturbing activities within the project area, initial excavation or grading activities shall be monitored by archaeological monitors. During the course of this initial monitoring, if the qualified archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or if the qualified archaeologist can

demonstrate a need for continuing monitoring, the qualified archaeologist, in consultation with the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM), may adjust the level of monitoring to circumstances as warranted. The area of the discovery shall be marked off by temporary fencing that encloses a 50-foot radius from the location of discovery or a radius determined by the Lead Archaeologist, as appropriate. Signs shall be posted that establish it as an Environmentally Sensitive Area until the discovery is assessed by the Lead Archaeologist. The Lead Archaeologist shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area may be reduced, depending on the nature of the find, but shall remain in place until all work is completed.

3. Per *California Environmental Quality Act (CEQA) Guidelines* Section 15126.4(b)(3), project redesign and preservation in place is the preferred means to avoid impacts to significant historical resources. Consistent with *CEQA Guidelines* Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the lead archaeologist shall develop additional treatment measures in consultation with the County, and the BLM if the resource occurs on federally owned land, which may include data recovery or other appropriate measures. The County, and the BLM if applicable, shall consult with appropriate Native American representatives in determining appropriate treatment for unearthened cultural resources if the resources are prehistoric or Native American in nature. Archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The lead archaeologist, in consultation with a designated Native American representative, as required, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department, to the BLM, and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.
4. The archaeological monitor shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report detailing the results of monitoring, which shall be submitted to the Kern County Planning and Natural Resources Department, BLM and to the southern San Joaquin Valley Information Center at California State University, Bakersfield.

MM 4.5-3: If human remains are uncovered during project construction on non-federally owned land, the project proponent/contractor shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the *California Environmental Quality Act Guidelines*. If the County coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according

to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply.

If human remains are uncovered during project construction on federally owned land, the BLM shall be notified. If it is determined that the remains are Native American, the BLM archaeologist will initiate the proper procedures under the Native American Graves Protection and Repatriation Act (NAGPRA). Reasonable and good faith efforts shall be made by the BLM to identify the appropriate Native American tribes, groups and individuals, or other ethnic groups and individuals related to the burial and consult with them concerning the treatment of the remains. Native American human remains, associated grave goods, or objects of cultural patrimony discovered on federal lands will be treated in accordance with the requirements of NAGPRA. Construction in the area of the find shall not resume until authorization has been given by the BLM.

Fuels and Fire Management

MM 4.14-1: Prior to issuance of grading or building permits, the project proponent/operator shall develop and implement a Fire Safety Plan for use during construction, operation, and decommissioning.

The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department and the Bureau of Land Management (BLM) for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department and the BLM. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to the following:

1. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.
2. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition.
3. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.
4. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.
5. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.

6. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

Geology / Mineral Resources/ Energy Production

MM 4.7-1: Prior to the issuance of building or grading permits for the proposed project, the project proponent/operator shall conduct a final geotechnical study to confirm the findings of the preliminary geotechnical engineering report regarding soil conditions and geologic hazards on the project site and submit for review and approval by the Kern County Department of Public Works and the Bureau of Land Management (BLM).

1. The final geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but is not limited to, the following:
 - a. Location of fault traces and potential for surface rupture and groundshaking potential
 - b. Maximum considered earthquake and associated ground acceleration
 - c. Potential for seismically induced, liquefaction, differential settlement, and mudflows
 - d. Stability of any existing or proposed cut-and-fill slopes
 - e. Collapsible or expansive soils
 - f. Foundation material type
 - g. Potential for wind erosion, water erosion, sedimentation, and flooding
 - h. Location and description of unprotected drainage that could be impacted by the proposed development; and
 - i. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground and any seismic hazards.
2. The project proponent shall determine the final siting of project facilities based on the results of the final geotechnical study and implement its recommended measures. The project proponent/operator shall not locate project facilities on or immediately adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate fault trace(s) to avoid siting improvements on, or close to, fault trace(s) and to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed.
3. The project proponent shall evaluate final facility siting design developed prior to the issuance of any building or grading permits shall be made to verify that geological constraints have been avoided.

MM 4.7-2: Prior to the issuance of grading permits:

1. The project proponent shall retain a California registered and licensed engineer to design the project facilities to withstand probable seismically induced ground shaking at the project site. All grading and construction on site shall adhere to the specifications, procedures, and site conditions contained in the final design plans, which shall be fully compliant with the seismic recommendations of the California-registered and licensed professional engineer.
 - a. The procedures and site conditions shall encompass site preparation, foundation specifications, and protection measures for buried metal structures.
 - b. The final structural design shall be subject to approval by Kern County Public Works and Bureau of Land Management (BLM) and approval and follow-up inspection by the Kern County Building Inspection Department and BLM. Final design requirements shall be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.7-3: The project proponent/operator shall minimize grading. Prior to the initiation of construction, the project proponent/operator shall retain a California registered and licensed professional engineer to submit final grading earthwork and foundation plans, incorporating best management practices to limit on-site and off-site erosion to the extent feasible, to the Kern County Public Works Department and the Bureau of Land Management (BLM) for review and approval.

MM 4.7-4: Prior to grading, construction and demolition activities, the project proponent/operator shall prepare a Soil Erosion and Sedimentation Control Plan to mitigate potential loss of soil and erosion. The plan shall be prepared by a California-registered and licensed civil engineer or other County-approved professional, and submitted to the Kern County Public Works Department and Bureau of Land Management (BLM) for review and approval.

1. The Soil Erosion and Sedimentation Control Plan shall include, but is not limited to, the following:
 - a. Best management practices to minimize soil erosion consistent with Kern County grading requirements and the Lahontan Regional Water Quality Control Board requirements pertaining to the preparation of a Stormwater Pollution Prevention Plan (best management practices recommended by the Kern County Public Works Department and the BLM shall be reviewed for applicability).
 - b. Provisions to maintain flow in washes, should it occur, throughout construction.
 - c. Provisions for site revegetation using native seed mix or allowing for existing vegetation to grow.
 - d. Sediment collection facilities as may be required by the Kern County Public Works Department and the BLM.
 - e. A timetable for full implementation, estimated costs, and a surety bond or other security as approved by the County and the BLM.

- f. Other measures required by the County and the BLM during permitting, including long-term monitoring (post-construction) of erosion control measures until site stabilization is achieved.

Paleontological Resources

MM 4.7-5: The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards (SVP, 2010), to carry out all mitigation measures related to paleontological resources.

1. Prior to the start of any ground-disturbing activities, the qualified paleontologist shall conduct a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM). The training guide may be presented in video form.
2. Paleontological Resources Awareness Training may be conducted in conjunction with other awareness training requirements.
3. The training shall include an overview of potential paleontological resources that could be encountered during ground-disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources.
4. The Paleontological Resources Awareness Training Guides shall be kept onsite and available for all personnel to review and be familiar with as necessary.

MM 4.7-6: A qualified paleontologist or designated monitor shall be retained to monitor all ground-disturbing activity (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at any depth below ground surface.

1. The duration and timing of monitoring shall be determined by the qualified paleontologist in consultation with the Kern County Planning and Natural Resources Department, and shall be based on a review of geologic maps and grading plans.
 - a. During the course of monitoring, if the paleontologist can demonstrate based on observations of subsurface conditions that the level of monitoring should be reduced, the paleontologist, in consultation with the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM), may adjust the level of monitoring to circumstances, as warranted.
2. Paleontological monitoring shall include inspection of exposed rock units during active excavations within sensitive geologic sediments. The qualified paleontologist and designated monitor shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary.

3. Following the completion of construction, the qualified paleontologist shall prepare a report documenting the absence or discovery of fossil resources onsite. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, recovery and curation efforts, and the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository such as the Natural History Museum of Los Angeles County.

MM 4.7-7: If a paleontological resource is found, the project contractor shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.

Soils

Implementation of Mitigation Measures MM 4.7-1, MM 4.7-3, and MM 4.7-4 (see Geology/Mineral Resources/Energy Production section above) would be required.

Visual Resources

MM 4.1-1: Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted to for review and approval the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM). The program shall include, but not be limited to the following:

1. The project proponent/operator shall clear debris from the project area at least twice per year; this can be done in conjunction with regular panel washing and site maintenance activities.
2. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department.
3. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.

4. Trash and food items shall be contained in closed secured containers at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

MM 4.1-2: Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall provide evidence for the following:

The project proponent/operator shall identify and submit a proposed color scheme and treatment plan that will ensure all project facilities including operations and maintenance buildings, gen-tie poles, array facilities, etc. blend in with the colors found in the natural landscape. All color treatments shall result in matte or nonglossy finishes. The submitted color scheme and treatment plan shall be reviewed and approved by the Planning Director and the Bureau of Land Management (BLM) and the project shall continually comply with the approved plan.

MM 4.1-3: Wherever possible, within the proposed project boundary the natural vegetation shall remain undisturbed. Where disturbance of natural vegetation is necessary that disturbance shall occur in the manner that results in the greatest retention of root balls and native topsoil with mowing being the preferred and primary method of clearing. All natural vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM) for review and approval. The plan shall include the measures detailed below.

1. In areas temporarily disturbed during construction and decommissioning (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants (including Mohave creosote scrub habitat) and/or allowed to re-vegetate with the existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads or under arrays do not require revegetation.
2. The plan must include but is not limited to: (1) the approved California native seed mix that will be used onsite, (2) a timeline for seeding the site, (3) the details of which areas are to be revegetated, and a clear prohibition of the use of toxic rodenticides.
3. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish re-vegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department and BLM prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time).
4. Vegetation/ground cover shall be continuously maintained on the site by the project operator.

5. The re-vegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during these three-year periods, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department and BLM for the three-year period. Should efforts to revegetate soil prove in the second year to not be successful, re-evaluation of revegetation methods shall be made in consultation with the Kern County Planning and Natural Resources Department and the Bureau BLM and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

MM 4.1-4: Prior to final activation of the solar facility, the project proponent shall demonstrate to County Staff and the Bureau of Land Management (BLM) that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance), and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields.

MM 4.1-5: Prior to the issuance of building permits, the project proponent shall demonstrate the solar panels and hardware are designed to minimize glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM).

MM 4.1-6: Prior to final activation of the solar facility, the project operator shall demonstrate that all on-site buildings utilized nonreflective materials, as approved by the Kern County Planning and Natural Resources and Bureau of Land Management (BLM).

Wastes (Hazardous or Solid)

MM 4.9-1: During the life of the project, including decommissioning, the project operator shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at <http://cers.calepa.ca.gov/> for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The HMBP shall:

- Delineate hazardous material and hazardous waste storage areas
- Describe proper handling, storage, transport, and disposal techniques

- Describe methods to be used to avoid spills and minimize impacts in the event of a spill
- Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction and operation
- Establish public and agency notification procedures for spills and other emergencies including fires
- Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site

The project proponent shall ensure that all contractors working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted HMBP from CERS shall be submitted to the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM) for inclusion in the projects permanent record.

MM 4.9-2: The project proponent shall continuously comply with the following:

- a) The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas (i.e., non-agricultural use). Personnel applying herbicides shall have all appropriate state and local herbicide applicator licenses and comply with all state and local regulations regarding herbicide use.
- b) Herbicides shall be mixed and applied in conformance with the manufacturer's directions.
- c) The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife.
- d) Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water.
- e) Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.
- f) A written record of all herbicide applications on the site, including dates and amounts shall be furnished to the Kern County Planning and Natural Resources Department and the Bureau of Land Management (BLM).

MM 4.17-1: During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible.

1. An on-site Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance, Trash Abatement and Pest Management Program.

2. The Recycling Coordinator shall facilitate recycling of all construction waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes.
3. The on-site Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal.
4. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department and Bureau of Land Management (BLM) prior to issuance of building permits.
5. The project proponent/operator shall provide a storage area for recyclable materials within the fenced project area that is clearly identified for recycling. This area shall be maintained on the site during construction, operations and decommissioning. A site plan showing the recycling storage area shall be submitted prior to the issuance of any grading or building permit for the site.

Water Resources

MM 4.10-1: Prior to the issuance of a grading permit, the project proponent shall complete a final drainage plan designed to evaluate and minimize potential increases in runoff from the project site. The study and plan shall include the following:

1. A numerical stormwater model for the project site that evaluates existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event.
2. An assessment of the potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation.
3. Engineering recommendations to be incorporated into the project and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on-site or off-site.
5. The drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards and approved by the Kern County Public Works Department and Bureau of Land Management (BLM) prior to the issuance of grading permits.

Implementation of Mitigation Measures MM 4.7-4 (see Geology/Mineral Resources/ Energy Production section above) and MM 4.9-1 (see Wastes section above) would also be required.

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Appendix M2: DRECP CMA Consistency Table

Appendix M2. DRECP CMA Consistency Table

LUPA Wide					
Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Biological Resources	LUPA-BIO-1	Conduct a habitat assessment (see Glossary of Terms) of Focus and BLM Special Status Species' suitable habitat for all activities and identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat (see Glossary of Terms) for Focus and BLM Special Status Species. If required by the relevant species specific CMAs, conduct any subsequent protocol or adequate presence/absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.	Applicable	Consistent	Based upon the BRTR (prepared by SWCA Environmental Consultants in Sept 2018) and Section 4.4, Biological Resources, these habitats have been assessed on the project site and subsequent protocol surveys were conducted for special-status plants, desert tortoise, and burrowing owls.
		<ul style="list-style-type: none"> BLM will not require protocol surveys in sites determined by the designated biologist to be unviable for occupancy of the species, or if baseline studies inferred absence during the current or previous active season. 	Not applicable		Protocol surveys were conducted based on potential of special status species to occur onsite. (See above).
		Utilize the most recent and applicable assessment protocols and guidance documents for vegetation types and jurisdictional waters and wetlands that have been approved by BLM, and the appropriate responsible regulatory agencies, as applicable.	Applicable	Consistent	Mitigation Measures MM 4.4-12 through MM 4.4-13 ensure impacts to jurisdictional waters, wetlands, and riparian areas are below the level of significance. (Particularly MM 4.4-12 and MM 4.4-13; new field delineation prior to construction and development of SWPPP, respectively). Guidance documents for vegetation types are recent (2009 & 2010).
	LUPA-BIO-2	Designated biologist(s) (see Glossary of Terms), will conduct, and oversee where appropriate, activity-specific required biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective. The appropriate required monitoring will be determined during the environmental analysis and BLM approval process. The designated biologist(s) will submit monitoring reports directly to BLM.	Applicable	Consistent	The following Measures specify a designated biologist shall oversee monitoring: Mitigation Measures MM 4.4-1 through MM 4.4-10.
Resource Setback Standards	LUPA-BIO-3	Resource setbacks (see Glossary of Terms) have been identified to avoid and minimize the adverse effects to specific biological resources. Setbacks are not considered additive and are measured as specified in the applicable CMA. Allowable minor incursions (see Glossary of Terms), as per specific CMAs do not affect the following setback measurement descriptions. Generally, setbacks (which range in distances for different biological resources) for the appropriate resources are measured from:	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> The edge of each of the DRECP desert vegetation types, including but not limited to those in the riparian or wetland vegetation groups (as defined by alliances within the vegetation type descriptions and mapped based on the vegetation type habitat assessments described in LUPA-BIO-1). 	Applicable	Consistent	See above. No other setbacks are anticipated to be required given the vegetation communities onsite.
		<ul style="list-style-type: none"> The edge of the mapped riparian vegetation or the Federal Emergency Management Agency (FEMA) 100-year floodplain, whichever is greater, for the Mojave River. 	Applicable	Inconsistent	Applicable due to presence of Scale Broom Scrub (grouped under Madrean Warm Semi-Desert Wash Woodland/Scrub). See above for setback. No specific text related to FEMA 100 yr floodplain.
		<ul style="list-style-type: none"> The edge of the vegetation extent for specified Focus and BLM sensitive plant species. 	Applicable	Consistent	See above. No setback for Joshua Tree Woodland but MM 4.4-3 requires a Joshua Tree Impact Plan to mitigate for potential translocation of individual Joshua trees.
		<ul style="list-style-type: none"> The edge of suitable habitat or active nest substrates for the appropriate Focus and BLM Special Status Species. 	Applicable	Consistent	The Proposed Action shall implement this CMA
Seasonal Restrictions	LUPA-BIO-4	For activities that may impact Focus and BLM Special Status Species, implement all required species-specific seasonal restrictions on pre-construction, construction, operations, and decommissioning activities. Species-specific seasonal restriction dates are described in the applicable CMAs.	Applicable	Consistent	Seasonal restrictions have been included where applicable and are consistent with Measure MM 4.4-6.
			Applicable	Consistent	Per MM 4.4-7, maternity desert kit fox dens shall be avoided during pup-rearing season and burrowing owl burrows shall be avoided during non-breeding and breeding season, respectively. Burrowing owls shall not be disturbed during the nesting season.
		Alternatively, to avoid a seasonal restriction associated with visual disturbance, installation of a visual barrier may be evaluated on a case-by-case basis that will result in the breeding, nesting, lambing, fawning, or roosting species not being affected by visual disturbance from construction activities subject to seasonal restriction. The proposed installation and use of a visual barrier to avoid a species seasonal restriction will be analyzed in the activity/project specific environmental analysis.	Applicable	Consistent	The Proposed Action shall implement this CMA if BLM deems it necessary.
Worker Education	LUPA-BIO-5	All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about:	Applicable	Consistent	MM 4.4-5 is consistent with worker education program requirements.
		<ul style="list-style-type: none"> Site-specific biological and nonbiological resources. 	Applicable	Consistent	Consistent with MM 4.4-5.
		<ul style="list-style-type: none"> Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with LUPA CMA requirements intended to protect site-specific biological and nonbiological resources. 	Applicable	Consistent	The legal and CMA requirements will be presented and made available during construction monitoring
		<ul style="list-style-type: none"> The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc. 	Applicable	Consistent	The legal and CMA requirements will be presented and made available during construction monitoring
		<ul style="list-style-type: none"> Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist. 	Applicable	Consistent	Consistent with MM4.4-5 and 4.4-9.
		<ul style="list-style-type: none"> Measures that personnel can take to promote the conservation of biological and nonbiological resources. 	Applicable	Applicable	MM4.4-1 through MM 4.4-10 are measures workers can take to promote conservation of biological and nonbiological resources.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Subsidized Predators Standards	LUPA-BIO-6	Subsidized predator standards, approved by BLM, in coordination with the USFWS and CDFW, will be implemented during all appropriate phases of activities, including but not limited to renewable energy activities, to manage predator food subsidies, water subsidies, and breeding sites including the following:	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Common Raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common Raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellent methods to avoid providing perches, nesting sites, and roosting sites for Common Ravens. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Common Raven management actions will be implemented for all activities to address food and water subsidies and roosting and nesting sites specific to the Common Raven. These include identification of monitoring reporting procedures and requirements; strategies for refuse management; as well as design strategies and passive repellent methods to avoid providing perches, nesting sites, and roosting sites for Common Ravens. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Following the most recent national policy and guidance, BLM will take actions to not introduce, dispose of, or release any non- native species into areas of native habitat, suitable habitat, and natural or artificial waterways/water bodies containing native species. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		All activity work areas will be kept free of trash and debris. Particular attention will be paid to “micro-trash” (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and any debris or trash that is colorful or shiny) and organic waste that may subsidize predators. All trash will be covered, kept in closed containers, or otherwise removed from the project site at the end of each day or at regular intervals prior to periods when workers are not present at the site.	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> In addition to implementing the measures above on activity sites, each activity will provide compensatory mitigation that contributes to LUPA-wide raven management. 	Applicable	Consistent	The Proposed Action shall implement this CMA
Restoration of Areas Disturbed by Construction Activities But Not Converted by Long-Term Disturbance	LUPA-BIO-7	Where DRECP vegetation types or Focus or BLM Special Status Species habitats may be affected by ground- disturbance and/or vegetation removal during pre-construction, construction, operations, and decommissioning related activities but are not converted by long-term (i.e., more than two years of disturbance, see Glossary of Terms) ground disturbance, restore these areas following the standards, approved by BLM authorized officer, following the most recent BLM policies and procedures for the vegetation community or species habitat disturbance/impacts as appropriate, summarized below:	Applicable	Consistent	See above. No setback for Joshua Tree Woodland but MM 4.4-3 requires a Joshua Tree Impact Plan to mitigate for potential translocation of individual Joshua trees.
		<ul style="list-style-type: none"> Implement site-specific habitat restoration actions for the areas affected including specifying and using: <ul style="list-style-type: none"> The appropriate seed (e.g., certified weed- free, native, and locally and genetically appropriate seed) 	Applicable	Consistent	See below. The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Appropriate soils (e.g., topsoil of the same original type on site or that was previously stored by soil type after being salvaged during excavation and construction activities) 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Equipment 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Timing (e.g., appropriate season, sufficient rainfall) 	Applicable	Consistent	MM 4.4-3's Joshua Tree Impact Plan should identify translocation process.
		<ul style="list-style-type: none"> Location 	Applicable	Consistent	MM 4.4-3's Joshua Tree Impact Plan should identify potential translocation site.
		<ul style="list-style-type: none"> Success criteria 	Applicable	Consistent	MM 4.4-3's Joshua Tree Impact Plan should identify success criteria for a minimum of 2 yrs.
		<ul style="list-style-type: none"> Monitoring measures 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Contingency measures, relevant for restoration, which includes seeding that follows BLM policy when on BLM administered lands. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Salvage and relocate cactus, nolina, and yucca from the site prior to disturbance using BLM protocols. To the maximum extent practicable for short-term disturbed areas (see Glossary of Terms), the cactus and yucca will be re-planted back to the original site. 	Applicable	Consistent	MM 4.4-3 requires development of a Joshua Tree Impact Plan to identify every individual tree that may be impacted by construction, potential translocation site, specific translocation process, watering guidelines, monitoring requirements, and success criteria for a minimum of 2 yrs.
General Closure and Decommissioning Standards	LUPA-BIO-8	All activities that are required to close and decommission the site (e.g., renewable energy activities) will specify and implement project-specific closure and decommissioning actions that meet the approval of BLM, and that at a minimum address the following:	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Specifying and implementing the methods, timing (e.g., criteria for triggering closure and decommissioning actions), and criteria for success (including quantifiable and measureable criteria). 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Recontouring of areas that were substantially altered from their original contour or gradient and installing erosion control measures in disturbed areas where potential for erosion exists. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Restoring vegetation as well as soil profiles and functions that will support and maintain native plant communities, associated carbon sequestration and nutrient cycling processes, and native wildlife species. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Vegetation restoration actions will identify and use native vegetation composition, native seed composition, and the diversity to values commensurate with the natural ecological setting and climate projections. 	Applicable	Consistent	The Proposed Action shall implement this CMA

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Water and Wetland Dependent Species Resources	LUPA-BIO-9	Implement the following general LUPA CMA for water and wetland dependent resources	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Implement construction site standard practices to prevent toxic chemicals, hazardous materials, and other fluids from entering vegetation type streams, washes, and tributary networks through water runoff, erosion, and sediment transport by, at a minimum, implementing the following: <ul style="list-style-type: none"> On project sites, vehicles and other equipment will be maintained in proper working condition and only stored in designated containment areas where runoff is collected or controlled and that are located outside of streams, washes, and distributary networks to minimize accidental fluids and hazardous materials spills. 	Applicable	Consistent	Mitigation Measures MM 4.7-4, 4.9-1, and 4.10-1 are consistent and states temporary perimeter sediment barriers will be implemented and all refueling of equipment, storage of hazardous materials, and equipment maintenance activities shall occur at least 100 feet away from jurisdictional areas. Potentially need to clarify if vehicles will be stored outside of drainage areas.
		<ul style="list-style-type: none"> Hazardous material leaks, spills, or releases will be immediately cleaned and equipment will be repaired upon identification. Removal and disposal of spill and related clean-up materials will occur at an approved off-site landfill. 	Applicable	Consistent	MM 4.9-1 requires preparation of a Hazardous Materials Business Plan to cover methods for avoiding/handling leaks and spills.
		<ul style="list-style-type: none"> Maintenance and operations vehicles will carry the appropriate equipment and materials to isolate, clean up, and repair any hazardous material leaks, spills, or releases. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Activity-specific drainage, erosion, and sedimentation control actions, which meet the approval of BLM and the applicable regulatory agencies, will be carried out during all appropriate phases of the approved project. These actions, as needed, will address measures to ensure the proper protection of water quality, site-specific stormwater and sediment retention, and design of the project to minimize site disturbance, including the following: <ul style="list-style-type: none"> Identify site-specific surface water runoff patterns and implement measures to prevent excessive and unnatural soil deposition and erosion. Implement measures to maintain natural drainages and to maintain hydrologic function in the event drainages are disturbed. Reduce the amount of area covered by impervious surfaces through use of permeable pavement or other pervious surfaces. Direct runoff from impervious surfaces into retention basins. Stabilize disturbed areas following grading in the manner appropriate to the soil type so that wind or water erosion is minimized. Minimize irrigation runoff by using low or no irrigation native vegetation landscaping for landscaped retention basins. 	Applicable	Consistent	MM 4.7-4 identifies erosion & sedimentation BMPs.
		<ul style="list-style-type: none"> Conduct regular inspections and maintenance of long-term erosion control measures to ensure long-term effectiveness. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Project applicants for sites that may affect intermittent and perennial streams, springs, swales, ephemeral washes, wetland vegetation, other DRECP water land covers, or sites occupied by aquatic or riparian Focus and BLM Special Status Species due to groundwater or surface water extraction will conduct hydrologic studies during project planning to determine the potential effect of groundwater and surface water extraction on the hydrologic unit. These studies will include both watershed effects as well as effects on perched, alluvial, and regional aquifers. Projects that are likely to affect ground-water resources in a manner that would result in substantial loss of riparian or wetland communities or habitat for riparian or aquatic Focus and BLM Special Status Species are prohibited. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> The use of evaporation ponds for water management will be avoided when the water could harm birds or other terrestrial wildlife due to constituents of concern present in the wastewater (e.g., selenium, hypersalinity, etc.). Evaporation ponds will be configured to minimize attractiveness to shorebirds (e.g., maintain water depths over two feet; maintain steep slopes along edge; enclose evaporation ponds in long-term structures; or obscure evaporation ponds from view using materials that blend in with the natural surroundings). 	Not applicable	Consistent	No evaporation ponds are proposed by the project.
		<ul style="list-style-type: none"> Ramps that allow the egress of wildlife from ponds or other water management infrastructure will be installed. 	Not applicable	Consistent	No ponds or other water management infrastructure will be installed.
		Consistent with BLM state and national policies and guidance, integrated weed management actions, will be carried out during all phases of activities, as appropriate, and at a minimum will include the following:	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Thoroughly clean the tires and undercarriage of vehicles entering or reentering the project site to remove potential weeds. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Store project vehicles on site in designated areas to minimize the need for multiple washings whenever vehicles re-enter the project site. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Properly maintain vehicle wash and inspection stations to minimize the introduction of invasive weeds or subsidy of invasive weeds. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Closely monitor the types of materials brought onto the site to avoid the introduction of invasive weeds and non-native species. 	Applicable	Consistent	The Proposed Action shall implement this CMA
Standard Practices for Weed Management	LUPA-BIO-10	<ul style="list-style-type: none"> Reestablish native vegetation quickly on disturbed sites. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Monitor and quickly implement control measures to ensure early detection and eradication of weed invasions to avoid the spread of invasive weeds and non-native species on site and to adjacent off-site areas. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> Use certified weed-free mulch, straw, hay bales, or equivalent fabricated materials for installing sediment barriers. 	Applicable	Consistent	The Proposed Action shall implement this CMA

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Nuisance Animals and Invasive Species	LUPA-BIO-11	Implement the following CMAs for controlling nuisance animals and invasive species:	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> ● No fumigant, treated bait, or other means of poisoning nuisance animals including rodenticides will be used in areas where Focus and BLM Special Status Species are known or suspected to occur. 	Not applicable		No fumigant, treated bait, or other nuisance animal poisoning mentioned.
		<ul style="list-style-type: none"> ● Manage the use of widely spread herbicides and do not apply herbicides effective against dicotyledonous plants within 1,000 feet from the edge of a 100-year floodplain, stream and wash channels, and riparian vegetation or to soils less than 25 feet from the edge of drains. Exceptions will be made when targeting the base and roots of invasive riparian species such as tamarisk and Arundo donax (giant reed). Manage herbicides consistent with the most current national and California BLM policies. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> ● Minimize herbicide, pesticide, and insecticide treatment in areas that have a high risk for groundwater contamination. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> ● Clean and dispose of pesticide containers and equipment following professional standards. Avoid use of pesticides and cleaning containers and equipment in or near surface or subsurface water. 	Applicable	Consistent	The Proposed Action shall implement this CMA
		<ul style="list-style-type: none"> ● When near surface or subsurface water, restrict pesticide use to those products labeled safe for use in/near water and safe for aquatic species of animals and plants. 	Applicable	Consistent	The Proposed Action shall implement this CMA
Noise	LUPA-BIO-12	For activities that may impact Focus or BLM Special Status Species, implement the following LUPA CMA for noise:	Applicable	Consistent	The Propose Action would not impact Focus or BLM Special Status Species
		<ul style="list-style-type: none"> ● To the extent feasible, and determined necessary by BLM to protect Focus and BLM sensitive wildlife species, locate stationary noise sources that exceed background ambient noise levels away from known or likely locations of and BLM sensitive wildlife species and their suitable habitat. 			See above.
		<ul style="list-style-type: none"> ● Implement engineering controls on stationary equipment, buildings, and work areas including sound-insulation and noise enclosures to reduce the average noise level, if the activity will contribute to noise levels above existing background ambient levels. 			See above.
General Siting and Design	LUPA-BIO-13	Implement the following CMA for project siting and design			See above.
		<ul style="list-style-type: none"> ● To the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM Special Status Species (see “avoid to the maximum extent practicable” in Glossary of Terms). 	Applicable	Consistent	Measures involving avoidance of sensitive habitats: MM 4.4-1 through MM 4.4-10.
		<ul style="list-style-type: none"> ● The siting of projects along the edges (i.e. general linkage border) of the biological linkages identified in Appendix D (Figures D-1 and D-2) will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to Focus and BLM Special Status Species’ dispersal, and (2) informed by existing available information on modeled focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information. Additionally, projects will be sited and designed to maintain the function of F Special Status Species connectivity and their associated habitats in the following linkage and connectivity areas: 	Applicable	Consistent	The Proposed Action would not impact any biological linkages
		<ul style="list-style-type: none"> ○ Within a 5-mile-wide linkage across Interstate 10 centered on Wiley’s Well Road to connect the Mule and McCoy mountains (the majority of this linkage is within the Chuckwalla ACEC and Mule-McCoy Linkage ACEC) . 	Not applicable		Not mentioned in .
		<ul style="list-style-type: none"> ○ Within a 3-mile-wide linkage across Interstate 10 to connect the Chuckwalla and Palen mountains. 	Not applicable		See above.
		<ul style="list-style-type: none"> ○ Within a 1.5-mile-wide linkage across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center. 	Not applicable		See above.
		<ul style="list-style-type: none"> ○ The confluence of Milpitas Wash and Colorado River floodplain within 2 miles of California State Route 78 (this linkage is entirely within the Chuckwalla ACEC) . 	Not applicable		See above.
		<ul style="list-style-type: none"> ● Delineate the boundaries of areas to be disturbed using temporary construction fencing and flagging prior to construction and confine disturbances, project vehicles, and equipment to the delineated project areas to protect vegetation types and focus and BLM Special Status Species. 	Applicable	Consistent	MM 4.4-6 states limits of disturbance shall be clearly shown on construction plans, and staking or fencing will field-delineate sensitive vegetation communities to be avoided. Exclusionary fencing, staking, or other marking shall be installed prior to grading activities and remain in place for duration of construction. Mitigation Measures MM 4.4-1 through MM 4.4-10, MM 4.7-4, MM 4.9-1, and MM 4.10-1 require refueling, storage of hazardous material, and equipment maintenance occur in designated areas.
		<ul style="list-style-type: none"> ● Long-term nighttime lighting on project features will be limited to the minimum necessary for project security, safety, and compliance with Federal Aviation Administration requirements and will avoid the use of constant-burn lighting. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> ● All long-term nighttime lighting will be directed away from riparian and wetland vegetation, occupied habitat, and suitable habitat areas for Focus and BLM Special Status Species. Long- term nighttime lighting will be directed and shielded downward to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> ● To the maximum extent practicable (see Glossary of Terms), restrict construction activity to existing roads, routes, and utility corridors to minimize the number and length/size of new roads, routes, disturbance, laydown, and borrow areas. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> ● To the maximum extent practicable (see Glossary of Terms), confine vehicular traffic to designated open routes of travel to and from the project site, and prohibit, within project boundaries, cross- country vehicle and equipment use outside of approved designated work areas to prevent unnecessary ground and vegetation disturbance. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> ● To the maximum extent practicable(see Glossary of Terms) , construction of new roads and/or routes will be avoided within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern. These areas will have a goal of “no net gain” of project roads and/or routes 	Applicable	Consistent	The Propose Action shall comply with this CMA

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
General Siting and Design (cont.)	LUPA-BIO-13 (cont.)	<ul style="list-style-type: none"> To the maximum extent practicable (see Glossary of Terms), any new road and/or route considered within Focus and BLM Special Status Species suitable habitat within identified linkages for those Focus and BLM Special Status Species will not be paved so as not to negatively affect the function of identified linkages. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> Use nontoxic road sealants and soil stabilizing agents. 	Applicable	Consistent	The Propose Action shall comply with this CMA
Biology: General Standard Practices	LUPA-BIO-14	Implement the following general standard practices to protect Focus and BLM Special Status Species:	Applicable	Consistent	The Proposed Action would not impact any Focus or BLM Special Status Species
		<ul style="list-style-type: none"> Feeding of wildlife, leaving of food or trash as an attractive nuisance to wildlife, collection of native plants, or harassing of wildlife on a site is prohibited. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> Any wildlife encountered during the course of an activity, including construction, operation, and decommissioning will be allowed to leave the area unharmed. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> Domestic pets are prohibited on sites. This prohibition does not apply to the use of domestic animals (e.g., dogs) that may be used to aid in official and approved monitoring procedures/protocols, or service animals (dogs) under Title II and Title III of the American with Disabilities Act. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> All construction materials will be visually checked for the presence of wildlife prior to their movement or use. Any wildlife encountered during the course of these inspections will be allowed to leave the construction area unharmed. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> All steep-walled trenches or excavations used during the project will be covered, except when being actively used, to prevent entrapment of wildlife. If trenches cannot be covered, they will be constructed with escape ramps, following up-to-date design standards to facilitate and allow wildlife to exit, or wildlife exclusion fencing will be installed around the trench(s) or excavation(s). Open trenches or other excavations will be inspected by a designated biologist immediately before backfilling, excavation, or other earthwork. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> Minimize natural vegetation removal through implementation of crush and drive or cut or mow vegetation rather than removing entirely. 	Applicable	Consistent	The Propose Action shall comply with this CMA
	LUPA-BIO-15	Use state-of-the-art, as approved by BLM, construction and installation techniques, appropriate for the specific activity/project and site, that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.	Applicable	Consistent	MM 4.4-1 through 4.4-10 and MM 4.7-4, and MM 4.10-1 discuss minimization of new site disturbance, soil erosion and deposition control measures.
Activity-Specific Bird and Bat CMAs	LUPA-BIO-16	For activities that may impact Focus and BLM sensitive birds, protected by the ESA and/or Migratory Bird Treaty Act of 1918, and bat species, implement appropriate measures as per the most up-to-date BLM state and national policy and guidance, and data on birds and bats, including but not limited to activity-specific plans and actions. The goal of the activity-specific bird and bat actions is to avoid and minimize direct mortality of birds and bats from the construction, operation, maintenance, and decommissioning of the specific activities.	Applicable	Consistent	MMs 4.4-8 through 4.4-10 mitigate impacts to avian species. The project site is located in an area of relatively low use by avian species, is not within known migratory routes, and does not experience certain inclement weather patterns + certain lighting regimes that can disorient avian species. It also lacks water bodies, agricultural fields, or riparian habitats.
		Activity-specific measures to avoid and minimize impacts may include, but are not limited to:	Applicable	Consistent	See above.
		<ul style="list-style-type: none"> Siting and designing activities will avoid high bird and bat movement areas that separate birds and bats from their common nesting and roosting sites, feeding areas, or lakes and rivers. 	Applicable	Consistent	See above.
		<ul style="list-style-type: none"> For activities that impact bird and bat Focus and BLM Special Status Species, during project siting and design, conducting monitoring of bird and bat presence as well as bird and bat use of the project site using the most current survey methods and best procedures available at the time. 	Applicable	Consistent	MM 4.4-8 through 4.4-10 requires post-construction monitoring and study.
		<ul style="list-style-type: none"> Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to reduce habitat destruction and avoid additional collision risks. 	Applicable	Consistent	The project will make use of previously approved and existing infrastructure associated with the Manzana Wind Power Project., including operations and maintenance facility, staging and refueling areas, concrete batch plant site, and transmission line.
		<ul style="list-style-type: none"> Reducing bird and bat collision hazards by utilizing techniques such as unguyed monopole towers or tubular towers. Where the use of guywires is unavoidable, demarcate guywires using the best available methods to minimize avian species strikes. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> When fencing is necessary, use bird and bat compatible design standards. 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> Using lighting that does not attract birds and bats or their prey to project sites including using non-steady burning lights (red, dual red and white strobe, strobe-like flashing lights) to meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen). 	Applicable	Consistent	The Propose Action shall comply with this CMA
		<ul style="list-style-type: none"> Implementing a robust monitoring program to regularly check for wildlife carcasses, document the cause of mortality, and promptly remove the carcasses. 	Applicable	Consistent	MM 4.4-8 through 4.4-10 requires post-construction monitoring study to monitor the death and injuring of birds from collisions with solar modules. Also includes a carcass collection protocol.
		<ul style="list-style-type: none"> Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring 	Applicable	Consistent	See above.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Activity-Specific Bird and Bat CMAs	LUPA-BIO-17	For activities that may result in mortality to Focus and BLM Special–Status bird and bat species, a Bird and Bat Conservation Strategy (BBCS) will be prepared with the goal of assessing operational impacts to bird and bat species and incorporating methods to reduce documented mortality. The BBCS actions for impacts to birds and bats during these activities will be determined by the activity-specific bird and bat operational actions. The strategy shall be approved by BLM in coordination with USFWS, and CDFW as appropriate, and may include, but is not limited to:	Applicable	Consistent	The Propose Action shall comply with this CMA
		● Incorporating a bird and bat use and mortality monitoring program during operations using current protocols and best procedures available at time of monitoring.	Applicable	Consistent	MM 4.4-8 through 4.4-10 requires post-construction monitoring study to monitor the death and injuring of birds from collisions with solar modules.
		● Activity-specific operational avoidance and minimization actions that reduce the level of mortality on the populations of bird and bat species, such as:	Applicable	Consistent	The Propose Action shall comply with this CMA
		○ Use techniques that minimize attraction of birds to hazardous situations that are mistaken to be or simulate natural habitats (e.g., bodies of water).	Applicable	Consistent	The Propose Action shall comply with this CMA
		○ Implement operational management techniques that minimize impacts to migratory birds during diurnal and seasonal cycles (e.g., positioning of heliostats to decrease surface area exposed to avian species).	Applicable	Consistent	The Propose Action shall comply with this CMA
		○ Evaluation and installation of the best available bird and bat detection and deterrent technologies available at the time of construction.	Applicable	Consistent	The Propose Action shall comply with this CMA
		Known important Focus and BLM Special Status bird areas are:	Not applicable		
		● Dry lakes and playas of the north Mojave region, which include China Lake, Koehn Lake, Harper Lake, and Searles Lake (as shown in the Audubon Important Bird Areas in Appendix D)	Not applicable		
		● Antelope Valley (as shown in the Audubon Important Bird Areas in Appendix D)	Not applicable		
		● Lower Colorado River Valley (as shown in the Audubon Important Bird Areas in Appendix D)	Not applicable		
		● The Salton Sea and bordering areas including agricultural land of the Imperial Valley (as shown in the Audubon Important Bird Areas in Appendix D)	Not applicable		
		● Documented avian movement corridors along the north slope of the San Gabriel and San Bernardino mountain ranges	Not applicable		
		● Other regionally important seasonal use areas and migratory corridors identified in future studies or otherwise documented in the scientific literature over the term of the LUPA	Not applicable		
		The following provides the DRECP vegetation type, and Focus and BLM Special Status Species biological CMAs to be implemented throughout the LUPA Decision Area.	Applicable		
		Riparian and Wetland Vegetation Types and Associated Species (RIPWET)	Applicable	Consistent	The Propose Action shall comply with this CMA
		<u>Riparian Vegetation Types</u>	Applicable	Consistent	See above.
		● Madrean Warm Semi-Desert Wash Woodland/Scrub	Applicable	Consistent	See above.
		● Mojavean Semi-Desert Wash Scrub	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Southwestern North American Riparian Evergreen and Deciduous Woodland	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Southwestern North American Riparian/Wash Scrub	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		<u>Wetland Vegetation Types</u>	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Arid west freshwater emergent marsh	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Californian Warm Temperate Marsh/Seep	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Southwestern North American Salt Basin and High Marsh	Not applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		<u>Riparian and Wetland Bird Focus Species</u>	Applicable		None of these vegetation types are present in the Camino Solar Project Permitting Boundary.
		● Willow Flycatcher	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		● Southwestern Willow Flycatcher	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		● Least Bell's Vireo	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		● Western Yellow-billed Cuckoo	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		● Yuma Clapper Rail	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		● California Black Rail	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		● Tricolored Blackbird	Not applicable		Listed as not likely to occur; no suitable habitat onsite.
		<u>Fish Focus Species</u>	Not applicable		None of these fish species are present in the Camino Solar Project Permitting Boundary.
		● Desert pupfish	Not applicable		None of these fish species are present in the Camino Solar Project Permitting Boundary.
		● Mohave Tui Chub	Not applicable		None of these fish species are present in the Camino Solar Project Permitting Boundary.
		● Owens Tui Chub	Not applicable		None of these fish species are present in the Camino Solar Project Permitting Boundary.
		● Owens Pupfish	Not applicable		None of these fish species are present in the Camino Solar Project Permitting Boundary.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Other Riparian & Wetland Focus Species: Tehachapi Slender Salamander	LUPA-BIO-RIPWET-1	The riparian and wetland DRECP vegetation types and other features listed in Table 17 will be avoided to the maximum extent practicable, except for allowable minor incursions (see Glossary of Terms for "avoidance to the maximum extent practicable" and "minor incursion") with the specified setbacks.	Applicable	Consistent	The Propose Action shall comply with this CMA
		For minor incursion (see "minor incursion" in the Glossary of Terms) to the DRECP riparian vegetation types, wetland vegetation types, or encroachments on the setbacks listed in Table 17 , the hydrologic function of the avoided riparian or wetland communities will be maintained.	Applicable	Consistent	The Proposed Action shall implement this CMA as applicable
		<ul style="list-style-type: none"> Minor incursions in the riparian and wetland vegetation types or other features including the setbacks listed in Table 17 will occur outside of the avian nesting season, February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW if the minor incursion(s) is likely to result in impacts to nesting birds. 	Applicable	Consistent	The Proposed Action shall implement this CMA as applicable
	LUPA-BIO-RIPWET-2	Hydrologic function of the following DRECP vegetation types will be maintained: North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat, Southwestern North American Salt Basin and High Marsh, and other undifferentiated wetland-related land covers (i.e., "Playa," "Wetland," and "Open Water").	Not applicable		These DREP vegetation types are not present in the project site.
BLM Special Status Riparian Bird Species	LUPA-BIO-RIPWET-3	For activities that occur within 0.25 mile of a riparian or wetland DRECP vegetation type and may impact BLM Special Status riparian and wetland birds species, conduct a pre-construction/activity nesting bird survey for BLM Special Status riparian and wetland birds according to agency-approved protocols.	Applicable	Consistent	If any suitable habitat is found at the project for any special-status or focus species, the project will avoid the havitat to extent feasible and directly impact no more than 1% of their habitat. MM 4.4-9 requires nesting bird surveys prior to construction.
		<ul style="list-style-type: none"> Based on the results of the nesting bird survey above, setback activities that are likely to impact BLM Special Status riparian and wetland bird species, including but not limited to pre-construction, construction and decommissioning, 0.25 mile from active nests Special Status during the breeding season (February 1 through August 31 or otherwise determined by BLM, USFWS and CDFW). For activities in areas covered by this provision that occur during the breeding season and that last longer than one week, nesting bird surveys may need to be repeated, as determined by BLM, in coordination with USFWS and CDFW, as appropriate. No pre-activity nesting bird surveys are necessary for activities occurring outside of the breeding season. 	Applicable	Consistent	See above.
Federally Listed Fish Species	LUPA-BIO-RIPWET-4	Setback pre-construction, construction, and decommissioning activities and other activities that may impact federally listed fish species, 0.25 mile from the edge of existing or newly discovered occurrences of federally listed fish species, except for minor incursions (see Glossary of Terms).	Not applicable		Fish species are not expected to occur at the project site due to lack of surface waters. (Section 4.11)
		<ul style="list-style-type: none"> Demonstrate neutral or beneficial long-term hydrologic effects on federally listed fish species and the adjoining riparian and wetland habitat prior to seeking authorization for and commencing a minor incursion. 	Not applicable		See above.
	LUPA-BIO-RIPWET-5	Site and design activities to fully avoid operational impacts to existing and newly discovered occurrences of federally listed fish species.	Not applicable		See above.
Tehachapi Slender Salamander	LUPA-BIO-RIPWET-6	Avoid pre-construction, construction, and decommissioning activities or other activities that may impact the Tehachapi slender salamander within 0.25 mile of existing or newly discovered occurrences of or suitable habitat for Tehachapi slender salamander, except for minor incursions (see Glossary of Terms).	Not applicable		Amphibian species are not expected to occur at the project site due to lack of surface waters. (Section 4.11)
	LUPA-BIO-RIPWET-7	Construct culverts or other suitable below-grade crossings for new or improved roadways that bisect suitable habitat for the Tehachapi Slender Salamander.	Not applicable		See above.
		<ul style="list-style-type: none"> Construct barriers to reduce at-grade crossings along new or improved roadways that bisect suitable habitat. 	Not applicable		See above.
Dune DRECP Vegetation Types, Aeolian Processes and Associated Species (DUNE): Aeolian Processes	LUPA-BIO-DUNE-1	Because DRECP sand dune vegetation types and Aeolian sand transport corridors are, by definition, shifting resources, activities that potentially occur within or bordering the sand dune DRECP vegetation types and/or Aeolian sand transport corridors must conduct studies to verify the location [refer to Appendix D, Figure D-7] and extent of the sand resource(s) for the activity-specific environmental analysis to determine:	Not applicable		No specific text related to Aeolian sand.
		<ul style="list-style-type: none"> Whether the proposed activity(s) occur within a sand dune or an Aeolian sand transport corridor 	Not applicable		See above.
		<ul style="list-style-type: none"> If the activity(s) is subject to dune/Aeolian sand transport corridor CMAs 	Not applicable		See above.
		<ul style="list-style-type: none"> If the activity(s) needs to be reconfigured to satisfy applicable avoidance requirements 	Not applicable		See above.
	LUPA-BIO-DUNE-2	Activities that potentially affect the amount of sand entering or transported within Aeolian sand transport corridors will be designed and operated to:	Not applicable		See above.
		<ul style="list-style-type: none"> Maintain the quality and function of Aeolian transport corridors and sand deposition zones, unless related to maintenance of existing [at the time of the DRECP LUPA ROD] facilities/operations/activities 	Not applicable		See above.
		<ul style="list-style-type: none"> Avoid a reduction in sand-bearing sediments within the Aeolian system 	Not applicable		See above.
		<ul style="list-style-type: none"> Minimize mortality to DUNE associated Focus and BLM Special Status Species 	Not applicable		See above.
	LUPA-BIO-DUNE-3	Any facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the Aeolian corridor in a way that maintains the Aeolian sorting and transport to downwind deposition zones. Site designs for maintaining this transport function must be approved by BLM in coordination with USFWS and CDFW as appropriate.	Not applicable		See above.
Mohave Fringe-Toed Lizard	LUPA-BIO-DUNE-4	Dune formations and other sand accumulations (i.e., sand ramps, sand sheets) with suitable habitat characteristics for the Mojave fringe-toed lizard (i.e., unconsolidated blow-sand) will be mapped according to mapping standards established by the BLM National Operations Center.	Not applicable		Not identified on the project site.
		For minor incursions (see "minor incursion" in the Glossary of Terms) into sand dunes and sand transport areas the activity will be sited in the mapped zone with the least impacts to sand dunes and sand transport and Mojave fringe-toed lizards.	Not applicable		Not identified on the project site.
	LUPA-BIO-DUNE-5	If suitable habitat characteristics are identified during the habitat assessment, clearance surveys (see Glossary of Terms) for Mojave fringe-toed lizard will be performed in suitable habitat areas.	Not applicable		Not identified on the project site.
		The following CMAs will be implemented for bat Focus and BLM Special Status Species, including but not limited to those listed below:	Not applicable		Not identified on the project site.
		<ul style="list-style-type: none"> California Leaf-nosed Bat 	Not applicable		Not identified on the project site.
		<ul style="list-style-type: none"> Pallid Bat 	Not applicable		Not identified on the project site.
		<ul style="list-style-type: none"> Townsend's Big-eared Bat 	Not applicable		Not identified on the project site.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Bat Species (BAT)	LUPA-BIO-BAT-1	Activities, except wind projects, will not be sited within 500 feet of any occupied maternity roost or presumed occupied maternity roost as described below. Refer to CMA DFA-VPL-BIO-BAT-1 for distances within DFAs and VPLs.	Not applicable		Not identified on the project site.
	LUPA-BIO-BAT-2	Mines will be assumed to be occupied bat roosts, unless appropriate surveys for bat use have been conducted during all seasons (including maternity, lekking or swarming, and winter use). Mines not considered potential bat roosts are only those that have no structure/workings (adits or shafts or crevices out of view). The following CMAs will be implemented for all plant Focus and BLM Special Status Species, including but not limited to those listed below	Not applicable		Not identified on the project site.
		● Alkali mariposa-lily	Not applicable		None of the plant species listed here were identified on the project site.
		● Bakersfield cactus	Not applicable		Not likely to occur; no suitable habitat.
		● Barstow woolly sunflower	Not applicable		Listed as not likely to occur and all cactus were mapped in 2016 - none exhibited characteristics of Bakersfield cactus.
		● Desert cymopterus	Not applicable		See above.
		● Little San Bernardino Mountains linanthus	Not applicable		See above.
		● Mojave monkeyflower	Not applicable		See above.
		● Mojave tarplant	Not applicable		See above.
		● Owens Valley checkerbloom	Not applicable		See above.
		● Parish's daisy	Not applicable		See above.
		● Triple-ribbed milk-vetch	Not applicable		See above.
Plant Species (PLANT): Plant Focus and BLM Special Status Species CMAs	LUPA-BIO-PLANT-1	Conduct properly timed protocol surveys in accordance with the BLM's most current (at time of activity) survey protocols for plant Focus and BLM Special Status Species.	Applicable	Consistent	Most recent rare plant survey was completed May 2016.
	LUPA-BIO-PLANT-2	Implement an avoidance setback of 0.25 mile for all Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant Species (see Appendix Q, Baseline Biology Report, in the Proposed LUPA and Final EIS [2015], or the most recent data and modeling).	Applicable	Consistent	Approximately 750 individual Joshua trees were identified in the project site. 0.25 mile setback is not necessary because it is not a DRECP focus species. MM 4.4-3 requires Joshua Tree Impact Plan to address construction impacts on individual trees.
	LUPA-BIO-PLANT-3	Impacts to suitable habitat for Focus and BLM Special Status plant species should be avoided to the extent feasible, and are limited [capped] to a maximum of 1% of their suitable habitat throughout the entire LUPA Decision Area. The baseline condition for measuring suitable habitat is the DRECP modeled suitable habitat for these species utilized in the EIS analysis (2014 and 2015), or the most recent suitable habitat modeling.	Applicable	Consistent	If any suitable habitat is found at the project for any special-status or focus species, the project will avoid the habitat to extent feasible and directly impact no more than 1% of their habitat.
		● For those plants with Species Specific DFA Suitable Habitat Impact Caps listed in Table 23, those caps apply in the DFAs only. Refer to CMA DFA-PLANT-1.	Not applicable		None of the plant species listed in Table 23 occur within the Camino Solar Permitting Boundary.
Special Vegetation Features (SVF)	LUPA-BIO-SVF-1	For activity-specific NEPA analysis, a map delineating potential sites and habitat assessment of the following special vegetation features is required: Yucca clones, creosote rings, Saguaro cactus, Joshua tree woodland, microphyll woodland, Crucifixion thorn stands. BLM guidelines for mapping/surveying cactus, yuccas, and succulents shall be followed.	Applicable	Consistent	Site surveys were completed in 2016 and 2018 and a figure of the mapped Joshua trees is included in the .
	LUPA-BIO-SVF-2	Yucca clones larger than 3 meters in diameter (longest diameter if the clone forms an ellipse rather than a circular ring) shall be avoided.	Not applicable		None were identified during past field surveys.
	LUPA-BIO-SVF-3	Creosote bush rings (see Glossary of Terms) larger than 5 meters in diameter (longest diameter if the "ring" forms an ellipse rather than a circle) shall be avoided.	Not applicable		None were identified during past field surveys.
	LUPA-BIO-SVF-4	Saguaro cactus should be managed in such a way as to provide long-term habitat for the California populations not just individual plants, except in DFAs.	Not applicable		None were identified during past field surveys.
	LUPA-BIO-SVF-5	Joshua tree woodland (<i>Yucca brevifolia</i> Woodland Alliance): impacts to Joshua tree woodlands (see Glossary of Terms) will be avoided to the maximum extent practicable (see Glossary of Terms), except for minor incursions (see Glossary of Terms).	Applicable	Consistent	Impacts to Joshua tree woodlands will avoided to maximum extent practicable. In addition, MM 4.4-3 requires development of a Joshua Tree Impact Plan to identify every individual tree that may be impacted by construction, potential translocation site, specific translocation process, watering guidelines, monitoring requirements, and success criteria for a minimum of 2 yrs.
	LUPA-BIO-SVF-6	Microphyll woodland: impacts to microphyll woodland (see Glossary of Terms) will be avoided, except for minor incursions (see Glossary of Terms).	Not applicable		No microphyll woodland identified onsite.
	LUPA-BIO-SVF-7	Crucifixion thorn stands: (<i>Castela emoryi</i> Shrubland Special Stands) Crucifixion thorn stands with greater than 100 individuals will be avoided.	Not applicable		None were identified during past field surveys.
General Vegetation Management (VEG)	LUPA-BIO-VEG-1	Management of cactus, yucca, and other succulents will adhere to current up-to-date BLM policy.	Applicable	Consistent	The Proposed Action shall implement this CMA as applicable
	LUPA-BIO-VEG-2	Promote appropriate levels of dead and downed wood on the ground, outside of campground areas, to provide wildlife habitat, seed beds for vegetation establishment, and reduce soil erosion, as determined appropriate on an activity-specific basis.	Not applicable		No specific text related to dead or downed wood.
	LUPA-BIO-VEG-3	Allow for the collection of plant material consistent with the maintenance of natural ecosystem processes.	Not applicable		Once construction is complete, plant material collection to maintain natural ecosystem processes would not be applicable on the site.
	LUPA-BIO-VEG-4	Within the Bishop Field Office area, provide yearlong protection of endangered, threatened, candidate, and sensitive plant and animal habitats. Yearlong protection means that no discretionary actions which would adversely affect target resources will be allowed.	Not applicable		The project site is not within the Bishop Field Office area.
	LUPA-BIO-VEG-5	All activities will follow applicable BLM state and national regulations and policies for salvage and transplant of cactus, yucca, other succulents, and BLM Sensitive plants.	Applicable	Consistent	The Proposed Action shall implement this CMA
	LUPA-BIO-VEG-6	BLM may consider disposal of succulents through public sale, as per current up-to-date state and national policy.	Not applicable		No succulents need to be disposed of through public sale.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Individual Focus Species (IFS): Desert Tortoise	LUPA-BIO-IFS-1	Activities within desert tortoise linkages, identified in Appendix D, that may have a negative impact on the linkage will require an evaluation, in the environmental document(s), of the effects on the maintenance of long-term viable desert tortoise populations within the affected linkage. The analysis will consider the amount of suitable habitat, including climate refugia, required to ensure long-term viability within each linkage given the linkage's population density, long-term demographic and genetic needs, degree of existing habitat disturbance/impacts, mortality sources, and most up-to-date population viability modeling. Activities that would compromise the long-term viability of a linkage population or the function of the linkage, as determined by the BLM in coordination with USFWS and CDFW, are prohibited and will require reconfiguration or re-siting.	Not applicable		Desert tortoise has not been recorded within several miles of the project site despite multiple years of protocol-level surveys; it is considered absent from the project site.
	LUPA-BIO-IFS-2	Construction of new roads and/or routes will be avoided to the maximum extent practicable (see Glossary of Terms) within desert tortoise habitat in tortoise conservation areas (TCAs) or tortoise linkages identified in Appendix D, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern for desert tortoise. TCAs and identified linkages should have the goal of "no net gain" of road density.	Not applicable		See above.
		Any new road considered within a TCA or identified linkage will not be paved and will be designed and sited to minimize the effect to the function of identified linkages or local desert tortoise populations and shall have a maximum speed limit of 25 miles per hour.	Not applicable		See above.
		Roads requiring the installation of long-term desert tortoise exclusion fencing for construction or operation will incorporate wildlife underpasses (e.g., culverts) to reduce population fragmentation.	Not applicable		See above.
	LUPA-BIO-IFS-3	All culverts for access roads or other barriers will be designed to allow unrestricted access by desert tortoises and will be large enough that desert tortoises are unlikely to use them as shelter sites (e.g., 36 inches in diameter or larger). Desert tortoise exclusion fencing may be utilized to direct tortoise use of culverts and other passages.	Not applicable		See above.
	LUPA-BIO-IFS-4	In areas where protocol and clearance surveys are required (see Appendix D), prior to construction or commencement of any long-term activity that is likely to adversely affect desert tortoises, desert tortoise exclusion fencing shall be installed around the perimeter of the activity footprint (see Glossary of Terms) in accordance with the Desert Tortoise Field Manual (USFWS 2009) or most up-to-date USFWS protocol. Additionally, short-term desert tortoise exclusion fencing will be installed around short-term construction and/or activity areas (e.g., staging areas, storage yards, excavations, and linear facilities), as appropriate, per the Desert Tortoise Field Manual (USFWS 2009) or most up-to-date USFWS protocol.	Not applicable		See above.
		<ul style="list-style-type: none"> Exemption from desert tortoise protocol survey requirements can be obtained from BLM, in coordination with USFWS, and CDFW as applicable, on a case-by-case basis if a designated biologist determines the activity site does not contain the elements of desert tortoise habitat, is unviable for occupancy, or if baseline studies inferred absence during the current or previous active season 	Not applicable		See above.
		<ul style="list-style-type: none"> Construction of desert tortoise exclusion fences will occur during the time of year when tortoise are less active in order to minimize impacts and to accommodate subsequent desert tortoise surveys. Any exemption or modification of desert tortoise exclusion fencing requirements will be based on the specifics of the activity and the site-specific population and habitat parameters. Sites with low population density and disturbed, fragmented, or poor habitat are likely to be candidates for fencing requirement exemptions or modifications. Substitute measures, such as on-site biological monitors in the place of the fencing requirement, may be required, as appropriate. 	Not applicable		See above.
		<ul style="list-style-type: none"> After an area is fenced, and until desert tortoises are removed, the designated biologist is responsible for ensuring that desert tortoises are not being exposed to extreme temperatures or predators as a result of their pacing the fence. Remedies may include the use of shelter sites placed along the fence, immediate translocation, removal to a secure holding area, or other means determined by the BLM, USFWS, and CDFW, as applicable. 	Not applicable		See above.
		<ul style="list-style-type: none"> Modification or elimination of the above requirement may also be approved if the activity design will allow retention of desert tortoise habitat within the footprint. If such a modification is approved, modified protective measures may be required to minimize impacts to desert tortoises that may reside within the activity area. 	Not applicable		See above.
		<ul style="list-style-type: none"> Immediately prior to desert tortoise exclusion fence construction, a designated biologist (see Glossary of Terms) will conduct a clearance survey of the fence alignment to clear desert tortoises from the proposed fence line's path. 	Not applicable		See above.
		<ul style="list-style-type: none"> All desert tortoise exclusion fencing will incorporate desert tortoise proof gates or other approved barriers to prevent access of desert tortoises to work sites through access road entry points. 	Not applicable		See above.
		<ul style="list-style-type: none"> Following installation, long-term desert tortoise exclusion fencing will be inspected for damage quarterly and within 48 hours of a surface flow of water due to a rain event that may damage the fencing. 	Not applicable		See above.
		<ul style="list-style-type: none"> All damage to long-term or short-term desert tortoise exclusion fencing will be immediately blocked to prevent desert tortoise access and repaired within 72 hours. 	Not applicable		See above.
	LUPA-BIO-IFS-5	Following the clearance surveys (see Glossary of Terms) within sites that are fenced with long-term desert tortoise exclusion fencing a designated biologist (see Glossary of Terms) will monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way.	Not applicable		See above.
		A designated biologist will inspect construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground and (d) within desert tortoise habitat (such as, outside the long-term fenced area), before the materials are moved, buried, or capped.	Not applicable		See above.
		As an alternative, such materials shall be capped before storing outside the fenced area or placing on pipe racks. Pipes stored within the long-term fenced area after completing desert tortoise clearance surveys will not require inspection.	Not applicable		See above.
	LUPA-BIO-IFS-6	When working in areas where protocol or clearance surveys are required (see Appendix D), biological monitoring will occur with any geotechnical boring or geotechnical boring vehicle movement to ensure no desert tortoises are killed or burrows are crushed.	Not applicable		See above.
	LUPA-BIO-IFS-7	A designated biologist (see Glossary of Terms) will accompany any geotechnical testing equipment to ensure no tortoises are killed and no burrows are crushed.	Not applicable		See above.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-BIO-IFS-8	Inspect the ground under the vehicle for the presence of desert tortoise any time a vehicle or construction equipment is parked in desert tortoise habitat outside of areas fenced with desert tortoise exclusion fencing. If a desert tortoise is seen, it may move on its own. If it does not move within 15 minutes, a designated biologist may remove and relocate the animal to a safe location.	Not applicable		See above.
	LUPA-BIO-IFS-9	Vehicular traffic will not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted.	Not applicable		See above.
Flat-Tailed Horned Lizard	LUPA-BIO-IFS-10	Comply with the conservation goals and objectives, criteria, and management planning actions identified in the most recent revision of the Flat-tailed Horned Lizard Rangewide Management Strategy (RMS). Activities will include appropriate design features using the most current information from the RMS and RMS Interagency Coordinating Committee to minimize adverse impacts during siting, design, pre-construction, construction, operation, and decommissioning; ensure that current or potential linkages and habitat quality are maintained; reduce mortality; minimize other adverse impacts during operation; and ensure that activities have a neutral or positive effect on the species.	Not applicable		This species is not present within the Camino Solar Permitting Boundary.
Bendire's Thrasher	LUPA-BIO-IFS-11	If Bendire's thrasher is present, conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure that Bendire's thrasher individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings).	Not applicable		This species is not present within the Camino Solar Permitting Boundary.
Burrowing Owl	LUPA-BIO-IFS-12	If burrowing owls are present, a designated biologist (see Glossary of Terms) will conduct appropriate activity-specific biological monitoring (see Glossary of Terms) to ensure avoidance of occupied burrows and establishment of the 656 feet (200 meter) setback to sufficiently minimize disturbance during the nesting period on all activity sites, when practical.	Applicable	Consistent	MM 4.4-6 requires pre-construction survey and wildlife relocation (specifically for burrowing owls, desert kit fox, and American badger). Additional Mitigation Measures MM 4.4-1 through 4.4-10 are meant to minimize project impacts.
	LUPA-BIO-IFS-13	If burrows cannot be avoided on-site, passive burrow exclusion by a designated biologist (see Glossary of Terms) through the use of one-way doors will occur according to the specifications in Appendix D or the most up-to-date agency BLM or CDFW specifications. Before exclusion, there must be verification that burrows are empty as specified in Appendix D or the most up-to-date BLM or CDFW protocols. Confirmation that the burrow is not currently supporting nesting or fledgling activities is required prior to any burrow exclusions or excavations.	Applicable	Consistent	The Proposed Action shall implement this CMA
	LUPA-BIO-IFS-14	Activity-specific active translocation of burrowing owls may be considered, in coordination with CDFW.	Applicable	Consistent	See above.
California Condor	LUPA-BIO-IFS-15	All activities will be designed and sited in a manner to avoid or minimize the likelihood of contact, injury, and mortality of California condors. If a condor is identified at a site, the BLM biological staff and USFWS will be immediately notified for guidance.	Not applicable		No suitable nesting habitat or habitat with suitable resources for condors to land within the project site. Unlikely to occur.
	LUPA-BIO-IFS-16	Flight activity (e.g., surveys, construction, as well as operation and maintenance activities) related to any activities will not be allowed in the airspace extending to 3,000 feet above condor nest sites.	Not applicable		See above.
	LUPA-BIO-IFS-17	In the range of the California condor, structures supported by guy wires will be marked with recommended bird deterrent devices at the appropriate spacing intervals.	Not applicable		See above.
	LUPA-BIO-IFS-18	In the range of the California condor, all equipment and work-related materials that are potentially hazardous to condors, including but not limited to items that can be ingested, picked up, or carried away (e.g., loose-wires, open containers with fluids, some construction materials, etc.) will be kept in closed containers either in the work area or placed inside vehicles when they are not being used and at the end of every work day.	Not applicable		See above.
	LUPA-BIO-IFS-19	In the range of the California condor, when feasible, ethylene glycol-based anti-freeze or other ethylene glycol-based liquid substances will be avoided, and propylene glycol-based antifreeze will be used. Vehicles and equipment using ethylene glycol based substances will be inspected before and after field use as well as during storage on sites for leaks and puddles. Standing fluid will be remediated without unnecessary delay.	Not applicable		See above.
	LUPA-BIO-IFS-20	Activities that are determined to have a potential risk of taking condors will implement the best detect, deter, and curtailment strategy available at the time of the activity to minimize adverse effects, and avoid or minimize the likelihood of condor injury and mortality. (An example of a 2015 curtailment strategy is shutting down wind generation operations when condor(s) are present, or wind generation facilities switching to night operations only). The strategy must be approved by the BLM and USFWS, in coordination with CDFW as appropriate.	Not applicable		See above.
	LUPA-BIO-IFS-21	If condors begin to regularly visit a site, BLM may require, in coordination with USFWS, and CDFW as appropriate, the implementation of additional measures to minimize potential impacts to condors. These measures will be based on best available data, activity and areas specifics, and may include, but are not limited to: <ul style="list-style-type: none"> ● Barriers, including welded wire fabric or hardware cloth, will be installed to prevent access around any facility element that poses a danger to condors. ● Stainless steel lines, rather than poly chemical lines will be used to preclude condors from obtaining and ingesting pieces of poly chemical lines. ● Landing deterrents attached to the walking perching substrates, such as porcupine wire or Daddi Long Legs ®. 	Not applicable Not applicable Not applicable		See above. See above. See above. See above.
	LUPA-BIO-IFS-22	Operations and/or activities that reach an activity-specified trigger for condor injury and/or mortality as determined by BLM and USFWS, and CDFW as appropriate, will curtail operations and/or activities using best available techniques, as determined by BLM and USFWS, and CDFW as appropriate. (An example of a 2015 curtailment strategy is shutting down wind generation operations when condor(s) are present, or wind generation facilities switching to night operations only.) If curtailment techniques are not viable or available, then operations and/or activities will be suspended until the injury and/or condor mortality issue is resolved to the satisfaction of BLM and USFWS, and CDFW, as appropriate.	Not applicable		See above.
	LUPA-BIO-IFS-23	In the range of the California condor, if an activity may have an impact on California condors, a Condor Operations Strategy (COS) will be developed and implemented on a activity-specific basis in order to avoid and/or reduce the likelihood of injury and mortality from activities. The COS shall be approved by BLM in coordination with USFWS, and CDFW as appropriate for third party activities, and may include, but is not limited, to detailing specifics on: the activity-specific detect, deter and curtailment strategy; monitoring approach to detect condor use of the site; adaptive management approach if condors are found to visit the site; and, activity-specific measures that assist in the recovery of condor.	Not applicable		See above.

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Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Golden Eagle	LUPA-BIO-IFS-24	Provide protection from loss and harassment of active golden eagle nests through the following actions: <ul style="list-style-type: none"> Activities that may impact nesting golden eagles, will not be sited or constructed within 1-mile of any active or alternative golden eagle nest within an active golden eagle territory, as determined by BLM in coordination with USFWS as appropriate. 	Not applicable Not applicable		No suitable nesting habitat within project site. No suitable nesting habitat within project site.
	LUPA-BIO-IFS-25	Cumulative loss of golden eagle foraging habitat within a 1 to 4 mile radius around active or alternative golden eagle nests (as identified or defined in the most recent USFWS guidance and/or policy) will be limited to less than 20%. See CONS-BIO-IFS-5 for the requirement in Conservation Lands.	Applicable	Consistent	This CMA shall be implemented for the Proposed Action.
	LUPA-BIO-IFS-26	For activities that impact golden eagles, applicants will conduct a risk assessment per the applicable USFWS guidance (e.g. the Eagle Conservation Plan Guidance) using best available information as well as the data collected in the pre-project golden eagle surveys.	Not Applicable		Golden eagles typically fly at altitudes much higher than project infrastructure while foraging or traveling, so collision with the project is therefore extremely unlikely. Mitigation Measures MM 4.4-8 through 4.4-10 mitigate impacts to avian species.
	LUPA-BIO-IFS-27	If a permit for golden eagle take is determined to be necessary, an application will be submitted to the USFWS in order to pursue a take permit.	Not applicable		No take is necessary.
	LUPA-BIO-IFS-28	In order to evaluate the potential risk to golden eagles, the following activities are required to conduct 2 years of pre-project golden eagle surveys in accordance with USFWS Eagle Conservation Plan Guidance as follows: <ul style="list-style-type: none"> Wind projects and solar projects involving a power tower Other activities for which the BLM, in coordination with USFWS, and CDFW as appropriate, determines take of golden eagle is reasonably foreseeable or there is a potential for take of golden eagle 	Not applicable		Project is not a wind project or a solar project that includes a power tower.
			Not applicable		See above.
			Not applicable		See above.
	LUPA-BIO-IFS-29	For active nests with recreational conflicts that risk the occurrence of take, provide public notification (e.g., signs) of the sensitive area and implement seasonal closures as appropriate.	Not applicable		No suitable nesting habitat within project site.
	LUPA-BIO-IFS-30	For activities where ongoing take of golden eagles is anticipated, develop advanced conservation practices per USFWS Eagle Conservation Plan Guidance.	Not applicable		No take is necessary.
	LUPA-BIO-IFS-31	As determined necessary by BLM in coordination with USFWS, and CDFW as appropriate, for activities/projects that are likely to impact golden eagles implement site-specific golden eagle mortality monitoring in support of the pre-construction, pre-activity risk assessment surveys.	Applicable	Consistent	Implementation of project would result in loss of some foraging habitat for golden eagle but impacts to them are expected to be negligible. MM-4.4-8 through MM 4.4-10 will monitor the extent of operational impacts to birds.
Swainson's Hawk	LUPA-BIO-IFS-32	Avoid use of rodenticides and insecticides within five miles of active Swainson's hawk nest.	Not applicable		says unlikely to occur (nesting) and project does not have plans to use rodenticides or insecticides.
Desert Bighorn Sheep	LUPA-BIO-IFS-33	Access to, and use of, designated water sources for desert bighorn sheep will not be impeded by activities in designated and new utility corridors.	Not applicable		This species is not present within the Camino Solar Permitting Boundary.
	LUPA-BIO-IFS-34	Transmission projects and new utility corridors will minimize effects on access to, and use of, designated water sources for desert bighorn sheep.	Not applicable		This species is not present within the Camino Solar Permitting Boundary.
Mohave Ground Squirrel	LUPA-BIO-IFS-35	Protocol surveys (see Glossary of Terms) are required for activities in Mohave ground squirrel key population centers and linkages as indicated in Appendix D. Results of protocol surveys will be provided to BLM and CDFW to consult on, as appropriate, for third party activities.	Not applicable		This species is not present within the Camino Solar Permitting Boundary based on trapping efforts and current range information.
	LUPA-BIO-IFS-36	Activities in Mohave ground squirrel key population centers, as identified in Appendix D, requiring an Environmental Impact Statement are required to assess the effect of the activity on the long term function of the affected key population center. <ul style="list-style-type: none"> Activities within a key population center, as identified in Appendix D, must be designed to avoid adversely impacting the long-term function of the affected key population center. 	Not applicable Not applicable		See above. See above.
	LUPA-BIO-IFS-37	Activities in key population centers will be sited in previously disturbed areas, areas of low habitat quality and in areas with low habitat intactness, to the maximum extent practicable (see Glossary of Terms).	Not applicable		See above.
	LUPA-BIO-IFS-38	Disturbance of suitable habitat from activities, requiring an EA or EIS, within the Mohave ground squirrel key population centers and linkages (as identified in Appendix D) will not occur during the typical dormant season (August 1 through February 28) unless absence is inferred and supported by protocol surveys or other available data during the previous active season.	Not applicable		See above.
	LUPA-BIO-IFS-39	During the typical active Mohave ground squirrel season (February 1 through August 31), conduct clearance surveys throughout the site, immediately prior to initial ground disturbance in the areas depicted in Appendix D. In the cleared areas, perform monitoring to determine if squirrels have entered cleared areas. Contain ground disturbance to within areas cleared of squirrels. <ul style="list-style-type: none"> Detected occurrences of Mohave ground squirrel will be flagged and avoided, with a minimum avoidance area of 50 feet, until the squirrels have moved out of harm's way. A designated biologist (see Glossary of Terms) may also actively move squirrels out of harm's way. 	Not applicable		See above.
			Not applicable		See above.
	LUPA-BIO-IFS-40	Activities sited in a Mohave ground squirrel linkage (see Appendix D) that may impact the linkage are required to analyze the potential effects on connectivity through the linkage. The activity must be designed to maintain the function of the linkage after construction/implementation and during project/activity operations. Linkage function will be assessed by considering pre- and post-activity ability of the area to support resident Mohave ground squirrels and provide for dispersal of their offspring to key population centers outside the linkage, and dispersal through the linkage between key population centers.	Not applicable Not applicable		See above. See above.
			Not applicable		See above.
		Activities that occur in Mohave ground squirrel linkages shown in Appendix D must be configured and located in a manner that does not diminish Mohave ground squirrel populations in the linkage.	Not applicable		See above.
	LUPA-BIO-IFS-41	For any ground-disturbing (e.g., vegetation removal, earthwork, trenching) activities, occurrences of Mohave ground squirrel will be flagged and avoided, with a minimum avoidance area of 50 feet, until the squirrels have moved out of harm's way. A designated biologist (see Glossary of Terms) may also actively move squirrels out of harm's way.	Not applicable		See above.
	LUPA-BIO-IFS-42	Rodenticides will not be used to manage rodents on activity within the range of the Mohave ground squirrel. Use of rodenticide inside of buildings is allowed.	Not applicable		See above.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Compensation	LUPA-BIO-COMP-1	Impacts to biological resources, identified and analyzed in the activity specific environmental document, from activities in the LUPA Decision Area will be compensated using the standard biological resources compensation ratio, except for the biological resources and specific geographic locations listed as compensation ratio exceptions, specifics in CMAs LUPA-BIO-COMP-2 through -4, and previously listed CMAs. Compensation acreage requirements may be fulfilled through non-acquisition (i.e., restoration and enhancement), land acquisition (i.e., preserve), or a combination of these options, depending on the activity specifics and BLM approval/authorization. Compensation for the impacts to designated desert tortoise critical habitat will be in the same critical habitat unit as the impact (see Table 18). Compensation for impacts to desert tortoise will be in the same recovery unit as the impact. Refer to CMA LUPA-COMP-1 and 2 for the timing requirements for initiation or completion of compensation.	Not applicable		Does not state compensatory mitigation is necessary.
			Not applicable		No desert tortoise located within the project Permitting Boundary.
			Not applicable		See above.
	LUPA-BIO-COMP-2	Birds and Bats – The compensation for the mortality impacts to bird and bat Focus and BLM Special Status Species from activities will be determined based on monitoring of bird and bat mortality and a fee re-assessed every 5 years to fund compensatory mitigation. The initial compensation fee for bird and bat mortality impacts will be based on pre-project monitoring of bird use and estimated bird and bat species mortality from the activity. The approach to calculating the operational bird and bat compensation is based on the total replacement cost for a given resource, a Resource Equivalency Analysis. This involves measuring the relative loss to a population (debt) resulting from an activity and the productivity gain (credit) to a population from the implementation of compensatory mitigation actions. The measurement of these debts and gains (using the same “bird years” metric as described in Appendix D) is used to estimate the necessary compensation fee.	Applicable	Consistent	Mitigation Measures 4.4-8 through MM 4.4-10 mitigate impacts to avian species. All requirements for this CMA shall be implemented.
		Each activity, as determined appropriate by BLM in coordination with USFWS, and CDFW as applicable, will include a monitoring strategy to provide activity-specific information on mortality effects on birds and bats in order to determine the amount and type of compensation required to offset the effects of the activity, as described above and in detail in Appendix D. Compensation will be satisfied by restoring, protecting, or otherwise improving habitat such that the carrying capacity or productivity is increased to offset the impacts resulting from the activity. Compensation may also be satisfied by non-restoration actions that reduce mortality risks to birds and bats (e.g., increased predator control and protection of roosting sites from human disturbance). Compensation will be consistent with the most up to date DOI mitigation policy.	Applicable	Consistent	See above.
	LUPA-BIO-COMP-3	Golden eagle – BLM and third-party initiated activities, will provide specific golden eagle compensation in accordance with the most up to date BLM or USFWS policies, including applicable USFWS Eagle Conservation Plan Guidance.	Not applicable		states project impacts to golden eagles are expected to be negligible. No specific text related to golden eagle compensation.
	LUPA-BIO-COMP-4	Golden eagle – Third-party applicant/activity proponents are required to contribute to a DRECP-wide golden eagle monitoring program, if the activity/project(s) has been determined, through the environmental analysis, to likely impact golden eagles.	Not applicable		See above.
Air Resources	LUPA-AIR-1	All activities must meet the following requirements:			
		• Applicable National Ambient Air Quality Standards (Section 109)	Applicable	Consistent	The Proposed Action would not exceed the applicable General Conformity de minimis levels of non-attainment pollutants.
		• State Implementation Plans (Section 110)	Applicable	Consistent	The Proposed Action would not exceed the applicable General Conformity de minimis levels of non-attainment pollutants. Therefore, the project would conform to the SIP and would not have a substantial adverse effect on air quality under NEPA.
		• Control of Pollution from Federal Facilities (Section 118) including non-point source	Not Applicable		The Proposed Action is not a Federal Facility
		• Prevention of Significant Deterioration, including visibility impacts to mandatory Federal Class I Areas (Section 160 et seq.)	Not Applicable		The Project is not in a Federal Class I Area
		• Conformity Analyses and Determinations (Section 176[c])	Applicable	Consistent	The Proposed Action would not exceed the applicable General Conformity de minimis levels of non-attainment pollutants.
		• Apply best management practices on a case by case basis	Applicable	Consistent	The Proposed Action would include construction BMPs to reduce construction emissions including fugitive dust and PM 10
		• Applicable local Air Quality Management Jurisdictions (e.g., 403 SCAQMD)	Applicable	Consistent	The Proposed Action would comply with all construction-related EKAPCD rules and regulations.
	LUPA-AIR-2	Because project authorizations are a federal undertaking, air quality standards for fugitive dust may not exceed local standards and requirements.	Applicable	Consistent	The Proposed Action will comply with all local air quality standards and requirements.
	LUPA-AIR-3	Where impacts to air quality may be significant under NEPA, requiring analysis through an Environmental Impact Statement, require documentation for activities to include a detailed discussion and analysis of Ambient Air Quality conditions (baseline or existing), National Ambient Air Quality Standards, criteria pollutant nonattainment areas, and potential air quality impacts of the proposed project (including cumulative and indirect impacts and greenhouse gas emissions). This content is necessary to disclose the potential impacts from temporary or cumulative degradation of air quality. The discussion will include a description and estimate of air emissions from potential construction and maintenance activities, and proposed mitigation measures to minimize net PM ₁₀ and PM _{2.5} emissions. The documentation will specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. A Construction Emissions Mitigation Plan will be developed.	Applicable	Consistent	The Proposed Action would not exceed the applicable General Conformity de minimis levels of non-attainment pollutants. Therefore, the project would conform to the SIP and would not have a substantial adverse effect on air quality under NEPA.
	LUPA-AIR-4	Because fugitive dust is the number one source of PM ₁₀ and PM _{2.5} emissions in the Mojave and Sonoran Deserts, fugitive dust impacts to air quality must be analyzed for all activities/projects requiring an Environmental Impact Statement and Environmental Assessment. • The NEPA air quality analysis may include modelling of the sources of PM ₁₀ and PM _{2.5} that occur prior to construction and/or ground disturbance from the activity/project, and show the timing, duration and transport of emissions off site. When utilized, the modeling will also identify how the generation and movement of PM ₁₀ and PM _{2.5} will change during and after construction and/or ground disturbance of the activity/project under all activity/project specific NEPA alternatives. The BLM air resource specialist and Authorizing Officer will determine if modelling is required as part of the NEPA analysis based on estimated types and amounts of emissions.	Applicable	Consistent	Impacts related to fugitive dust are analyzed in this EIR/EA.

Appendix M2. DRECP CMA Consistency Table

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Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-AIR-5 (cont.)	Back country byways are designated by the type of road and the vehicle needed to safely travel the byway. Some back country byways vary from a single track bike trail to a low speed paved road that traverses back country areas. Segments of Back Country Byways are subdivided into four types based on the characteristic of the road.	Not applicable		
		Due to their remoteness, byway travelers should always inquire locally as to byway access and road conditions.	Not applicable		
		● Type I – Roads are paved or have an all-weather surface and have grades that are negotiable by 2-wheel drive vehicles and passenger cars. Most of these roads are narrow, slow speed, secondary routes though public lands.	Not applicable		
		● Type II – Roads that require high-clearance type vehicles such as trucks or 4-wheel drive vehicles. These roads are usually not paved, but may have some type of surfacing. Grades, curves, and road surface are such that they can be negotiated with a 2-wheel drive high clearance vehicle without undue difficulty.	Not applicable		
		● Type III – Roads require 4-wheel drive vehicles or other specialized vehicles such as dirt bikes, all-terrain vehicles (ATVs), etc. These roads are usually not surfaced, but are managed to provide for safety and resource protection needs. These roads can often have steep grades, uneven tread surfaces, and other characteristics that will require specialized vehicles to negotiate usually at slow speeds.	Not applicable		
LUPA-Wide Conservation and Management Actions for Comprehensive Trails and Travel Management	LUPA-CTTM-1	● Type IV – Trails are managed specifically to accommodate dirt bike, mountain bike, snowmobile or all-terrain vehicle use. Most of these routes are single track trails.	Not applicable		
		Maintain and manage adequate Road, Primitive Road, and Trail Access to and within SRMAs, ERMAs, OHV Open Areas, and Level 1, 2, and 3 Recreation Facilities.	Applicable	Consistent	The Proposed Action would not impact roads or trails that provide access to and within SRMAs, ERMAs, OHV Open Areas, and Level 1, 2, and 3 Recreation Facilities.
		Avoid activities that would have a significant adverse impact on use and enjoyment within 0.5 mile from centerline of tier 2 Roads/Primitive Roads, and 300 feet from centerline of tier 3 primitive roads/trails. If avoidance of Tier 2 and 3 roads, primitive roads and trails is not practicable, relocate access to the same or higher standard and maintain the setting characteristics and access to recreation activities, facilities, and destinations.	Applicable	Consistent	An existing dirt road identified as 135208 in the Wester Mojave Plan currently bisects the project site in a north/south direction. The project would relocate the dirt road to eastern perimeter of the project site boundary such that access from the south of the project sit to the north would be maintained.
		Manage other significant linear features such as Mojave Road, Bradshaw Trail, or other recognized linear features to protect their important recreation activities, experiences and benefits. Prohibit activities that have a significant adverse impact on use and enjoyment within 0.5 mile (from centerline) of such linear features.	Applicable	Consistent	The Proposed Action would not have a significant and adverse impact on the use and experience of the Pacific Crest Trail. The Proposed Action would implement mitigation measures to screen and buffer the visibility of solar panels and other components of the solar project. The Proposed Action would not result in adverse impacts to recreational experiences along the PCT.
		If residual impacts to Tier 1 and Tier 2 roads/primitive roads, Back Country Byways, or significant linear features occur from adjacent DFAs or other activities, commensurate compensation in the form of enhanced recreation operations, access, recreation facilities or opportunities will be required.	Applicable	Consistent	An existing dirt road identified as 135208 in the Wester Mojave Plan currently bisects the project site in a north/south direction. The project would relocate the dirt road to eastern perimeter of the project site boundary such that access from the south of the project sit to the north would be maintained.
	LUPA-CTTM-5	Manage OHV use per the appropriate Transportation and Travel Management Plan/RMP and/or the SRMA Objectives as outlined in Appendix C as Open, Limited or Closed.	Not Applicable		The Proposed Action would have no impacts on OHV use. The nearest OHV management area is 15 miles from the Proposed Action site.
	LUPA-CTTM-6	Manage Back Country Byways as a component of BLM Recreation and Travel and Transportation Management program.	Not Applicable		Agency Responsibility
	LUPA-CTTM-7	Manage Recreation Facilities consistent with the objectives for the recreation management areas and facilities (see also Section II.4.2.1.10).	Not Applicable		Agency Responsibility
Cultural Resources and Tribal Interests	LUPA-CUL-1	Continue working with the California Office of Historic Preservation (OHP) to develop and implement a program for record keeping and tracking agency actions that meets the needs of BLM and OHP organizations pursuant to existing State and National agreements and regulation (BLM State Protocol Agreement; BLM National Programmatic Agreement).	Not Applicable		Agency Responsibility
	LUPA-CUL-2	Using relevant archaeological and environmental data, identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources and other considerations.	Not Applicable		Agency Responsibility
	LUPA-CUL-3	Identify places of traditional cultural and religious importance to federally recognized Tribes and maintain access to these locations for traditional use.	Applicable	Consistent	A search was conducted for tribal cultural resources and no tribal cultural resources were identified within the Proposed Action Area.
	LUPA-CUL-4	Design activities to minimize impacts on cultural resources including places of traditional cultural and religious importance to federally recognized Tribes.	Applicable	Consistent	A search was conducted for tribal cultural resources and no tribal cultural resources were identified within the Proposed Action Area.
	LUPA-CUL-5	Develop interpretive material to correspond with recreational uses to educate the public about protecting cultural resources and avoiding disturbance of archaeological sites.	Not Applicable		Agency Responsibility
	LUPA-CUL-6	Develop partnerships to assist in the training of groups and individuals to participate in site stewardship programs.	Not Applicable		Agency Responsibility
	LUPA-CUL-7	Coordinate with visual resources staff to ensure VRM Classes consider cultural resources and tribal consultation to include landmarks of cultural significance to Native Americans (TCPs, trails, etc.).	Not Applicable		Agency Responsibility
	LUPA-CUL-8	Conduct regular contact and consultation with federally recognized Tribes and individuals, consistent with statute, regulation and policy.	Not Applicable		Agency Responsibility
	LUPA-CUL-9	Promote DRECP desert vegetation types/communities by avoiding them where possible, then use required compensatory mitigation, off-site mitigation, and other means to ensure Native American vegetation collection areas and practices are maintained.	Not Applicable		Agency Responsibility
	LUPA-CUL-10	Promote and protect desert fan palm oasis vegetation type/communities by avoiding where possible, then use required compensatory mitigation, off-site mitigation, and other means to ensure Native American cultural values are maintained.	Not Applicable		Desert fan palm oasis vegetation type/communities are not present within the APE
	LUPA-CUL-11	Promote and protect desert microphyll woodland vegetation type/communities to ensure Native American cultural values are maintained.	Not Applicable		Desert microphyll woodland vegetation type/communities are not present within the APE

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Lands and Realty	LUPA-LANDS-1	Identify acquired lands as right-of-way exclusion areas when development is incompatible with the purpose of the acquisition.	Not applicable.		Proposed Action would not be sited on acquired lands with this exclusion.
	LUPA-LANDS-2	Prioritize acquisition of land within and adjacent to conservation designation allocations. Acquired land in any land use allocation in this Plan will be managed according to the applicable allocation requirements and/or for the purposes of the acquisition. Management boundaries for the allocation may be adjusted to include the acquired land if the acquisition lies outside the allocation area through a future land use plan amendment process.	Not applicable.		Proposed Action would not be sited on acquired lands with this exclusion.
	LUPA-LANDS-3	Within land use allocations where renewable energy and ancillary facilities are not allowed, an exception exists for geothermal development. Geothermal development will be an allowable use if a geothermal-only DFA overlays the allocation and the lease includes a no surface occupancy stipulation with exception of three specific parcels in the Ocotillo Wells SRMA (refer to the Ocotillo Wells SRMA Special Unit Management Plan in Appendix C).	Not applicable.		Solar facilities are an allowable use in the DFA.
	LUPA-LANDS-4	Nonfederal lands within the boundaries of BLM LUPA land use allocations are not affected by the LUPA.	Applicable	Consistent. Nonfederal lands would require a conditional use permit through Kern County.	
	LUPA-LANDS-5	The MUCs used to determine land tenure in the CDCA Plan will be replaced by areas listed in the CMAs below.	Applicable	Consistent. The Proposed Action would implement the CMAs for the DFA.	
	LUPA-LANDS-6	Any activities on Catellus Agreement lands will be consistent with deed restrictions	Not applicable		Proposed Action would not be sited on lands with Catellus Agreements or related deed restrictions.
	LUPA-LANDS-7	Any activities on Catellus Agreement lands will be subject to the approval of the California State Director.	Not applicable		The Proposed Action would not be sited on lands with Catellus Agreements or related deed restrictions.
	LUPA-LANDS-8	The CDCA Plan requirement that new transmission lines of 161kV or above, pipelines with diameters greater than 12 inches, coaxial cables for interstate communications, and major aqueducts or canals for interbasin transfers of water will be located in designated utility corridors, or considered through the plan amendment process outside of designated utility corridors, remains unchanged. The only exception is that transmission facilities may be located outside of designated corridors within DFAs without a plan amendment. This CMA does not apply the Bishop and Bakersfield RMPs.	Applicable	Consistent. The Proposed Action would comply with this provision and share the use of existing facilities.	Proposed Action would share existing transmission facilities and would not be sited outside of designated utility corridors.
Exchanges with the State of California	LUPA-LANDS-8	Continue land exchanges with the State of California, as per the LUPA goals and objectives in Section II.4.1.4. Refer to Appendix F.	Non applicable		The Proposed Action would not involve a land exchange.
	LUPA-LANDS-9	Enter into land exchanges with the California State Lands Commission (CSLC) which convey BLM lands suitable for, or developed as, large-scale renewable energy related projects in exchange for CSLC school lands located in and adjacent to designated conservation areas. These exchanges will follow the procedures outlined in Memorandum of Agreement Relating to Land Exchanges to Consolidate Land Parcels signed by the BLM and CSLC on May 21, 2012.	Not applicable		The Proposed Action would not include the use of state lands.
	LUPA-LANDS-10	Prioritize land exchange proposals from the CSLC on available lands if there are competing land tenure proposals (e.g., land sale or exchange), CSLC proposals that enhance revenues for schools will generally be given priority.	Not applicable		The Proposed Action would not include land exchanges or otherwise involve the use of lands of the state.
Livestock Grazing	LUPA-LIVE-1	Adopt the Standards of Rangeland Health and Guidelines for Grazing Management, as detailed below, for the CDCA. This CMA does not apply in the Bishop and Bakersfield RMPs.	Not applicable		Agency Responsibility
		Standards of Rangeland Health and Guidelines for Grazing Management			
		Regional Public Land Health Standards and Guidelines are required for all BLM administered lands in accordance with Part 43 of the CFR subsection 4180. These regulations require that State Directors, in consultation with Resource Advisory Councils, develop Standards for Rangeland Health and Guidelines for grazing management.	Not applicable		Agency Responsibility
		The BLM in coordination and consultation with the California Desert District Advisory Committee (see Section 601 of the FLPMA as amended) developed standards and guidelines for the CDCA and used the following land use plan amendments to analyze the specific standard and guideline and to provide the public and opportunity to comment.	Not applicable		Agency Responsibility
		● Northern and Eastern Colorado Desert Management Plan—NECO—ROD signed Dec. 2002 (BLM 2002a)	Not applicable		Agency Responsibility
		● Northern and Eastern Mojave Desert Management Plan—NEMO—ROD signed Dec. 2002 (BLM 2002b)	Not applicable		Agency Responsibility
		● West Mojave Plan—WEMO—ROD signed March 2006 (BLM 2006)	Not applicable		Agency Responsibility
		The regulations require approval by the Secretary of the Interior prior to full implementation of standards and guidelines. Until approval is received, the fallback standards and guidelines will be used.	Not applicable		Agency Responsibility
		The regulations require approval by the Secretary of the Interior prior to full implementation of the California Desert District standards and guidelines. Until approval is received, the fallback standards and guidelines will be used in the 5 Desert District Offices.	Not applicable		Agency Responsibility
		Bakersfield and Bishop Field Offices are covered under the Central California Standards and Guidelines and require no additional approval to continue to use that document.	Not applicable		Agency Responsibility
		Standards and Guidelines for the CDCA			
		Standards of land health are expressions of levels of physical and biological condition or degree of function required for healthy lands and sustainable uses, and define minimum resource conditions that must be achieved and sustained (BLM 2001).	Not applicable		Definition
		Guideline. A practice, method or technique determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard. Guidelines are tools such as grazing systems, vegetative treatments, or improvement projects that help managers and permittees achieve standards. Guidelines may be adapted or modified when monitoring or other information indicates the guideline is not effective, or a better means of achieving the applicable standard becomes appropriate (H-4180-1 Rangeland Health Standards).	Not applicable		Agency Responsibility
		The following Standards for the CDCA are from the NECO, NEMO, WEMO, and Palm Springs South Coast Resource Management Plan (PSSCRMP) land use plan amendments.			

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Livestock Grazing (cont.)	LUPA-LIVE-1 (cont.)	Soils	Not applicable		Agency Responsibility
		Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, land form, and past uses.	Not applicable		Agency Responsibility
		Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor. and provide a stable watershed. as indicated by:			
		● Canopy and ground cover are appropriate for the site.	Not applicable		Agency Responsibility
		● There is a diversity of plant species with a variety of root depths.	Not applicable		Agency Responsibility
		● Litter and soil organic matter are present at suitable sites.	Not applicable		Agency Responsibility
		● Microbiotic soil crusts are maintained and in place at appropriate locations.	Not applicable		Agency Responsibility
		● Evidence of wind or water erosion does not exceed natural rates for the site.	Not applicable		Agency Responsibility
		● Soil permeability, nutrient cycling, and water infiltration are appropriate for the soil type.	Not applicable		Agency Responsibility
		Native Species			
		Healthy, productive, and diverse habitats for native species, including Special Status Species (federal threatened and endangered, federally proposed, federal candidates, BLM sensitive, or California State threatened and endangered, and Unique Plant Assemblages), are maintained in places of natural occurrence, as indicated by:	Not applicable		Agency Responsibility
		● Photosynthetic and ecological processes are continuing at levels suitable for the site, season, and precipitation regimes.	Not applicable		Agency Responsibility
		● Plant vigor, nutrient cycle, and energy flow are maintaining desirable plants and ensuring reproduction and recruitment.	Not applicable		Agency Responsibility
		● Plant communities are producing litter within acceptable limits.	Not applicable		Agency Responsibility
		● Age class distribution of plants and animals are sufficient to overcome mortality fluctuations.	Not applicable		Agency Responsibility
		● Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events.	Not applicable		Agency Responsibility
		● Alien and noxious plants and wildlife do not dominate a site or do not require action to prevent the spread and introduction of noxious/invasive weeds.	Not applicable		Agency Responsibility
		● Appropriate natural disturbances are evident.	Not applicable		Agency Responsibility
		● Populations and their habitats are sufficiently distributed and healthy to prevent the need for new listing as Special Status Species.	Not applicable		Agency Responsibility
		Riparian/Wetland and Stream Function			
		Wetland systems associated with subsurface, running, and standing water function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained, as indicated by:	Not applicable		Agency Responsibility
		● Vegetative cover adequately protects banks and dissipates energy during peak water flows.	Not applicable		Agency Responsibility
		● Dominant vegetation is an appropriate mixture of vigorous riparian species.	Not applicable		Agency Responsibility
		● Recruitment of preferred species is adequate to sustain the plant community.	Not applicable		Agency Responsibility
		● Stable soils store and release water slowly.	Not applicable		Agency Responsibility
		● Plant species present indicate soil moisture characteristics are being maintained.	Not applicable		Agency Responsibility
		● There is minimal cover of shallow-rooted invader species, and they are not displacing deep-rooted native species.	Not applicable		Agency Responsibility
		● Shading of stream courses and water courses is sufficient to support riparian vertebrates and invertebrates.	Not applicable		Agency Responsibility
		● Stream is in balance with water and sediment being supplied by the watershed.	Not applicable		Agency Responsibility
		● Stream channel size (depth and width) and meander is appropriate for soils, geology, and landscape.	Not applicable		Agency Responsibility
		● Adequate organic matter (litter and standing dead plant material) is present to protect the site from excessive erosion and to replenish soil nutrients through decomposition.	Not applicable		Agency Responsibility
		Water Quality			
		Surface and groundwater complies with objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California State standards, as indicated by:	Not applicable		Agency Responsibility
		● The following do not exceed the applicable requirements: chemical constituents, water temperature, nutrient loads, fecal coliform, turbidity, suspended sediment, and dissolved oxygen.	Not applicable		Agency Responsibility
		● Standards are achieved for riparian, wetlands, and water bodies.	Not applicable		Agency Responsibility
		● Aquatic organisms and plants (e.g., macro-invertebrates, fish, algae, and plants) indicate support for beneficial uses.	Not applicable		Agency Responsibility
		● Monitoring results or other data show water quality is meeting the Standard.	Not applicable		Agency Responsibility
		The following Guidelines for grazing in the CDCA are from the NECO, NEMO, WEMO, and PSSCRMP land use plan amendments.	Not applicable		Agency Responsibility
		● Facilities will be located away from riparian-wetland areas whenever they conflict with achieving or maintaining riparian-wetland functions.	Not applicable		Agency Responsibility
		● The development of springs and seeps or other projects affecting water and associated resources will be designed to protect the ecological functions and processes of those sites.	Not applicable		Agency Responsibility
		● Grazing activities at an existing range improvement that conflict with achieving proper functioning conditions (PFC) and resource objectives for wetland systems (lentic, lotic, springs, adits, and seeps) would be modified so PFC and resource objectives can be met, and incompatible projects would be modified to bring them into compliance. The BLM would consult, cooperate, and coordinate with affected interests and livestock producers prior to authorizing modification of existing projects and initiation of new projects. New range improvement facilities would be located away from wetland systems if they conflict with achieving or maintaining PFC and resource objectives.	Not applicable		Agency Responsibility

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments	
Livestock Grazing (cont.)	LUPA-LIVE-1 (cont.)	● Supplements (e.g., salt licks) will be located one-quarter mile or more away from wetland systems so they do not conflict with maintaining riparian-wetland functions.	Not applicable		Agency Responsibility	
		● Management practices will maintain or promote perennial stream channel morphology (e.g., gradient, width/depth ratio, channel roughness, and sinuosity) and functions that are appropriate to climate and landform.	Not applicable		Agency Responsibility	
		● Grazing management practices will meet state and federal water quality Standards. Impoundments (stock ponds) having a sustained discharge yield of less than 200 gallons per day to surface or groundwater, are excepted from meeting state drinking water standards per California State Water Resources Control Board Resolution Number 88-63.	Not applicable		Agency Responsibility	
		● Refer to the most-up-to-date BLM Fire Policy for information related to suppression and use of wildland fire within the planning area.	Not applicable		Agency Responsibility	
		● In years when weather results in extraordinary conditions, seed germination, seedling establishment, and native plant species growth should be allowed by modifying grazing use.	Not applicable		Agency Responsibility	
		● Grazing on designated ephemeral rangeland could be allowed only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.	Not applicable		Agency Responsibility	
		● During prolonged drought, range stocking will be reduced to achieve resource objectives and/or prescribed perennial forage utilization. Livestock utilization of key perennial species on year-long allotments should be checked about March 1 when the Palmer Severity Drought Index/Standardized Precipitation Index indicates dry conditions are expected to continue.	Not applicable		Agency Responsibility	
		● Through the assessment process or monitoring efforts, the extent of invasive and/or exotic plants and animals should be recorded and evaluated for future control measures. Methods and prescriptions should be implemented, and an evaluation would be completed to ascertain future control measures for undesirable species.	Not applicable		Agency Responsibility	
		● Restore, maintain or enhance habitats to assist in the recovery of federally listed threatened and endangered species. Restore, maintain or enhance habitats of Special Status Species including federally proposed, federal candidates, BLM sensitive, or California State threatened and endangered to promote their conservation.	Not applicable		Agency Responsibility	
		● Grazing activities should support biological diversity across the landscape, and native species and microbiotic crusts are to be maintained.	Not applicable		Agency Responsibility	
LUPA-Wide Conservation and Management Actions for Livestock Grazing	LUPA-LIVE-2	● Experimental research efforts should be encouraged to provide answers to grazing management and related resource concerns through cooperative and collaborative efforts with outside agencies, groups, and entities.	Not applicable		Agency Responsibility	
		● Livestock utilization limits of key perennial species will be as shown in (see Table 19) for the various range types.	Not applicable		Agency Responsibility	
		Monitoring Monitoring of grazing allotment resource conditions would be routinely assessed to determine if Public Land Health Standards are being met. In those areas not meeting one or more Standards, monitoring processes would be established where none exist to monitor indicators of health until the Standard or resource objective has been attained. Livestock trail networks, grazed plants, livestock facilities, and animal waste are expected impacts in all grazing allotments and these ongoing impacts would be considered during analysis of the assessment and monitoring process. Activity plans for other uses or resources that overlap an allotment could have prescribed resource objectives that may further constrain grazing activities (e.g., ACEC). In an area where a Standard has not been met, the results from monitoring changes to grazing management required to meet Standards would be reviewed annually. During the final phase of the assessment process, the Range Determination includes the schedule for the next assessment of resource conditions. To attain Standards and resource objectives, the best science would be used to determine appropriate grazing management actions. Cooperative funding and assistance from other agencies, individuals, and groups would be sought to collect prescribed monitoring data for indicators of each Standard.	Not applicable		Agency Responsibility	
		In the CDCA only, accept grazing permit/lease donations in accordance with legislation in the Fiscal Year 2012 Appropriations Act (Public Law 112-74).	Not applicable		Grazing permit/lease donations are not proposed	
		LUPA-LIVE-3	In the Bishop and Bakersfield RMPs, determine whether continued livestock grazing would be compatible with achieving land use plan management goals and objectives in the event that the permit/lease is relinquished.	Not applicable		Project not located in Bishop and Bakersfield RMPs,
		LUPA-LIVE-4	If the BLM determines that the grazing allotment is to be put to a different public purpose than grazing, follow the notification requirements outline in the Grazing Regulations at 43 CFR 4110.4-2(b) and BLM Instruction Memorandum (IM) 2011-181 (BLM 2011), or future policy replacing IM 2011-181.	Applicable	Consistent	BLM will follow the applicable notification requirements outline in the Grazing Regulations
		LUPA-LIVE-5	For grazing allotments within the CDCA that BLM has received a voluntary request for relinquishment prior to fiscal year 2012, continue the planning process for making these allotments unavailable for grazing.	Not applicable		A voluntary request for relinquishment was not submitted as part the the proposed action.
		LUPA-LIVE-6	Complete the process for approving rangeland health standards and guidelines for the CDCA Plan (NEMO, WEMO, NECO and PSSCRMP).	Not applicable		Agency responsibility
		LUPA-LIVE-7	Make Pilot Knob, Valley View, Cady Mountain, Cronese Lake, and Harper Lake allotments, allocations unavailable for livestock grazing and change to management for wildlife conservation and ecosystem function. Reallocate the forage previously allocated to grazing use in these allotments to wildlife and ecosystem functions. Pilot Knob was closed in the WEMO plan amendment. The Cronese Lake, Harper Lake, and Cady Mountain allotments were closed as mitigation for the impacts to the Agassiz's desert tortoise resulting from the Fort Irwin expansion. All forage allocated to livestock grazing in these allotments will be reallocated to wildlife use and ecosystem function.	Not applicable		Agency responsibility
		LUPA-LIVE-8	The following vacant grazing allotments within the CDCA will have all vegetation previously allocated to grazing use reallocated to wildlife use and ecosystem functions and will be closed and unavailable to future livestock grazing: Buckhorn Canyon, Crescent Peak, Double Mountain, Jean Lake, Johnson Valley, Kessler Springs, Oak Creek, Chemehuevi Valley, and Piute Valley.	Not applicable		The Proposed Action is not located within the listed allotments.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-LIVE-9	Allocate the forage that was allocated to livestock use in the Lava Mountain and Walker Pass Desert allotments (which have already been relinquished under the 2012 Appropriations Act) to wildlife use and ecosystem function and permanently eliminate livestock grazing on the allotments.	Not applicable		The Proposed Action is not located within the listed allotments.
Minerals	LUPA-MIN-1	High Potential Mineral Areas (identified in CA GEM data) ● These areas have been identified as mineral lands having existing and/or historic mining activity and a reasonable probability of future mineral resource development. These identified areas will be designated as mineral land polygons on DRECP maps, recognized as probable future development areas for planning purposes and allowable use areas. ● If an activity is proposed in a High Potential Mineral Area, analyze and consider the mineral resource value in the NEPA analysis.	Not Applicable		The project is not in an area identified as a High Potential Mineral Area
	LUPA-MIN-2	Existing Mineral/Energy Operations Existing authorized mineral/energy operations, including existing authorizations, modifications, extensions and amendments and their required terms and conditions, are designated as an allowable use within all BLM lands in the LUPA Decision Area, and unpatented mining claims subject to valid existing rights. Amendments and expansions authorized after the signing of the DRECP LUPA ROD are subject to applicable CMAs, including ground disturbance caps within Ecological and Cultural Conservation Areas, subject to valid existing rights, subject to governing laws and regulations.	Not applicable		Mineral resources are not present on the project site or affected by the project.
	LUPA-MIN-3	Existing High Priority Mineral/Energy Operations Exclusion Areas ● Existing high-priority operation footprints and their identified expansion areas are excluded from DFA and conservation CMAs, but must comply with LUPA-wide CMAs subject to the governing laws and regulations. ● High priority operation exclusions are referenced by name with their respective footprint (acreage) below. ○ MolyCorp REE (General Legal Description: 35° 26'N; 115° 29'W)—10,490.9 surface acres ○ Briggs Au, Etna (General Legal Description: 35° 56'N; 117° 11'W)—3,216.9 surface acres ○ Cadiz Evaporites (General Legal Description: 34° 17'N; 115° 23'W)—2,591.5 surface acres ○ Searles Dry Lake (Evaporate) Operation (General Legal Description: 35° 43'N; 117° 19'W)—72,000 surface acres ○ Bristol Dry Lake (Evaporate) Operation (General Legal Description: 34° 29'N; 115° 43'W)—3,500 surface acres ○ Mesquite Gold Mine (General Legal Description: 33° 04'N; 114° 59'W)—4,500 surface acres ○ Hector Mine (Hectorite Clay) (General Legal Description: 34° 45'N; 116° 25'W)—1,500 surface acres ○ Castle Mountain/Viceroy Mine (Gold) (General Legal Description: 35° 17'N; 115° 3'W)—5,000 surface acres	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable		Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project.
	LUPA-MIN-4	Access to Existing Operations ● Established designated, approved, or authorized access routes to the aforementioned existing authorized operations and areas will be designated as allowable uses. ● Access routes to Plans of Operations and Notices approved under 43 CFR 3809 will be granted subject to valid existing rights listed in 43 CFR 3809.100.	Not Applicable Not Applicable		Mineral resources are not present on the project site or affected by the project. Mineral resources are not present on the project site or affected by the project.
	LUPA-MIN-5	Areas Located Outside Identified Mineral Areas ● Areas which could not be characterized due to insufficient data and mineral potential may fluctuate dependent on market economy, extraction technology, and other geologic information- requiring periodic updating. Authorizations are subject to the governing laws and regulations and LUPA requirements.	Not Applicable		The project is located in an area identified for mineral areas; however, no mineral resources are present on the project site.
	LUPA-MIN-6	New or expanded mineral operations will be evaluated on a case-by-case basis, and authorizations are subject to LUPA requirements, and the governing laws and regulations.	Not Applicable		Mineral resources are not present on the project site or affected by the project
National Recreation Trails	LUPA-NRT-1	The Nadeau Road NRT was designated by the Secretary of the Interior in June 2013. The California Desert District nominates the Sperry Wash Road, El Mirage Interpretive Trail East, and El Mirage Interpretive Trail West for NRT designation.			
	LUPA-NRT-2	The Nadeau NRT Management Corridor will be protected and activities impacting use and enjoyment of the trail will be avoided within 0.5 mile from centerline of the route.	Not applicable		No construction, operation, maintenance or decommissioning of the Proposed Action would occur within 0.5 miles of an NRT management corridor.
Paleontology	LUPA-PALEO-1	If not previously available, prepare paleontological sensitivity maps consistent with the Potential Fossil Yield Classification for activities prior to NEPA analysis.	Not Applicable		Agency responsibility
	LUPA-PALEO-2	Incorporate all guidance provided by the Paleontological Resources Protection Act.	Applicable	Consistent	The cultural and paleontological analysis for the Proposed Action was prepared in consideration of Paleontological Resources Protection Act
	LUPA-PALEO-3	Ensure proper data recovery of significant paleontological resources where adverse impacts cannot be avoided or otherwise mitigated.	Applicable	Consistent	No adverse effects to paleontological resources would occur with the implementation of Mitigation Measures 4.7-5 through 4.7-7, which would ensure proper data recovery.
	LUPA-PALEO-4	Paleontological surveys and construction monitors are required for ground disturbing activities that require an EIS.	Applicable	Consistent	According to Mitigation Measure 4.7-5, all ground disturbing activities shall be monitored by a BLM-approved paleontologist
Recreation and Visitor Services	LUPA-REC-1	Maintain, and where possible enhance, the recreation setting characteristics – physical components of remoteness, naturalness and facilities; social components of contact, group size and evidence of use; and operational components of access, visitor services and management controls.	Applicable.	Consistent	The Proposed Action would be located adjacent to existing renewable resource facilities and would comply with this provision, to the extent practicable.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-REC-2	Cooperate with the network of communities and recreation service providers active within the planning area to protect the principal recreation activities and opportunities, and the associated conditions for quality recreation, by enhancing appropriate visitor services, and by identifying and mitigating impacts from development, inconsistent land uses and unsustainable recreation practices such as minimizing impacts to known rockhounding gathering areas.	Not applicable.		The Proposed Action would not be sited in an area managed for recreational purposes.
	LUPA-REC-3	Manage lands not designated as SRMAs or ERMAs to meet recreation and visitor services and resource stewardship needs as described in Resource Management Plans (RMPs).	Not applicable.		The Proposed Action would not be sited in an area managed for recreational purposes in accordance with RMPs
	LUPA-REC-4	Prohibit activities that have a significant adverse impact and that do not enhance conservation or recreation values within one mile of Level 1 and Level 2 Recreation facility footprint.	Applicable.	Consistent	The Proposed Action would implement visual screening measures to reduce potentially adverse visual impacts within view of the PCT recreational uses.
	LUPA-REC-5	Avoid activities that have a significant adverse impact and that do not enhance conservation or recreation values within one-half mile of Level 3 Recreation facility footprint including route access and staging areas. If avoidance is not practicable, the facility must be relocated to the same or higher recreation standard and maintain recreation objectives and setting characteristics.	Applicable.	Consistent	The Proposed Action is not located with 1/2 mile of Level 3 Recreational facilities
	LUPA-REC-6	Limit signage to that necessary for recreation facility/area identification, interpretation, education and safety/regulatory enforcement.	Not applicable.		Agency responsibility
	LUPA-REC-7	Refer to local RMPs, RMP amendments, and activity level planning for specially designated areas for Vehicular Stopping, Parking, and Camping limitations.	Not applicable.		The Proposed Action would not be sited in an area managed for recreational purposes.
	LUPA-REC-8	Provide on-going maintenance of recreation and conservation facilities, interpretive and regulatory signs, roads, and trails.	Not applicable.		Agency responsibility
Soil and Water General	LUPA-SW-1	Stipulations or conditions of approval for any activity will be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources (including ephemeral, intermittent, and perennial water bodies) and any associated riparian habitat (see biological CMAs for specific riparian habitat CMAs). The water resources to which this CMA applies will be identified through the activity-specific NEPA analysis.	Not Applicable		Agency responsibility
	LUPA-SW-2	Buffer zones, setbacks, and activity limitations specifically for soil and water (ground and surface) resources will be determined on an activity/site-specific basis through the environmental review process, and will be consistent with the soil and water resource goals and objectives to protect these resources. Specific requirements, such as buffer zones and setbacks, may be based, in part, on the results of the Water Supply Assessment defined below. In general, placement of long-term facilities within buffers or protected zones for soil and water resources is discouraged, but may be permitted if soil and water resource management objectives can be maintained.	Not Applicable		There are no identified soil and water resources on the site that require a buffer zone, setback or limitation on activities.
	LUPA-SW-3	Where a seeming conflict between CMAs within or between resources arises, the CMA(s) resulting in the most resource protection apply.	Not Applicable		No conflicts be with the CMAs and resources are expected
	LUPA-SW-4	Nothing in the "Exceptions" below applies to or takes precedence over any of the CMAs for biological resources.	Not Applicable		Agency responsibility
Groundwater Resources	LUPA-SW-5	Exceptions to any of the specific soil and water stipulations contained in this section, as well as those listed below under the subheadings "Soil Resources," "Surface Water," and "Groundwater Resources," may be granted by the authorized officer if the applicant submits a plan, or, for BLM-initiated actions, the BLM provides documentation, that demonstrates:	Not Applicable		Agency responsibility
		<ul style="list-style-type: none"> The impacts are minimal (e.g., no predicted aquifer drawdown beyond existing annual variability in basins where cumulative groundwater use is not above perennial yield and water tables are not currently trending downward) or can be adequately mitigated. 	Not Applicable		Groundwater levels in the Willow Springs subbasin, where the project is located, is understood to be rising and is not currently trending downward. Furthermore, the project has a relatively low water supply demand.
Soil Resources	LUPA-SW-6	In addition to the applicable required governmental safeguards, third party activities will implement up-to-date standard industry construction practices to prevent toxic substances from leaching into the soil.	Applicable		Project will implement a SWPPP which would include post-construction BMPs that would include appropriate handling of the relatively minor toxic substances used on site.
	LUPA-SW-7	Prepare an emergency response plan, approved by the BLM contaminant remediation specialist, that ensures rapid response in the event of spills of toxic substances over soils.	Applicable	Consistent	The Proposed Action will prepare a Hazardous Materials Business Plan that will include provisions for emergency response
	LUPA-SW-8	As determined necessary on an activity specific basis, prepare a site plan specific to major soil types present (≥5% of footprint or laydown surfaces) in Wind Erodibility Groups 1 and 2 and in Hydrology Soil Class D as defined by the USDA Natural Resource Conservation Service to minimize water and air erosion from disturbed soils on activity sites.	Applicable	Consistent	Project will implement a SWPPP which would include erosion control BMPs that would minimize the potential for wind or water erosion on site.
	LUPA-SW-9	The extent of desert pavement within the proposed boundary of an activity shall be mapped if it is anticipated that the activity may create erosional or ecologic impacts. Mapping will use the best available data and standards, as determined by BLM. Disturbance of desert pavement within the boundary of an activity shall be limited to the extent possible. If disturbance from an activity is likely to exceed 10% of the desert pavement mapped within the activity boundary, the BLM will determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance.			
	LUPA-SW-10	The extent of additional sensitive soil areas (cryptobiotic soil crusts, hydric soils, highly corrosive soils, expansive soils, and soils at severe risk of erosion) shall be mapped if it is anticipated that an activity will impact these resources. To the extent possible, avoid disturbance of desert biologically intact soil crusts, and soils highly susceptible to wind and water erosion.	Applicable	Consistent	Improvements would be designed to be consistent with the California Building Code which would include recommendations to address any geotechnical hazards including highly corrosive soils, expansive soils, and soils at severe risk of erosion.
	LUPA-SW-11	Where possible, side casting shall be avoided where road construction requires cut- and-fill procedures.	Not Applicable		Cut and fill for road construction not part of the project.
Surface Water	LUPA-SW-12	Except in DFAs, exclude long-term structures in, playas (dry lake beds), and Wild and Scenic River corridors, except as allowed with minor incursions (see definition in the Glossary of Terms).	Not Applicable		There are no known playas or river corridors located within the Project site.
	LUPA-SW-13	BLM will manage all riparian areas to be maintained at, or brought to, proper functioning condition.	Not Applicable		No riparian areas in project site.
	LUPA-SW-14	All relevant requirements of Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) will be complied with.	Not Applicable		The project site is located entirely within Flood Zone "X", areas of minimal flooding and no standing water.
	LUPA-SW-15	Surface water diversion for beneficial use will not occur absent a state water right.	Not Applicable		The project site is located entirely within Flood Zone "X", areas of minimal flooding and no standing water.
	LUPA-SW-16	The 100-year floodplain boundaries for any surface water feature in the vicinity of the project will be identified. If maps are not available from the Federal Emergency Management Agency (FEMA), these boundaries will be determined via hydrologic modeling and analysis as part of the environmental review process. Construction within, or alteration of, 100-year floodplains will be avoided where possible, and permitted only when all required permits from other agencies are obtained.	Not Applicable		The project site is not located within 100-year flood zone

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
Groundwater	LUPA-SW-17	An activity's groundwater extraction shall not contribute to exceeding the estimated perennial yield for the basin in which the extraction is taking place. Perennial yield is that quantity of groundwater that can be withdrawn from the groundwater basin without exceeding the long-term recharge of the basin or unreasonably affecting the basin's physical, chemical, or biological integrity. It is further clarified arithmetically below.	Applicable	Consistent	Groundwater levels in the Willow Springs subbasin, where the project is located, is understood to be rising and is not currently trending downward. Furthermore, the project has a relatively low water supply demand.
	LUPA-SW-18	Water extracted or consumptively used for the construction, operation, maintenance, or remediation of the project shall be solely for the beneficial use of the project or its associated mitigation and remediation measures, as specified in approved plans and permits.	Applicable	Consistent	The proposed project would require an estimated amount of 200 AF of water for dust suppression, concrete manufacturing, truck wheel washing, equipment washing, and fire safety. All water used by the project would adhere to all approved plans and permits.
	LUPA-SW-19	Water flow meters shall be installed on all extraction wells permitted by BLM.	Not Applicable		Water required during construction would most likely be supplied from an existing off-site well on the California Portland Cement Company property located approximately 1.7 miles south of the project site. All wells used for the proposed project would adhere to BLM requirements.
	LUPA-SW-20	After application of applicable avoidance and minimization measures, all remaining unavoidable residual impacts to surface waters from the proposed activity shall be mitigated to ensure no net loss of function and value, as determined by the BLM.	Applicable	Consistent	Implementation of the SWPPP would include post construction BMPs to minimize potential residual impacts to surface waters.
	LUPA-SW-21	Consideration shall be given to design alternatives that maintain the existing hydrology of the site or redirect excess flows created by hardscapes and reduced permeability from surface waters to areas where they will dissipate by percolation into the landscape.	Applicable	Consistent	Project would be designated to maintain drainage patterns as close as possible to existing conditions.
	LUPA-SW-22	All hydrologic alterations shall be avoided that could reduce water quality or quantity for all applicable beneficial uses associated with the hydrologic unit in the project area, or specific mitigation measures shall be implemented that will minimize unavoidable water quality or quantity impacts, as determined by BLM in coordination with USFWS, CDFW, and other agencies, as appropriate. These beneficial uses may include municipal, domestic, or agricultural water supply; groundwater recharge; surface water replenishment; recreation; water quality enhancement; flood peak attenuation or flood water storage; and wildlife habitat.	Applicable	Consistent	Significant hydrologic alterations would be avoided
	LUPA-SW-23	<p>A Water (Groundwater) Supply Assessment shall be prepared in conjunction with the activity's NEPA analysis and prior to an approval or authorization. This assessment must be approved by the BLM in coordination with USFWS, CDFW, and other agencies, as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The purpose of the Water Supply Assessment is to determine whether over-use or over-draft conditions exist within the project basin(s), and whether the project creates or exacerbates these conditions. The Assessment shall include an evaluation of existing extractions, water rights, and management plans for the water supply in the basin(s) (i.e., cumulative impacts), and whether these cumulative impacts (including the proposed project) can maintain existing land uses as well as existing aquatic, riparian, and other water-dependent resources within the basin(s). This assessment shall identify:</p> <ul style="list-style-type: none"> ● All relevant groundwater basins or sub-basins and their relationships. ● All known aquifers in the basin(s), including their dimensions, whether confined or unconfined, estimated hydraulic conductivity and transmissivity, groundwater surface elevations, and direction and movement of groundwater. ● All surface water basin(s) related to water runoff, delivery, and supply, if different from the groundwater basin(s). ● All sites of surface outflow (springs or seeps) contained within the basin(s), including historic sites. ● All other surface water bodies in the basins(s), including rivers, streams, ephemeral washes/drainages, lakes, wetlands, playays, and floodplains. ● The water requirements of the proposed project and the source(s) of that water. ● An analysis demonstrating that water of sufficient quantity and quality is available from identified source(s) for the life of the project. ● An analysis of potential project-related impacts on water quality and quantity needed for beneficial uses, reserved water rights, existing groundwater users, or habitat management within or down gradient of the groundwater basin within which the project would be constructed. ● The above analyses shall be in the form of a numerical groundwater model. The model extent shall encompass the groundwater basin within which the project would be constructed, and any groundwater-dependent resources within or down gradient of that basin. <p>The primary product of the Water Supply Assessment shall be a baseline water budget, which shall be established based on the best-available data and hydrologic methods for the identified basin(s). This water budget shall classify and describe all water inflow and outflow to the identified basin(s) or system using best-available science and the following basic hydrologic formula or a derivation: $P - R - F - T - G = \Delta S$, where P is precipitation and all other water inflow or return flow, R is surface runoff or outflow, E is evaporation, T is transpiration, G is groundwater outflow (including consumptive component of existing pumping), and ΔS is the change in storage. The volumes in this calculation shall be in units of either acre-feet per year or gallons per year. The water budget shall quantify the existing perennial yield of the basin(s). Perennial yield is defined arithmetically as that amount such that $P - R - E - T - G$ is greater than or equal to 0</p>	Applicable	Consistent	A WSA has been prepared consistent with this CMA

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-SW-23 (cont.)	<p>Water use by groundwater-dependent resources is implicitly included in the definition of perennial yield. For example, in many basins the transpiration component (T) includes water use by groundwater-dependent vegetation. Similarly, groundwater outflow (G) includes discharge to streams, springs, seeps, and wetlands. If one or more budget components is altered, then one or more of the remaining components must change for the hydrologic balance to be maintained. For example, an increase in the consumptive component of groundwater pumping can lower the water table and reduce transpiration by groundwater-dependent vegetation. The groundwater that had been utilized by the groundwater-dependent vegetation would then be considered "captured" by groundwater pumping. Similarly, increased groundwater consumption can capture groundwater that discharges to streams, springs, seeps, wetlands and playas. These changes can occur slowly over time, and may require years or decades before the budget components are fully adjusted. Accordingly, the water/groundwater supply assessment requires that the best-available data and hydrologic methods be employed to quantify these budgets, and that groundwater consumption effects on groundwater-dependent ecosystems be identified. The Water Supply Assessment shall also address:</p> <ul style="list-style-type: none"> • Estimates of the total cone of depression considering cumulative drawdown from all potential pumping in the basin(s), including the project, for the life of the project through the decommissioning phase • Potential to cause subsidence and loss of aquifer storage capacity due to groundwater pumping • Potential to cause injury to other water rights, water uses, and land owners • Changes in water quality and quantity that affect other beneficial uses • Effects on groundwater dependent vegetation and groundwater discharge to surface water resources such as streams, springs, seeps, wetlands, and playas that could impact biological resources, habitat, or are culturally important to Native Americans • Additional field work that may be required, such as an aquifer test, to evaluate site specific project pumping impacts and if necessary, establish trigger points that can be used for a Groundwater Water Monitoring and Mitigation Plan • The mitigation measures required, if there are significant or potentially significant impacts on water resources include but are not limited to, the use of specific technologies, management practices, retirement of active water rights, development of a recycled water supply, or water imports 			
	LUPA-SW-24	<p>A Groundwater Monitoring and Reporting Plan, and Mitigation Action Plan shall be prepared to verify the Water Supply Assessment and adaptively manage water use as part of project operations. This plan shall be approved by BLM, in coordination with USFWS, CDFW, and other agencies as appropriate, prior to the development, extraction, injection, or consumptive use of any water resource. The quality and quantity of all surface water and groundwater used for the project shall be monitored and reported using this plan. Groundwater monitoring includes measuring the effects of a project's groundwater extraction on groundwater surface elevations, groundwater flow paths, changes to groundwater-dependent vegetation, and of aquifer recovery after project decommissioning. Surface water monitoring, if applicable, shall monitor for changes in the flows, water volumes, channel characteristics, and water quality as a result of a project's surface water use. Monitoring frequency and geographic scope and reporting frequency shall be decided on a project and site-specific basis and in coordination with the appropriate agencies that manage the water and land resources of the region. The geographic scope may include at the very least, all basins/sub-basins that potentially receive inflow from the basin where the proposed project may be sited, and all basins/sub-basins that may potentially contribute inflow to the basin where the proposed project is located. The plan shall also detail any mitigation measures that may be required as a result of the project. This plan and all monitoring results shall be made available to BLM. BLM will make the plan and results available to USFWS, CDFW, and other applicable agencies.</p>	Applicable	Consistent	The Proposed Action must implement this CMA. Implementation will be verified by BLM.
	LUPA-SW-25	<p>Where groundwater extraction, in conjunction with other cumulative impacts in the basin, has potential to exceed the basin's perennial yield or to impact water resources, one or more "trigger points," or specified groundwater elevations in specific wells or surface water bodies, shall be established by BLM. If the groundwater elevation at the designated monitoring wells falls below the trigger point(s) (or exceeds the trigger pumping rate), additional mitigation measures, potentially including cessation of pumping, will be imposed.</p>	Not Applicable		The project has a relatively small water supply demand that may come from a variety of different sources. The highest part of the demand is during the construction phase which is a short term demand.
	LUPA-SW-26	<p>Groundwater pumping mitigation shall be imposed if groundwater monitoring data indicate impacts on water-dependent resources that exceed those anticipated and otherwise mitigated for in the NEPA analysis and ROD, even if the basin's perennial yield is not exceeded. Water-dependent resources include riparian or phreatophytic vegetation, springs, seeps, streams, and other approved domestic or industrial uses of groundwater. Mitigation measures may include changes to pumping rates, volume, or timing of water withdrawals; coordinating and scheduling groundwater pumping activities in conjunction with other users in the basin; acquisition of project water from outside the basin; and/or replenishing the groundwater resource over a reasonably short timeframe. For permitted activities, permittees may also be required to contribute funds to basin-wide groundwater monitoring networks in basins such as those encompassed by the East Riverside DFA or in the Calvada Springs/South Pahrump Valley area, and to cooperate in the compilation and analysis of groundwater</p>	Not Applicable		The project has a relatively small water supply demand that may come from a variety of different sources. The highest part of the demand is during the construction phase which is a short term demand.
	LUPA-SW-27	<p>Water-conservation measures shall be required in basins where current groundwater demand is high and has the future potential to rise above the estimated perennial yield (e.g., Pahrump Valley). These measures may include the use of specific technology, management practices, or both. A detailed discussion and analysis of the effectiveness of mitigation measures must be included. Application of these measures shall be detailed in the Groundwater Water Monitoring and Mitigation Plan.</p>	Not Applicable		The project has a relatively small water supply demand that may come from a variety of different sources. The highest part of the demand is during the construction phase which is a short term demand.
	LUPA-SW-28	<p>Groundwater extractions from adjudicated basins, such as the Mojave River Basin, may be subject to additional restrictions imposed by the designated authority; examples include the Mojave Water Agency and San Bernardino County (see County Ordinance 3872). Where provisions of the adjudication allow for acquisition of water rights, project developers could be required to retire water rights at least equal in volume to those necessary for project operation or propose an alternative offset based on the conditions unique to the adjudicated basin.</p>	Applicable	Consistent	The project site is located in an adjudicated basin. If the adjudication judgement does not allow for onsite pumping in the amount required during project operation, the project proponent and/or contractor would enter into an agreement with the Watermaster and other groundwater rights holders to accommodate the Project's annual operational water requirements. Any of the water associated with the project would be in compliance with any applicable adjudication judgement.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-SW-29	Groundwater pumping mitigation may be imposed if monitoring data indicate impacts on groundwater or groundwater-dependent habitats outside the DRECP area, including those across the border in Nevada. See LUPA-SW-26 for potential mitigation measures.	Applicable	Consistent	The Proposed Action must implement this CMA. Implementation will be verified by BLM.
	LUPA-SW-30	Activities shall comply with local requirements for any long term or short term domestic water use and wastewater treatment.	Applicable	Consistent	The project does not include domestic facilities and would thus not include domestic water use. The project would comply with local wastewater treatment.
	LUPA-SW-31	The siting, construction, operation, maintenance, remediation, and abandonment of all wells shall conform to specifications contained in the California Department of Water Resources Bulletins #74-81 and #74-90 and their updates.	Not Applicable		Although project water supply could come from an on-site or off-site groundwater well, no new groundwater wells are proposed as part of the project.
	LUPA-SW-32	Colorado River hydrologic basin - The concepts, principles and general methodology used in the Colorado River Accounting Surface Method, as defined in U.S. Geological Survey Scientific Investigations Report 2008-5113 (USGS 2009), and existing and future updates or a similar methodology, are considered the best available data for assessing activity/project related ground water impacts in the Colorado River hydrologic basin. The best available data and methodology shall be used to determine whether activity/project-related pumping would result in the extracted water being replaced by water drawn from the Colorado River. If activity/project-related groundwater pumping results in the static groundwater level at the well being near (within 1 foot), equal to, or below the Accounting Surface in a basin hydrologically connected to the Colorado River, that consumption shall be considered subject to the Law of the River (Colorado River Compact of 1922 and amendments). In such circumstances, BLM shall require the applicant to offset or otherwise mitigate the volume of water causing drawdown below the Accounting Surface. Details of such mitigation measures and the right to the use of water shall be described in the Groundwater Water Monitoring and Mitigation Plan.	Not Applicable		The proposed water supply would not come from the Colorado River Hydrologic Region.
Soil, Water, and Water-Dependent Resources Restricted to Specific Areas on BLM Lands	LUPA-SW-33	Stipulations for groundwater development in the proximity of Devils Hole: Any development scenario for an activity within 25 miles of Devils Hole shall include a plan to achieve <i>zero-net</i> or <i>net-reduced</i> groundwater pumping to reduce the risk of adversely affecting senior federal reserved water rights, the designated critical habitat of the endangered Devils Hole pupfish, and the free-flowing requirements of the Wild and Scenic Amargosa River. This plan will require operators to acquire one or more minimization water rights (MWRs) in the over-appropriated, over-pumped, and hydraulically connected Amargosa Desert Hydrographic Basin in Nevada. The MWR(s) shall be: (1) an amount equal (at minimum) to that which is needed for construction and operations; (2) historically fully utilized, preferably for agricultural use; and (3) senior and closer to Devils Hole than the proposed activity.	Not Applicable		The project site is not located within 25 miles of Devil's Hole.
	LUPA-SW-34	Stipulations for groundwater development in the Calvada Springs/South Pahrump Valley area: Activities in this area shall be required to acquire one or more MWRs in the Pahrump Valley Hydrographic Basin in Nevada. The acquired MWR(s) must: (1) be at least equal to the amount proposed to be required and actually used for project construction and operations; and (2) be fully utilized for at least the prior ten years.	Not Applicable		The project site is not located in the Calvada Springs/South Pahrump Valley area.
	LUPA-SW-35	Stipulations for activities in the vicinity of Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve: The NEPA for activities involving groundwater extraction that are in the vicinity of Death Valley National Park, Joshua Tree National Park, or the Mojave National Preserve shall analyze and address any potential impacts of groundwater extraction on Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve. BLM will consult with the National Park Service on this process. The analysis or analyses shall include: <ul style="list-style-type: none"> ● Potential impacts on the water balances of groundwater basins within these parks and preserves ● A map identifying all potentially impacted surface water resources in the vicinity of the project, including a narrative discussion of the delineation methods used to discern those surface waters in the field ● Any project-related modifications to surface water resources, both temporary and permanent ● Analysis of any potential impacts on perennial streams, intermittent streams, and ephemeral drainages that could negatively impact natural riparian buffers ● Impacts of any project proposed truncation, realignment, channelization, lining, or filling of surface water resources that could change drainage patterns, reduce available riparian habitat, decrease water storage capacity, or increase water flow velocity or sediment deposition, in particular where stormwater diverted around or through the project site is returned to natural drainage systems downstream of the project ● Any potential indirect project-related causes of hydrologic changes that could exacerbate flooding, erosion, scouring, or sedimentation in stream channels ● Alternatives and mitigation measures proposed to reduce or eliminate such impacts 	Not Applicable		The project site is not located with the vicinity of Death Valley National Park, Joshua Tree National Park, or Mojave National Preserve.
Visual Resources Management	LUPA-VRM-1	Manage Visual Resources in accordance with the VRM classes shown on Figure 9.	Not Applicable		Agency responsibility
	LUPA-VRM-2	Ensure that activities within each of the VRM Class polygons meets the VRM objectives described above, as measured through a visual contrast rating process.	Applicable	Consistent	The project site is located on VRM Class IV lands, which are areas considered to have low visual value and provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high.

Appendix M2. DRECP CMA Consistency Table

Category	CMA #	CMA Text	Project Applicability	Project Consistency	Comments
	LUPA-VRM-3	Ensure that transmission facilities are designed and located to meet the VRM Class objectives for the area in which they are located. New transmission lines routed through designated corridors where they do not meet VRM Class Objectives will require RMP amendments to establish a conforming VRM Objective. All reasonable effort must be made to reduce visual contrast of these facilities in order to meet the VRM Class before pursuing RMP amendments. This includes changes in routing, using lattice towers (vs. monopole), color treating facilities using an approved color from the BLM Environmental Color Chart CC-001 (dated June 2008, as updated on April 2014, or the most recent version) (vs. galvanized) on towers and support facilities, and employing other BMPs to reduce contrast. Such efforts will be retained even if an RMP amendment is determined to be needed. Visual Resource BMPs that reduce adverse visual contrast will be applied in VRM Class conforming situations. For a reference of BMPs for reducing visual impacts see the "Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands", available at http://www.blm.gov/style/medialib/blm/wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION_energy/renewable_references.Par.1568.File.dat/RenewableEnergyVisualImpacts_BMPs.pdf , or the most recent version of the document or BMPs for VRM, as determined by BLM.	Applicable	Consistent	The project does propose new transmission lines on BLM lands
Wilderness Characteristics	LUPA-WC-1	Complete an inventory of areas for proposed activities that may impact wilderness characteristics if an updated wilderness characteristics inventory is not available.	Not Applicable		Wilderness characteristic inventory from DRECP LUPA used.
	LUPA-WC-2	Employ avoidance measures as described under DFAs and approved transmission corridors.	Not Applicable		There are no identified wilderness protection areas within the project site boundary.
	LUPA-WC-3	For inventoried lands found to have wilderness characteristics but not managed for those characteristics compensatory mitigation is required if wilderness characteristics are directly impacted. The compensation will be:	Not Applicable		There are no identified wilderness protection areas within the project site boundary.
		<ul style="list-style-type: none"> 2:1 ratio for impacts from any activities that impact those wilderness characteristics, except in DFAs and transmission corridors 	Not Applicable		See above
		<ul style="list-style-type: none"> 1:1 ratio for impact from any activities that impact the wilderness characteristics in DFAs and transmission corridors 	Not Applicable		See above
		Wilderness compensatory mitigation may be accomplished through acquisition and donation, by willing landowners, to the federal government of (a) wilderness inholdings, (b) wilderness edge holdings that have inventoried wilderness characteristics, or (c) other areas within the LUPA Decision Area that are managed to protect wilderness characteristics. Restoration of impaired wilderness characteristics in Wilderness, Wilderness Study Area, and lands managed to protect wilderness characteristics could be substituted for acquisition.	Not Applicable		See above
	LUPA-WC-4	For areas identified to be managed to protect wilderness characteristics, identified in Figure 7, the following CMAs are required:	Not Applicable		Bases on review of Figure 7 in the LUPA of the DRECP, there are no identified wilderness characteristic areas within the project boundary.
		<ul style="list-style-type: none"> Include a no surface occupancy stipulation for any leasable minerals with no exceptions, waivers, or modifications. 	Not Applicable		See above
		<ul style="list-style-type: none"> Exclude these areas from land use authorizations, including transmission. 	Not Applicable		See above
		<ul style="list-style-type: none"> Close areas to construction of new roads and routes. Vehicles will continue to be permitted on existing designated routes. 	Not Applicable		See above
		<ul style="list-style-type: none"> Close areas to mineral material sales. 	Not Applicable		See above
		<ul style="list-style-type: none"> Prohibit commercial or personal-use permits for extraction of materials (e. g. no wood-cutting permits). 	Not Applicable		See above
		<ul style="list-style-type: none"> Manage the area as VRM II. 	Not Applicable		See above
		<ul style="list-style-type: none"> Require that new structures and facilities are related to the protection or enhancement of wilderness characteristics or are necessary for the management of uses allowed under the land use plan. 	Not Applicable		See above
		<ul style="list-style-type: none"> Make lands unavailable for disposal from federal ownership. 	Not Applicable		See above
		Manage the following Wilderness Inventory Units to protect wilderness characteristics:	Not Applicable		Based on review of Figure 7 in the LUPA of the DRECP, there are no identified wilderness characteristic areas within the project boundary.
	LUPA-WC-5	<ul style="list-style-type: none"> 132A-2 / 132A-3 / 132B / 136 / 136-1 / 145-1-1 / 145-2-1 / 145-3-1 / 149-2 / 150-2-2 / 158-1 / 158-2 / 159 / 159-1 / 159A-1 / 160 / 160-1 / 160B-2A / 160B-2B / 160B-2F / 160B-3A / 160B-4A / 160B-3B / 160B-4B / 170-1 / 170-3 / 193-1 / 206-1-1 / 206-1-2 / 206-1-3 / 206-1-4 / 222-2-1 / 251-1 / 251-1-1 / 251-1-2 / 251-2-2 / 251-3 / 251A / 252 / 259-1 / 259-2 / 266-1 / 276-1 / 276-3 / 277 / 277A-1 / 278 / 280 / 294-1 / 294-2 / 295 / 295A / 304-2 / 305-1 / 305-2 / 307-1 / 307-2 / 307-1-1 / 307-1-2 / 307-1-3 / 312-1 / 312-2 / 312-3 / 322-1 / 325-1 / 325-2 / 325-3 / 325-4 / 325-5 / 325-7 / 325-8 / 315-14 / 325-17 / 329 / 352-2 / 352A / 352A-1 / 354 / 355-1 / 355-2 / 355-3 	Not Applicable		See above

Appendix M-2. DRECP CMA Consistency Table

DFA and VPLs Category	CMA #	CMA Text	Project Applicability	Project Consistency. (State either	Comments
Biological Resources: North American Warm Desert Dune and Sand Flats	DFA-VPL-BIO-DUNE-1	Activities in DFAs and VPLs, including transmission substations, will be sited to avoid dune vegetation (i.e., North American Warm Desert Dune and Sand Flats). Unavoidable impacts (see "unavoidable impacts to resources" in the Glossary of Terms) to dune vegetation will be limited to transmission projects, except transmission substations, and access roads that will be sited to minimize unavoidable impacts. <ul style="list-style-type: none"> For unavoidable impacts (see "unavoidable impacts to resources" in the Glossary of Terms) to dune vegetation, the following will be required: <ul style="list-style-type: none"> Access roads will be unpaved. Access roads will be designed and constructed to be at grade with the ground surface to avoid inhibiting sand transportation. 	Not applicable		No desert dune or sand flat habitat on-site.
			Not applicable		See above.
			Not applicable		See above.
	DFA-VPL-BIO-DUNE-2	Within Aeolian corridors that transport sand to dune formations and vegetation types downwind inside and outside of the DFAs, all activities will be designed and operated to facilitate the flow of sand across activity sites, and avoid the trapping or diverting of sand from the Aeolian corridor. Buildings and structures within the site will take into account the direction of sand flow and, to the extent feasible, build and align structures to allow sand to flow through the site unimpeded. Fences will be designed to allow sand to flow through and not be trapped.	Not applicable		See above.
Individual Focus Species (IFS): Desert Tortoise	DFA-VPL-BIO-IFS-1	To the maximum extent practicable (see Glossary of Terms), activities will be sited in previously disturbed areas, areas of low quality habitat, and areas with low habitat intactness in desert tortoise linkages and the Ord-Rodman TCA, identified in Appendix D.	Not applicable		Desert tortoise has not been recorded within several miles of the project site despite multiple years of protocol-level surveys; it is considered absent from the project site.
Mohave Ground Squirrel	DFA-VPL-BIO-IFS-2	Within the Mohave ground squirrel range configure solar panel and wind turbine arrays to allow areas of native vegetation that will facilitate Mohave ground squirrel movement through the project site. This may include raised and/or rotating solar panels or open space between rows of panels or turbines. Fences surrounding sites should be permeable for Mohave ground squirrels.	Not applicable		This species is not present within the Camino Solar Permitting Boundary based on trapping efforts and current range information.
Bats	DFA-VPL-BIO-BAT-1	Wind projects will not be sited within 0.5 mile of any occupied or presumed occupied maternity roost.	Not applicable		The proposed project is not a wind project.
Fire Prevention/Protection	DFA-VPL-BIO-FIRE-1	Implement the following standard practice for fire prevention/protection: <ul style="list-style-type: none"> Implement site-specific fire prevention/protection actions particular to the construction and operation of renewable energy and transmission project that include procedures for reducing fires while minimizing the necessary amount of vegetation clearing, fuel modification, and other construction-related activities. At a minimum these actions will include designating site fire coordinators, providing adequate fire suppression equipment (including in vehicles), and establishing emergency response information relevant to the construction site. 	Applicable	Consistent	The Proposed Action will implement a fire safety plan as part of Mitigation Measure MM 4.14-1
			Applicable	Consistent	See above.
Biological Compensation	DFA-VPL-BIO-COMP-1	Impacts to biological resources from all activities in DFAs and VPLs will be compensated using the same ratios and strategies as LUPA-BIO-COMP-1 through 4, with the exception identified below in DFA-VPL-BIO-COMP-2.	Not applicable		BRTR does not state compensatory mitigation is necessary.
	DFA-VPL-BIO-COMP-2	Exception to the biological resources standard compensation ratio of 1:1 - desert tortoise intact linkage habitat compensation ratio of 2:1 applies to the identified modeled intact linkage habitat (Appendix D) in two linkages—Ord-Rodman critical habitat unit to Joshua Tree National Park, and Fremont-Kramer critical habitat unit to the Ord-Rodman critical habitat unit, as identified in Appendix D. Maintenance and enhancement of the function of these two linkages is essential to the function of the Ord-Rodman critical habitat unit.	Not applicable		Desert tortoise has not been recorded within several miles of the project site despite multiple years of protocol-level surveys; it is considered absent from the project site.
Comprehensive Trails and Travel Management	DFA-VPL-CTTM-1	Avoid Tier 1, Tier 2, Tier 3 roads/primitive roads/trails, Backcountry Byways, and other significant linear features (as defined in the LUPA-wide CMAs). If avoidance is not practicable, relocate access to the same or higher standard and maintain the recreation setting characteristics and access to recreation activities, facilities, and destination.	Not applicable		The Proposed Action would avoid all significant linear features, there would be no residual impacts to significant linear features.
Cultural Resources and Tribal Interests	DFA-VPL-CTTM-2	If residual impacts to Tier 1 and Tier 2 roads/primitive roads/trails, Backcountry Byways, or other significant linear features cannot be protected and maintained, commensurate compensation in the form of an enhanced recreation operations, recreation facilities or opportunities will be required.	Applicable		An existing dirt road identified as 135208 in the Wester Mojave Plan currently bisects the project site in a north/south direction. The project would relocate the dirt road to eastern perimeter of the project site boundary such that access from the south of the project sit to the north would be maintained.
		BLM developed and maintains a geodatabase for Cultural Resources and Cultural Resources investigations in a GIS. The geodatabase is regularly updated with newly recorded and re-recorded resource and investigation data. However, while the geodatabase includes location information (feature classes or shapefiles), the associated information about each resource or investigation (attribute data) is limited or inconsistent. As it exists now, the geodatabase cannot be used for predictive analyses like those recommended in <i>A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior</i> (DOI 2014). However, with some updates, the geodatabase will be a powerful tool for identifying potential conservation priorities as well as development opportunities. Many of the CMAs below are intended to facilitate the update of BLM's geodatabase, and require its use when the updates are complete. The following CMAs are for renewable energy and transmission land use authorizations only, in DFAs and VPLs. All other activities in DFAs and VPs are subject to the NHPA Section 106 process.			
	DFA-VPL-CUL-1	For renewable energy activities and transmission, require the applicant to pay all appropriate costs associated with the following processes, through the appropriate BLM funding mechanism: <ul style="list-style-type: none"> All appropriate costs associated with the BLM's analysis of the DRECP geodatabase and other sources for cultural resources sensitivity. All appropriate costs associated with preliminary sensitivity analysis. All appropriate costs associated with the Section 106 process including the identification and defining of cultural resources. These costs may also include logistical, travel, and other support costs incurred by tribes in the consultation process. All appropriate costs associated with updating the DRECP cultural resources geodatabase with project specific results. 	Applicable	consistent	The Applicant shall pay all appropriate costs.
	DFA-VPL-CUL-2	Consistent and in compliance with the NHPA Programmatic Agreement, signed February 5, 2016, or the most up to date signed version for renewable energy activities and transmission, a compensatory mitigation fee will be required within the LUPA Decision Area to address cumulative and some indirect adverse effects to historic properties. The mitigation fee will be calculated in a manner that is commensurate to the size and regional impacts of the project. Refer to the Programmatic Agreement for details regarding the mitigation fee.	Not Applicable		Agency Responsibility

Appendix M-2. DRECP CMA Consistency Table

DFA and VPLs Category	CMA #	CMA Text	Project Applicability	Project Consistency. (State either	Comments
	DFA-VPL-CUL-3	For renewable energy activities and transmission, the management fee rate will be determined through the NHPA programmatic Section 106 consultation process that will be completed as part of the DRECP land use plan amendment.	Not Applicable		Agency Responsibility
	DFA-VPL-CUL-4	For renewable energy activities and transmission, demonstrate that results of cultural resources sensitivity, based on the DRECP geodatabase, and other sources, are used as part of the initial planning pre-application process and to select of <u>specific footprints for further consideration</u> .	Applicable	Consistent	The DRECP database used to determine the footprint of the Project site.
	DFA-VPL-CUL-5	For renewable energy activities and transmission, provide a statistically significant sample survey as part of the pre-application process, unless the BLM determines the DRECP geodatabase and other sources are adequate to assess cultural resources sensitivity of specific footprints.	Applicable	Consistent	In accordance with BLM recommendations, an intensive level pedestrian survey was conducted on portions of the Proposed Action site which had not been previously surveyed for other Projects.
	DFA-VPL-CUL-6	For renewable energy activities and transmission, provide justification in the application why the project considerations merit moving forward if the specific footprint lies within an area identified or forecast as sensitive for cultural resources <u>by the BLM</u> .	Not applicable		The Proposed Action is not within an area identified or forecast as sensitive for cultural resources.
	DFA-VPL-CUL-7	For renewable energy activities and transmission, complete the NHPA Section 106 Process as specified in 36 CFR Part 800, or via an alternate procedure, allowed for under 36 CFR Part 800.14 prior to issuing a ROD or ROW grant on any utility-scale renewable energy or transmission project. For utility-scale solar energy developments, the BLM may follow the Solar <u>Programmatic Agreement</u> .	Not Applicable		Agency Responsibility
Livestock Grazing	DFA-VPL-LIVE-1	Avoid siting solar developments in active livestock grazing allotments. If a ROW is granted for solar development in an active livestock grazing allotment, prior to solar projects being constructed in active livestock allotments, an agreement must be reached with the grazing permittee/lessee on the 2-year notification requirements. If any rangeland improvements such as, but not limited to, fences, corrals, or water storage projects, are to be impacted by energy projects, reach agreement with the BLM and the grazing permittee/lessee on moving or replacing the range improvement. This may include the costs for NEPA, clearances, and materials.	Applicable	Consistent	The Proposed Action is located within the Antelope Valley Grazing Allotment. However, the existing grazing permit at the project site expired in February 2019
	DFA-VPL-LIVE-2	In California Condor use areas, wind energy ROWs will include a term and condition requiring the permittee and wind operator to eliminate grazing of livestock.	Not applicable		No suitable nesting habitat and carcasses of large mammals are generally not available for condors to land within the project site. Unlikely to occur.
	DFA-VPL-LIVE-3	Include no surface occupancy stipulation on geothermal leases in active grazing allotments.	Not applicable		BRTR states the Antelope Valley lacks slopes that will provide consistent <u>winds and lift for soaring flight</u> . No specific text related to seed collection.
Vegetation	DFA-VPL-VEG-1	Vegetative Use Authorizations: Commercial collection of seed in DFAs and VPLs is an allowable use. CMA's within these areas apply to this kind of activity.	Not applicable		
Visual Resources Management	DFA-VPL-VRM-1	Encourage development in a planned fashion within DFAs (e.g., similar to the planned unit development concept used for urban design—i.e., in-fill vs. scattered development, use of common road networks, Generator Tie Lines etc., use of similar support facility designs materials and colors etc.) to avoid industrial sprawl.	Applicable	Consistent	Development of the Proposed Action would occur in a planned fashion, and would share the use of existing Manzanita Wind infrastructure including existing transmission lines and substation facilities.
	DFA-VPL-VRM-2	Development in DFAs and VPLs are required to incorporate visual design standards and include the best available, most recent BMPs, as determined by BLM (e.g. Solar, Wind, West Wide Energy Corridor, and Geothermal PEISs, the "Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands ", and other programmatic BMP documents).	Applicable	Consistent	Mitigation Measure 4.1-2 requires the Applicant to color treat all project facilities, including gen-tie poles, array facilities, etc., to blend in with the colors found in the natural landscape. Color treatments shall result in matte or nonglossy finishes. Plans showing color treatments shall be submitted for approval by the BLM and Kern County Planning and Natural Resources Department.
	DFA-VPL-VRM-3	Required Visual Resource BMPs. All development within the DFAs and VPLs will abide by the BMPs addressed in the mc	Applicable	Consistent	Mitigation Measure 4.1-2 requires the Applicant to color treat all project facilities, including gen-tie poles, array facilities, etc., to blend in with the colors found in the natural landscape. Color treatments shall result in matte or nonglossy finishes. Plans showing color treatments shall be submitted for approval by the BLM and Kern County Planning and Natural Resources Department. The project shall implement BMPs to minimize impact to the night sky including light shielding
		<ul style="list-style-type: none"> • Transmission: <ul style="list-style-type: none"> o Color-treat monopoles Shadow Gray per the BLM Environmental Color Chart CC001 unless a more effective color choice is selected by the local Field Office VRM specialist. o Lattice towers and conductors will have non-specular qualities. o Lattice Towers will be located a minimum of 3/4 miles away from Key Observation Points such as roads, scenic overlooks, trails, campgrounds, navigable rivers and other areas people tend to congregate and located against a landscape backdrop when topography allows. • Solar – Color treat all facilities Shadow Gray from the BLM Environmental Color Chart CC001 unless a more effective color is selected by the Field Office VRM specialist, including but not limited to: <ul style="list-style-type: none"> o Concentrated solar thermal parabolic trough panel backs o Solar power tower heliostats o Solar power towers o Cooling towers o Power blocks • Wind – Color treat all facilities Shadow Gray with the exception of the wind turbine and towers 200 vertical feet or more. • Night Sky – BMPs to minimize impacts to night sky including light shielding will be employed 			

