

Draft Environmental Impact Report

SCH# 2021090602

Volume 2

Appendices A through M

AZALEA SOLAR PROJECT

by SF Azalea, LLC (*PP21401*)

Conditional Use Permit No. 10, Map No. 3
Conditional Use Permit No. 14, Map No. 3
Williamson Act Land Use Contract Cancellation 20-06



Kern County
Planning and Natural Resources Department
Bakersfield, California

September 2022

This Page Intentionally Left Blank

Draft Environmental Impact Report

SCH# 2021090602

Volume 2

Appendices A through M

AZALEA SOLAR PROJECT

by SF Azalea, LLC (PP21401)

Conditional Use Permit No. 10, Map No. 3
Conditional Use Permit No. 14, Map No. 3
Williamson Act Land Use Contract Cancellation 20-06



Kern County
Planning and Natural Resources Department
Bakersfield, California

Technical Assistance by:
Kimley-Horn

September 2022

This Page Intentionally Left Blank

Appendices – Volume 2

NOTE TO REVIEWER OF ELECTRONIC FILES:

To assist you in reviewing this electronic document, “bookmarks” and/or “links” have been provided for easier navigation between sections. When available, bookmarks are located in the panel to the left. Links are highlighted in **BLUE** in the Table of Contents. Clicking on either the bookmarks or links will take you to the selected item. This document may consist of multiple linked PDF files. If saving this document to your computer, you must save all corresponding files to a directory on your hard drive to maintain the manner in which these PDF documents are linked.

Appendix A:	Initial Study/Notice of Preparation and Notice of Preparation Responses
Appendix B:	Agricultural Conversion Study
Appendix C:	Air Quality and Greenhouse Gas Emissions Study
Appendix D:	San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District Sierra Club v. County of Fresno Amicus Curiae Briefs
Appendix E:	Biological Resources Technical Report
Appendix F:	Phase 1 Archaeological Survey Addendum Report
Appendix G:	Energy Technical Report
Appendix H-1:	Geotechnical Engineering Investigation Report
Appendix H-2:	Paleontological Inventory Report
Appendix I:	Phase 1 Environmental Site Assessment
Appendix J:	Hydrology and Water Quality Study
Appendix K:	Water Supply Study
Appendix L:	Noise Study
Appendix M:	Traffic Impact Analysis

This Page Intentionally Left Blank

Appendix A

**Initial Study/Notice of Preparation and Notice of
Preparation Responses**

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@kerncounty.com
Web Address: <http://kernplanning.com/>



**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

DATE: September 30, 2021

TO: See Attached Mailing List

FROM: Kern County Planning and Natural
Resources Department
Attn: Ronelle Candia
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661)862-8607; SmallsT@kerncounty.com

**SUBJECT: NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT
REPORT (EIR) FOR THE AZALEA SOLAR PROJECT 2.0 BY SF AZALEA, LLC**

The Kern County Planning and Natural Resources Department as Lead Agency (per CEQA Guidelines Section 15062) has determined that preparation of an Environmental Impact Report (per CEQA Guidelines 15161) is necessary for the proposed project identified below. The Planning and Natural Resources 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 may need to use the EIR prepared by our agency when considering your permit or other approval of the project.

You are invited to view the NOP and submit written comments regarding the scope and content of the environmental information in connection with the proposed project should you wish to do so. Due to the limits mandated by State law, your response must be received by **November 1, 2021 at 5:00 p.m.** Comments can be submitted to the Kern County Planning and Natural Resources Department at the address shown above or to SmallsT@kerncounty.com. A Scoping meeting will be held on **Thursday, October 21, 2021 at 1:30 p.m.** at the address listed above.

PROJECT TITLE: Azalea Solar Project by SF Azalea, LLC (PP21401); CUP 10, Map #3; CUP 14, Map #3; and Williamson Act Land Use Cancellation # 20-06

PROJECT LOCATION: The project site is located approximately 2.5 miles northeast of Twisselman Road and Kings Road, approximately 16 miles south of Kettleman City, approximately 14 miles northwest of the community of Lost Hills, approximately 6 miles west of Interstate 5, and approximately 4 miles east of State Route 3. The proposed project is located in the northwestern portion of the Kern County Valley Region.

The project site is located in Section 11 of Township 25 South, Range 19 East in the Mount Diablo Base and Meridian (MDB&M).

PROJECT DESCRIPTION: The Azalea Solar Project, as proposed by SF Azalea, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 60 megawatt-alternating current (MW-AC) of renewable energy, on approximately 640 acres of privately-owned land. The project site consists of 1 site located on 2 parcels. The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at either the nearby PG&E Substation. The project's permanent facilities would

include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance facilities. Implementation of the project as proposed includes the following requests:

- a) Conditional Use Permit No. 10, Map No. 3 to allow for the construction and operation of a solar facility with a total generating capacity of approximately 60 megawatts-alternating current (MW-AC) of renewable energy including up to 200 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G, of the Kern County Zoning Ordinance.
- b) Conditional Use Permit No. 14, Map No. 3 to allow for the construction and operation of a microwave communications tower, within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F, of the Kern County Zoning Ordinance.
- c) Cancellation of an Existing Williamson Act Land Use Contract #20-06

Documents can be viewed online at: <https://kernplanning.com/planning/notices-of-preparation/>

Signature:
Name:


Terrance Smalls, Supervising Planner

Azalea Solar
I:\Planning\WORKGRPS\WP\LABEL
S\Azalea Solar.docx
an 9/7/2021

City of Arvin
P.O. Box 548
Arvin, CA 93203

Bakersfield City Planning Dept
1715 Chester Avenue
Bakersfield, CA 93301

Bakersfield City Public Works Dept
1501 Truxtun Avenue
Bakersfield, CA 93301

California City Planning Dept
21000 Hacienda Blvd.
California City, CA 93515

Delano City Planning Dept
P.O. Box 3010
Delano, CA 93216

City of Maricopa
P.O. Box 548
Maricopa, CA 93252

City of McFarland
401 West Kern Avenue
McFarland, CA 93250

City of Ridgecrest
100 West California Avenue
Ridgecrest, CA 93555

City of Shafter
336 Pacific Avenue
Shafter, CA 93263

City of Taft
Planning & Building
209 East Kern Street
Taft, CA 93268

City of Tehachapi
Attn: John Schlosser
115 South Robinson Street
Tehachapi, CA 93561-1722

City of Wasco
764 E Street
Wasco, CA 93280

Inyo County Planning Dept
P.O. Drawer "L"
Independence, CA 93526

Kings County Planning Agency
1400 West Lacey Blvd, Bldg 6
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
123 East Anapamu Street
Santa Barbara, CA 93101

Tulare County Planning & Dev Dept
5961 South Mooney Boulevard
Visalia, CA 93291

Ventura County RMA Planning Div
800 South Victoria Avenue, L1740
Ventura, CA 93009-1740

U.S. Bureau of Land Management
Caliente/Bakersfield
3801 Pegasus Drive
Bakersfield, CA 93308-6837

U. S. Fish & Wildlife Service
Division of Ecological Services
2800 Cottage Way #W-2605
Sacramento, CA 95825-1846

U.S. Dept of Agriculture/NRCS
5080 California Avenue, Ste 150
Bakersfield, CA 93309-0711

So. San Joaquin Valley Arch Info Ctr
California State University of Bkfd
9001 Stockdale Highway
Bakersfield, CA 93311

Caltrans/Dist 6
Planning/Land Bank Bldg.
P.O. Box 12616
Fresno, CA 93778

State Dept of Conservation
Geologic Energy Management Division
4800 Stockdale Highway, Ste 108
Bakersfield, CA 93309

State Dept of Conservation
Geologic Energy Management Division
801 "K" Street, MS 20-20
Sacramento, CA 95814-3530

California Fish & Wildlife
1234 East Shaw Avenue
Fresno, CA 93710

State Dept of Parks & Recreation
Tehachapi District
Angeles District - Mojave Desert Sector
15701 E. Avenue M
Lancaster, CA 93535

Public Utilities Comm Energy Div
505 Van Ness Avenue
San Francisco, CA 94102

Kern County
Agriculture Department

County Clerk

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
David Witt, Fire Chief

Kern County Fire Dept
Cary Wright, Fire Marshall

Kern County Library/Beale
Local History Room

Kern County Library/Beale
Andie Sullivan

Kern County Museum
3801 Chester Avenue
Bakersfield, CA 93301

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

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

Kern County Public Works
Department/Operations &
Maintenance/Regulatory Monitoring &
Reporting

Kern County Public Works Department/
Building & Development/Code
Compliance

Wasco Union High School Dist
P.O. Box 250
Wasco, CA 93280

Wasco Union Elementary School Dist
639 Broadway
Wasco, CA 93280

Kern High School Dist
5801 Sundale Avenue
Bakersfield, CA 93309

Kern County Superintendent of Schools
Attention School District Facility Services
1300 - 17th Street
Bakersfield, CA 93301

KernCOG
1401 19th Street - Suite 300
Bakersfield, CA 93301

Lost Hills Water Dist
3008 Sillect Avenue, Ste 205
Bakersfield, CA 93308-6340

Rosedale-Rio Bravo Water Dist
P.O. Box 20820
Bakersfield, CA 93390-0820

Kern County Water Agency
P.O. Box 58
Bakersfield, CA 93302-0058

San Joaquin Valley
Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, CA 93726

West Side Mosquito
Abatement Dist.
P.O. Box 205
Taft, CA 93268

Adams, Broadwell, Joseph & Cardozo
Attention: Janet M. Laurain
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Kern Audubon Society
Attn: Frank Bedard, Chairman
4124 Chardonnay Drive
Bakersfield, CA 93306

Los Angeles Audubon
926 Citrus Avenue
Los Angeles, CA 90036-4929

Center on Race, Poverty
& the Environment
Attn: Marissa Alexander
1999 Harrison Street – Suite 650
San Francisco, CA 94612

Center on Race, Poverty
& the Environmental/
CA Rural Legal Assistance Foundation
1012 Jefferson Street
Delano, CA 93215

Defenders of Wildlife/
Kim Delfino, California Dir
980 - 9th Street, Suite 1730
Sacramento, CA 95814

Pacific Gas & Electric Co
Land Projects
650 "O" Street, First Floor
Fresno, CA 93760-0001

Sierra Club/Kern Kaweah Chapter
P.O. Box 3357
Bakersfield, CA 93385

Southern California Gas Co
35118 McMurtrey Avenue
Bakersfield, CA 93308-9477

Southern California Gas Co
Transportation Dept
9400 Oakdale Avenue
Chatsworth, CA 91313-6511

Chumash Council of Bakersfield
2421 "O" Street
Bakersfield, CA 93301-2441

David Laughing Horse Robinson
P.O. Box 20849
Bakersfield, CA 93390

Kern Valley Indian Council
Attn: Robert Robinson, Chairperson
P.O. Box 401
Weldon, CA 93283

Kern Valley Indian Council
Historic Preservation Office
P.O. Box 401
Weldon, CA 93283

Santa Rosa Rancheria
Ruben Barrios, Chairperson
P.O. Box 8
Lemoore, CA 93245

Tejon Indian Tribe
Kathy Morgan, Chairperson
1731 Hasti-acres Drive, Suite 108
Bakersfield, CA 93309

Kitanemuk & Yowlumne Tejon Indians
Chairperson
115 Radio Street
Bakersfield, CA 93305

Tubatulabals of Kern County
Attn: Robert Gomez, Chairperson
P.O. Box 226
Lake Isabella, CA 93240

Tule River Indian Tribe
Neal Peyron, Chairperson
P.O. Box 589
Porterville, CA 93258

San Fernando Band of Mission Indians
Attn: John Valenzuela, Chairperson
P.O. Box 221838
Newhall, CA 91322

Matthew Gorman
The Gorman Law Firm
1346 E. Walnut Street, Suite 220
Pasadena, CA 91106

Leadership Counsel for Justice &
Accountability
1527 - 19th Street, Suite 212
Bakersfield, CA 93301

LIUNA
Attn: Danny Zaragoza
2201 "H" Street
Bakersfield, CA 93301

Vestas
1417 NW Everett Street
Portland, OR 97209

Terra-Gen Power, LLC
Randy Hoyle
11512 El Camino Real, Suite 370
San Diego, CA 92130-3025^

Renewal Resources Group
Holding Company
Rupal Patel
113 South La Brea Avenue, 3rd Floor
Los Angeles, CA 90036^

David Walsh
22941 Banducci Road
Tehachapi, CA 93561^

Congentrix Sunshine, LLC
Rick Neff
9405 Arrowpoint Blvd
Charlotte, NC 28273^

Fotowatio Renewable Ventures
Sean Kiernan
44 Montgomery Street, Suite 2200
San Francisco, CA 94104^

EDP Renewables Company
North America, LLC
53 SW Yamhill Street
Portland, OR 97204^

Structure Cast
Larry Turpin, Precast Sales Manager
8261 McCutchen Road
Bakersfield, CA 93311^

Wind Stream, LLC
Albert Davies
1275 - 4th Street, No. 107
Santa Rosa, CA 95404^

Darren Kelly
Sr. Business Manager
Terra-Gen Power, LLC
1095 Ave of the Americas – FL 25, Ste A
New York, NY 10036-6797^

Bill Barnes
Dir of Asset Mgmt
AES Midwest Wind Gen
P.O. Box 2190
Palm Springs, CA 92263-2190^

Sarah K. Friedman
Beyond Coal Campaign/Sierra Club
1417 Calumet Avenue
Los Angeles, CA 90026^

Robert Burgett
9261 - 60th Street, West
Mojave, CA 93501^

Lozeau Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612^

PG&E
Steven Ng, Manager
Renewal Dev, T&D Intercon
77 Beal Street, Room 5361
San Francisco, CA 94105^

Wayne Mayes
Iberdrola Renewables
Dir Tech Serv
1125 NW Couch St, Ste 700, 7th Fl
Portland, OR 97209^

Michael Strickler
Iberdrola Renewables, Sr Proj Mgr
1125 NW Couch St, Ste 700, 7th Fl
Portland, OR 97209^

Recurrent Energy
Seth Israel
300 California Street, 8th Floor
San Francisco, CA 94101-1407^

Kate Kelly
Kelly Group
P.O. Box 868
Winters, CA 95694^

Carol Lawhon
Association Executive, IOM
Tehachapi Area Assoc of Realtors
803 Tucker Road
Tehachapi, CA 93561^

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@kerncounty.com
Web Address: <http://kernplanning.com/>



**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

DATE: September 30, 2021

TO: Surrounding Property Owners within
1,000 Feet of Project Boundary; and,
Interested Parties

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 – Azalea Solar Project by
SF Azalea, LLC (PP21401)

Dear Sir or Madam:

The Kern County Planning and Natural Resources Department has determined that preparation of an Environmental Impact Report (EIR) is necessary for the proposed project identified below. The purpose of this letter is to notify interested parties and surrounding property owners within 1,000 feet of the project boundaries of this determination. A copy of the Initial Study/Notice of Preparation (IS/NOP) prepared for this proposed project is available for viewing at the following Kern County website:

<https://kernplanning.com/planning/notices-of-preparation/>

The purpose of the IS/NOP is to describe the proposed project, specify the project location, and to identify the potential environmental impacts of the project so that Responsible Agencies and interested persons can provide a meaningful response related to potential environmental concerns that should be analyzed in the Environmental Impact Report.

You are invited to view the NOP and submit written comments regarding the scope and content of the environmental information in connection with the proposed project should you wish to do so. Due to the limits mandated by State law, your response must be received by **November 1, 2021 at 5:00 p.m.** Comments can be submitted to the Kern County Planning and Natural Resources Department at the address shown above or to SmallsT@kerncounty.com. A Scoping meeting will be held on **Thursday, October 21, 2021 at 1:30 p.m.**, at the address listed above.

Please be advised that any comments received after the dates listed above will still be included in the public record for this project and made available to decision makers when this project is scheduled for consideration at a public hearing. Please also be advised that you will receive an additional notice in the mail once a public hearing date is scheduled for this project. You will also be provided additional opportunities to submit comments at that time.

PROJECT TITLE: Azalea Solar Project by SF Azalea, LLC (PP21401); CUP 10, Map #3; CUP 14, Map #3; and Williamson Act Land Use Cancellation # 20-06

PROJECT LOCATION: The project site is located approximately 2.5 miles northeast of Twisselman Road and Kings Road, approximately 16 miles south of Kettleman City, approximately 14 miles northwest of the community of Lost Hills, approximately 6 miles west of Interstate 5, and approximately 4 miles east

of State Route 3. The proposed project is located in the northwestern portion of the Kern County Valley Region.

The project site is located in Section 11 of Township 25 South, Range 19 East in the Mount Diablo Base and Meridian (MDB&M).

PROJECT DESCRIPTION: The Azalea Solar Project, as proposed by SF Azlea, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 60 megawatt-alternating current (MW-AC) of renewable energy, on approximately 640 acres of privately-owned land. The project site consists of 1 site located on 2 parcels. The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at either the Teddy Substation or the Southern California Edison's Whirlwind Substation. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance facilities.

Implementation of the project as proposed includes the following requests:

- a) Conditional Use Permit No. 10, Map No. 3 to allow for the construction and operation of a solar facility with a total generating capacity of approximately 60 megawatts-alternating current (MW-AC) of renewable energy including up to 200 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G, of the Kern County Zoning Ordinance.
- b) Conditional Use Permit No. 14, Map No. 3 to allow for the construction and operation of a microwave communications tower, within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F, of the Kern County Zoning Ordinance.
- c) Cancellation of an Existing Williamson Act Land Use Contract

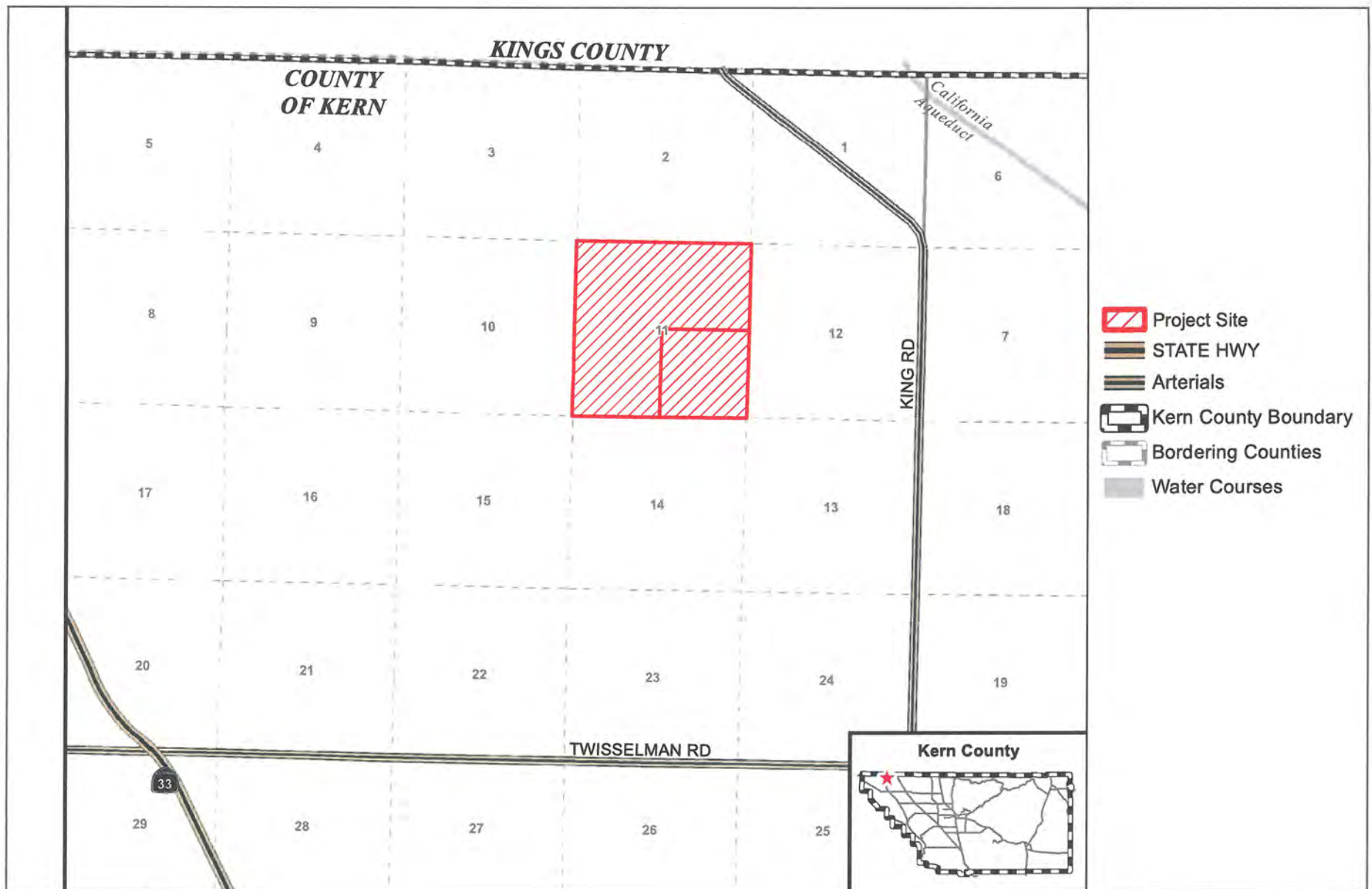
Should you have any questions regarding this project, or the Initial Study/Notice of Preparation, please feel free to contact me at (661) 862-8607 or SmallsT@kerncounty.com

Sincerely,



Terrance Smalls, Supervising Planner
Advanced Planning Division

Attachments: Figure 2 – Local Vicinity Map



SOURCE: Kern County, 2021

FIGURE 2: Local Vicinity Map

[This Page Intentionally Left Blank]

Azalea Solar Project - EIR
(CUP #10, Map #3;)
WO #PP21401

043 550 12 00 8
WEST VENTURES LLC
2770 MAIN ST STE 270
FRISCO TX 75033

043 210 17 00 4
WILLIAM & DORIS LAND &
ENERGY CO LLC
35244 OIL CITY RD
COALINGA CA 93210-9221

043 210 06 00 2
WILLIAM J MOUREN FARMING INC
35244 OIL CITY RD
COALINGA CA 93210

043 210 21 10 2
TIPTON WILLIAM W JR ET AL
777 SUNSET RIDGE RD
NORTHFIELD IL 60093

043 220 13 00 5
TURNER SARA E & REID J
1960 PARKSIDE DR
WALNUT CREEK CA 94596-3550

043 210 63 00 7
AERA ENERGY LLC
P O BOX 11164
BAKERSFIELD CA 93389-1164

043 250 02 00 2
AMIN ORCHARD CO
195 FAIRFIELD AV STE 1D
WEST CALDWELL NJ 07006

043 220 01 00 0
ANDERSON JAMES S
35244 OIL CITY RD
COALINGA CA 93210

043 210 21 01 4
BACA MARY LOUISE
8550 W CHARLESTON BLV #102 STE
340
LAS VEGAS NV 89117

043 210 08 02 6
BOGGESS GENEVIEVE F
43909 SASSARI ST
TEMECULA CA 92592-9386

043 220 14 00 8
CASTRO FAMILY TRUST
3431 DELTA AV
LONG BEACH CA 90810

043 210 04 00 6
CHEVRON USA INC
P O BOX 1392
BAKERSFIELD CA 93302-1392

043 210 08 04 4
CLARK CLIFFORD A
2821 MIRANDA AV
ALAMO CA 94507-1427

043 210 69 00 5
DBF ACQUISITION CO LLC
11444 W OLYMPIC BL FLR 10TH
LOS ANGELES CA 90064

043 220 04 00 9
DUTTON MARGIT H
11617 KLING ST
N HOLLYWOOD CA 91602

043 220 08 02 9
EICHHOLTZ JOHN P & LINDA G LIV
TR
9261 MASSOT AV
SANTEE CA 92071

043 210 08 03 5
FRAME DONALD P
3014 W KEOGH CT
VISALIA CA 93291-4229

043 210 21 04 1
GATES GILBERT HENRY TRUST
145 EL PINAR
LOS GATOS CA 95032

043 210 21 03 2
GREEN LIVING TRUST
4209 SILL PL
BAKERSFIELD CA 93306

043 210 21 05 0
HAMILTON FAMILY TRUST
8550 W CHARLESTON BLV #102
STE 340
LAS VEGAS NV 89117

043 550 05 00 8
HARVEST PETROLEUM INC
2770 N MAIN ST STE 270
FRISCO TX 75033

043 220 08 01 0
HILLEGEIST FAMILY HOLDING
TRUST
PO BOX 1047
SELAH WA 98942-4047

043 220 06 01 4
HITCHCOCK GEORGEANN K ET
AL
4338 FAIR OAKS BL
SACRAMENTO CA 95864

043 210 21 06 9
JOSEPH FAMILY TRUST
8550 W CHARLESTON BLV #102 STE
340
LAS VEGAS NV 89117

043 210 21 02 3
KHRISTY BARBARA TRUST
PO BOX 1784
MEDFORD OR 97501-0140

043 210 42 00 6
LONGBOW LLC
1701 WESTWIND DR # 126
BAKERSFIELD CA 93301-3048

043 210 21 07 8
PIVOVAROFF HARRY A & VERA
8550 W CHARLESTON BLV #102 STE
340
LAS VEGAS NV 89117

043 220 02 00 3
RAIN LLC
35244 OIL CITY RD
COALINGA CA 93210

043 210 48 00 4
ROCK CREEK OIL LLC
10350 SANTA MONICA BL # 160
LOS ANGELES CA 90025-5055

043 220 05 00 2
SINGH LAKHBIR & KAUR
SUKHINDER
6336 LAFAYETTE AV
NEWARK CA 94560-2435

043 210 21 08 7
SPIEGLMAN EVELYN
8550 W CHARLESTON BLV #102 STE
340
LAS VEGAS NV 89117

043 220 03 00 6
TAYLOR DONALDSON &
NORMA J TR
12 DEVONSHIRE DR
NOVATO CA 94947-2032

043 210 21 09 6
TIPTON BENJAMIN PARKER ET AL
1346 JAMES AV
REDWOOD CITY CA 94062-2238

043 220 06 02 3 **INC**
WALKER GEORGE S
*
UNKNOWN CA 00000

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: Azalea Solar Project by SF Azalea, LLC

Lead Agency: Kern County Planning and Natural Resources Department

Contact Person: Terrance Smalls

Mailing Address: 2700 "M" Street Suite 100

Phone: (661) 862-8607

City: Bakersfield

Zip: 93301

County: Kern

Project Location: County: Kern

City/Nearest Community: Rosamond

Cross Streets: Rosamond Blvd & 90th Street West

Zip Code: 93501

Lat. / Long.: 34° 50' 16.84" N, 118° 21' 31.39" W

Total Acres: 640

Assessor's Parcel No.: Multiple

Section: Multiple

Twp.: Multiple

Range: Multiple

Base: MDB&M

Within 2 Miles: State Hwy #: _____

Waterways: N/A

Airports: N/A

Railways: N/A

Schools: Tropico Middle School

Document Type:

CEQA: ☒ NOP
☐ Early Cons
☐ Neg Dec
☐ Mit Neg Dec

☐ Draft EIR
☐ Supplement/Subsequent EIR
(Prior SCH No.) _____
Other _____

NEPA: ☐ NOI
☐ EA
☐ Draft EIS
☐ FONSI

Other: ☐ Joint Document
☐ Final Document
☐ Other _____

Local Action Type:

☐ General Plan Update
☐ General Plan Amendment
☐ General Plan Element
☐ Community Plan

☐ Specific Plan
☐ Master Plan
☐ Planned Unit Development
☐ Site Plan

☐ Rezone
☐ Prezone
☒ Use Permit
☐ Land Division (Subdivision, etc.)

☐ Annexation
☐ Redevelopment
☐ Coastal Permit
☒ Other Land Contract Cancellation

Development Type:

☐ Residential: Units _____ Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
☐ Educational _____
☐ Recreational _____

☐ Water Facilities: Type _____ MGD _____
☐ Transportation: Type _____
☐ Mining: Mineral _____
☒ Power: Type Solar PV MW 60
☐ Waste Treatment: Type _____ MGD _____
☐ Hazardous Waste: Type _____
☐ Other: _____

Project Issues Discussed in Document:

<input checked="" type="checkbox"/> Aesthetic/Visual	<input type="checkbox"/> Fiscal	<input checked="" type="checkbox"/> Recreation/Parks	<input checked="" type="checkbox"/> Vegetation
<input checked="" type="checkbox"/> Agricultural Land	<input checked="" type="checkbox"/> Flood Plain/Flooding	<input checked="" type="checkbox"/> Schools/Universities	<input checked="" type="checkbox"/> Water Quality
<input checked="" type="checkbox"/> Air Quality	<input checked="" type="checkbox"/> Forest Land/Fire Hazard	<input checked="" type="checkbox"/> Septic Systems	<input checked="" type="checkbox"/> Water Supply/Groundwater
<input checked="" type="checkbox"/> Archeological/Historical	<input checked="" type="checkbox"/> Geologic/Seismic	<input checked="" type="checkbox"/> Sewer Capacity	<input checked="" type="checkbox"/> Wetland/Riparian
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Minerals	<input checked="" type="checkbox"/> Soil Erosion/Compaction/Grading	<input checked="" type="checkbox"/> Wildlife
<input type="checkbox"/> Coastal Zone	<input checked="" type="checkbox"/> Noise	<input checked="" type="checkbox"/> Solid Waste	<input checked="" type="checkbox"/> Growth Inducing
<input checked="" type="checkbox"/> Drainage/Absorption	<input checked="" type="checkbox"/> Population/Housing Balance	<input checked="" type="checkbox"/> Toxic/Hazardous	<input checked="" type="checkbox"/> Land Use
<input checked="" type="checkbox"/> Economic/Jobs	<input checked="" type="checkbox"/> Public Services/Facilities	<input checked="" type="checkbox"/> Traffic/Circulation	<input checked="" type="checkbox"/> Cumulative Effects
<input checked="" type="checkbox"/> Other <u>GHG, Wildfire, Tribal Cultural Resources, Energy</u>			

Present Land Use/Zoning/General Plan Designation:

Undeveloped Land. Zoning: A (Exclusive Agriculture) 8.3 = Exclusive Agriculture (Min. 20 Acre Parcel Size)

Project Description:

The Azalea Solar Project, as proposed by SF Azalea, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 60 megawatt-alternating current (MW-AC) of renewable energy, on approximately 640 acres of privately-owned land. The project site consists of 1 site located on 2 parcels. The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at either the nearby PG&E Substation. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance facilities.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "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 checked="" type="checkbox"/> S Parks & Recreation
<input checked="" type="checkbox"/> S Caltrans District # <u>6</u>	<input type="checkbox"/> Pesticide Regulation, Department of
<input checked="" type="checkbox"/> S 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 checked="" type="checkbox"/> S Toxic Substances Control, Department of
<input type="checkbox"/> General Services, Department of	<input checked="" type="checkbox"/> S 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"/> X Native American Heritage Commission	

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

Starting Date September 30, 2021 Ending Date November 1, 2021

Lead Agency (Complete if applicable):

Consulting Firm: _____	Applicant: _____
Address: _____	Address: _____
City/State/Zip: _____	City/State/Zip: _____
Contact: _____	Phone: _____
Phone: _____	

Signature of Lead Agency Representative: _____ /s/ _____ Date: 09/30/2021
Terrance Smalls, Supervising Planner

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

NOTICE OF PREPARATION/INITIAL STUDY CHECKLIST

Azalea Solar Project by SF Azalea, LLC

Conditional Use Permit No. 10, Map No. 3
Conditional Use Permit No. 14, Map No. 3
Williamson Act Land Use Cancellation No 20-06

PLN19-02332
(PP21401)

LEAD AGENCY:



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

Contact: Mr. Terrance Smalls
(661) 862-8607
smallst@kerncounty.com

September 2021

This page intentionally left blank.



TABLE OF CONTENTS

Initial Study Checklist

Introduction.....	3
1. Project Description.....	3
1.1. Project Location	3
1.2. Environmental Setting	3
Surrounding Land Uses.....	5
1.3. Project Description	6
Project Overview	6
1.4. Project Facilities, Construction, and Operations	7
Project Facilities	7
Construction Activities	11
Project Operation and Maintenance Activities.....	13
Project Features and Best Management Practices	14
1.5. Project Objectives.....	16
1.6. Proposed Discretionary Actions/Required Approvals	16
2. Kern County Environmental Checklist Form.....	28
2.1. Environmental Factors Potentially Affected	28
2.2. Determination.....	28
3. Evaluation of Environmental Impacts.....	29
I. Aesthetics	31
II. Agriculture and Forest Resources.....	32
III. Air Quality	34
IV. Biological Resources	36
V. Cultural Resources.....	38
VI. Energy	39
VII. Geology and Soils.....	40
VIII. Greenhouse Gas Emissions	42
IX. Hazards and Hazardous Materials	43
X. Hydrology and Water Quality	46
XI. Land Use and Planning	48
XII. Mineral Resources	49
XIII. Noise	50
XIV. Population and Housing	51
XV. Public Services	52
XVI. Recreation	54
XVII. Transportation and Traffic	55
XVIII. Tribal Cultural Resources	57
XIX. Utilities and Service Systems.....	58
XX. Wildfire	60
XXI. Mandatory Findings of Significance.....	61



List of Figures

Figure 1: Regional Vicinity Map	19
Figure 2: Local Vicinity Map.....	20
Figure 3: Existing Parcel Map.....	21
Figure 4: Aerial Photograph.....	22
Figure 5: Existing General Plan Designations	23
Figure 6: Existing Zoning Classifications.....	24
Figure 7: FEMA Floodplain Map.....	25
Figure 8: Proposed Site Plan.....	26
Figure 9: Proposed Substation General Arrangement	27

List of Tables

Table 1: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, and Acreage	5
Table 2: Existing Project Sites and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning	5



Introduction

Pursuant to the California Environmental Quality Act (CEQA), the Kern County Planning and Natural Resources Department (County) will initiate the preparation of an Environmental Impact Report (EIR) for the Azalea Solar Project in the unincorporated area of northwestern Kern County, California.

1. Project Description

1.1. Project Location

The proposed Azalea Solar Project (proposed project) is a proposal by SF Azalea, LLC (project proponent) to construct and operate a photovoltaic (PV) solar facility and associated infrastructure to generate up to 60 megawatts (MW) of renewable electrical energy and a Battery Energy Storage System (BESS) capable of storing approximately 38MW of energy within approximately 5 acres of the overall 640 acres of privately-owned land.

The project site is located south of the Kern County/Kings County Line, in an unincorporated area of northwestern Kern County, CA. The project site is located in Section 11 of Township 25 South, Range 19 East in the Mount Diablo Base and Meridian. Please see *Figure 1: Regional Vicinity Map* and *Figure 2: Local Vicinity Map*.

The proposed project is located solely within the jurisdiction of Kern County. The project site is located approximately 2.5 miles northeast of Twisselman Road and Kings Road, approximately 16 miles south of Kettleman City, approximately 14 miles northwest of the community of Lost Hills, approximately 6 miles west of Interstate 5, and approximately 4 miles east of State Route 3. The proposed project is located in the northwestern portion of the Kern County Valley Region. The project site is made up of two (2) privately owned parcels (Assessor Parcel Numbers (APNs): 043-210-17 and 043-210-18) totaling approximately 640 acres of largely undeveloped land. Please see *Figure 3: Existing Parcel Map*. The total study area for this project is larger than the area that will be subjected to entitlements, as it includes gen tie lines and access roads across private land.

Primary access to the project site would be via an existing dirt access road along the Kern County/Kings County boundary. The existing road intersects with King Road/25 Avenue approximately one mile north of the proposed solar installation. This portion of roadway would be improved in a westerly direction from King Road/25 Avenue within Kern County jurisdiction. These improvements would be approximately 0.8 miles in length. At this end of the 0.8 miles, the roadway improvement would be continued in a southerly direction entirely within Kern County. The balance of the roadway, other improvements, and the solar facility itself would occur entirely within Kern County. Please see *Figure 4: Aerial Photograph*.

1.2. Environmental Setting

The proposed project is located on approximately 620 acres of privately-owned agricultural land located in the north western extent of Kern County, California. The project site is located within the boundaries of Agricultural Preserve No. 1 and one of the parcels is currently subject to a Williamson Act Land Use Contract. The project is in the Central California Valley Ecoregion and the United States Geological Survey (USGS) Avenal Gap 7.5-minute topographical quadrangle. Development in the area surrounding the project site is



predominantly agriculture.

The project site is within the San Joaquin Valley Basin of the San Joaquin Valley Air Pollution Control District.

The project site consists of two gently sloping, vacant, and undeveloped parcels of land covered with sparse to moderately dense non-native vegetation currently used for grazing. The site is disced on a cycle of approximately every two years to facilitate planting cover crops for cattle grazing. Habitats within the project site include agricultural field, non-native annual grassland habitat, and patches of ruderal habitat along the fenced boundaries of the project site. The project site and surrounding lands are mostly flat and exhibit little topographic variation.

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the FIRMs for the project area, portions of the southernmost project site is located in a 100-year flood area (Zone A, no base flood elevations determined); see *Figure 7: FEMA Floodplain Map*. However, the proposed project would not result in any construction within the Zone A area; see *Figure 8: Proposed Site Plan*. The balance of the project site is not within a flood area (Zone X, areas determined to be outside the 0.2% annual chance floodplain).

The project site is not designated by the California Department of Conservation (DOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The portion of the project site that would be developed as a solar array and the generation tie (“gen-tie”) route is classified as Grazing Land while the portion that would be developed as road access is classified as Grazing Land or Nonagricultural and Natural Vegetation. There is land designated as Prime Farmland immediately adjacent to the east and south of the project site and land designated as Unique Farmland immediately adjacent to the east of the project site. Additionally, a portion of the project site is subject to a Williamson Act Land Use contract and the project site is located within a Kern County Agricultural Preserve.

The project site is not within a mineral recovery area or within a designated mineral and petroleum resource site designated by the Kern County General Plan, nor is it identified as a mineral resource zone by the Department of Conservation’s State Mining and Geology Board. The project site is not located within the County’s NR (Natural Resources) or PE (Petroleum Extraction) Zone Districts.

Table 1: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, and Acreage, below identifies the individual parcels, their respective assessor parcel numbers (APN), acreages, and existing zoning designations. Please see *Figure 5: Existing General Plan Designations*, and *Figure 6: Existing Zoning Classifications*.



TABLE 1:
PROJECT ASSESSOR PARCEL NUMBERS, EXISTING MAP CODES, EXISTING ZONING, AND ACREAGE

APN	Existing Map Code Designation	Existing Zoning	Proposed Zoning	APN Acres
043-210-17	8.3/2.5	A	A	480.00
043-210-18	8.3/2.5	A	A	160.00
Project Totals				640.00
General Plan Map Code: 8.3 = Extensive Agriculture (Min. 20 Acre Parcel Size); 2.5 = Flood Hazard Overlay				
Zone Designation: A = Exclusive Agriculture				

Surrounding Land Uses

Table 2: Existing Project Site and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning, identifies the existing land use, the existing general plan land use designation, and the existing zoning for each of the two parcels within the project site. Additionally, such conditions are described for adjacent lands to the north, east, south, and west of the project site.

TABLE 2:
EXISTING PROJECT SITES AND SURROUNDING PROPERTIES, EXISTING LAND USE, GENERAL PLAN MAP CODE DESIGNATIONS, AND ZONING

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Project Site	Agricultural	8.3 (Extensive Agriculture; 8.3/ 2.5 (Extensive Agriculture Flood Hazard Overlay)	A (Exclusive Agriculture)
North	Agricultural, Vacant Land	8.3 (Extensive Agriculture)	A (Exclusive Agriculture)
South	Agricultural, Vacant Land	8.1/2.5 (Intensive Agriculture/Flood Hazard Overlay); 8.3 (Extensive Agriculture; 8.3/ 2.5 (Extensive Agriculture/Flood Hazard Overlay)	A (Exclusive Agriculture)
East	Agricultural, Vacant Land	8.1 (Intensive agriculture (min. 20 acre parcel size))	A (Exclusive Agriculture)
West	Agricultural, Vacant Land	8.3 (Extensive Agriculture; 8.3/ 2.5 (Extensive Agriculture/Flood Hazard Overlay)	A (Exclusive Agriculture)

Existing land use in the vicinity of the project site generally includes undeveloped lands, agricultural lands, access roadways, a canal and a nut processing plant. Rural residential uses and other solar development are located to the south of the project site. There is one planned, solar energy and transmission project in the



vicinity of the project site. This project includes the Chalan project site, located immediately east of the proposed project site.

The sensitive receptor closest to the project site is the rural residence approximately 1 mile to the south of the project site. Lost Hills Wonderful Park, a local park, is located approximately 14 miles southeast of the project site. The closest school to the site is the A.M. Thomas Middle School, located approximately 14 miles southeast of the project site.

The proposed project would be served by the Kern County Sheriff's Department for law enforcement and public safety services, with the closest substation being the North Area Substation, located at 181 East First Street. Fire protection and emergency medical services would be provided by the Kern County Fire Department, with the closest station being Fire Station #25, located at 100 Mirasol Avenue, and Kern County Emergency Medical Services for medical care and emergency services.

The nearest public airport to the project site is the Wasco-Kern County Airport located approximately 31 miles southeast of the project site. The project site is not located within any safety or noise zones for the Wasco-Kern County Airport.

1.3. Project Description

Project Overview

The Azalea Solar project is a proposed photovoltaic (PV) solar facility with associated infrastructure on approximately 640 acres of privately-owned land in northwestern Kern County. As stated above, the proposed project would generate up to 60 MW of renewable electrical energy. The project also includes the installation of an associated BESS capable of storing approximately 38 MW of energy. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance facilities.

Implementation of the project as proposed includes the following requests:

- Conditional Use Permit (CUP 10, Map No. 3) to allow for the construction and operation of an approximate 60 MW solar facility, as well as ancillary structures including a 38 MW BESS, on 640-acres within the A (Exclusive Agriculture) zone district pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- Conditional Use Permit (CUP 14, Map No. 3) to allow for the construction and operation of a microwave communications tower, within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- Cancellation of a Williamson Act Contract to be processed for APN 043-210-17 within the proposed CUP boundary.

The power generated on the project site would assist the State in complying with the Renewables Portfolio Standard under Senate Bill 350, which requires that by December 31, 2030, 50 percent of all electricity sold in the state shall be generated from renewable energy sources. The power generated on the project site would be sold to California investor-owned utilities, municipalities, community choice aggregators, or other purchasers in furtherance of the goals of the California Renewable Energy Portfolio Standard. The project has an anticipated operational life of up approximately 30 years. At the end of the project's



operational term, the project proponent would determine whether the project site should be decommissioned and deconstructed or if it would seek an extension of its CUP. If any portion of the project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

1.4. Project Facilities, Construction, and Operations

Project Facilities

The project facilities would include the following components, which are described in greater detail thereafter:

- Solar PV modules and trackers
- Direct Current (DC) Collection
- Inverter and medium voltage transformers
- Battery storage
- Onsite substation
- Operations and maintenance (O&M) facilities
- Telecommunications
- Onsite meteorological data collection system
- Transmission line
- Site access road(s), and
- Lighting signage

Solar PV Module Configuration

The proposed project would utilize photovoltaic (PV) panels or modules (including but not limited to concentrated photovoltaic technology (CPV) or bi-facial technology which have similar rectangular shapes, sizes and thickness) on mounting frameworks to convert sunlight directly into electricity. Individual panels would be installed on tracker mount systems (single- or dual-axis, using galvanized steel or aluminum). The panels would rotate to follow the sun over the course of the day. Maximum panel height is anticipated to be up to 20 feet high, depending on the mounting system selected and on County building codes.

The PV panels would be arranged in rows in a uniform grid pattern, with each row separated by 10 to 20 feet. The panels would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site substation and eventual delivery to the electrical grid. The proposed layout is shown in *Figure 8: Proposed Site Plan*.

Each PV module would be placed on a tracker mounting structure. The foundations for the mounting structures may extend up to 10 feet below ground, depending on the structure, soil conditions, and wind loads, and may be encased in concrete or utilize small concrete footings. A light-colored ground cover or palliative may be used to increase electricity production. Final solar panel layout and spacing would be



optimized for project area characteristics and the desired energy production profile. *Figure 8: Proposed Site Plan*, show the proposed layout of the solar panels within the project sites.

Collection, Inverter, and Transformer Systems

Photovoltaic energy generated by the panels would be delivered via cable to the PCS generally located within the solar array field. The PCS are comprised of inverters, transformers, and other electrical equipment to reach the needed collection level voltage. The footprint of each PCS, which is generally mounted on a concrete pad, would be approximately 12 feet by 30 feet. The proposed project would require approximately 40 PCS's, depending on final design details, but all would be located within the project footprint. The inverter converts the DC electricity to AC electricity, which then flows to a transformer where it is stepped up to the appropriate collection level voltage (34.5-kV). The proposed project would use Power Electronic HEM Central inverters or equivalent and one medium voltage transformers per inverter. Each inverter and transformer would be installed as per manufacturer's requirements.

Energy Storage System

The proposed project would include a BESS, which would be located immediately adjacent to the proposed substation. The BESS would provide approximate 38 MW of energy storage. The BESS would consist of commercially available lithium ion batteries housed in enclosures that conform to U.S. national safety standards. The batteries would comply with the UL 9450 standard for outdoor energy storage enclosures. The enclosures would be standard International Organization for Standardization containers. These containers are approximately 8 feet wide by 40 feet long by 9.5 feet high. The BESS would have a footprint of up to 2.5 acres in total area. The actual dimensions and number of energy storage modules and structures would vary depending on the application, supplier, and final configuration chosen depending on the final equipment. This also would depend on the final power purchase agreement requirements and on County building standards. The BESS modules would contain a safety system as required by NFPA 855 and would be tested under the UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The system also would be required to have a fire rating in conformance with Kern County standards.

Substation

Output from the PCS would be transferred via electrical conduits and electrical conductor wires to an on-site substation in the northwest corner of APN 043-210-17. The proposed substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. The footprint of the substation would be approximately 200 by 200 feet and the maximum height would be approximately 75 feet. The substation would also contain a control house building approximately 15 feet by 30 feet with a maximum anticipated height of 20 feet. The substation would be surrounded by a seven-foot high barbed wire chain-link fence and would comply with electrical codes. The proposed substation layout is shown in *Figure 9: Proposed Substation General Arrangement*.

The proposed substation would include an emergency generator for use if the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system restores operations. The substation must have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator/Utility monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.



Operations and Maintenance Facilities

The project would include the construction of an O&M building with associated on-site parking (unpaved) within the project site. The O&M building may be co-located with the substation. Roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California Accessibility Regulations.

Telecommunications

The proposed project would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line installed above and/or below ground. The line would be attached to either existing utility lines located outside of the project site or the proposed gen-tie. The proposed telecommunication route would use a combination of existing poles, new poles, and/or below ground installations between the existing telecommunications infrastructure and the Arco Substation. Below ground installations are typically installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles. Lines would be placed within utility franchise easements to the extent feasible.

The point of interconnection to the existing telecommunication infrastructure would be located within a small telecommunications shelter. The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire). A secondary internet connection would be provided using a point-to-point microwave wireless link.

Onsite Meteorological Data Collection System

The proposed project would require four meteorological data collection systems. The systems would be mounted at various locations throughout the project site. The systems would include a variety of instruments to collect meteorological data. Meteorological data would be collected at the maximum height of the solar panels approximately 15 feet above the ground.

Transmission Line

From the proposed substation, power would be transmitted to the PG&E Arco Substation via up to 230 kV overhead line(s); see *Figure 4: Aerial Photograph*, which shows the gen-tie line alignment. The gen-tie right-of way would be approximately 25 to 75 feet wide. Approximately 30 new poles would be installed to accommodate the gen-tie line. The new poles would be constructed of either steel or wood at a maximum of 90 feet tall.

Site Access and Security

The project would be accessed from King Road approximately one mile north of the project site. An access road from King Road to the north boundary of the project site would be constructed as part of the proposed project. Additional access roads would be constructed between the rows of PV panels within the project site; see *Figure 8*. Access roads would be approximately 20 feet wide and would be accessed via multiple gates to allow access to the internal access roads. The access points and interior driveways would be constructed in accordance with Kern County and California Department of Forestry and Fire Protection (CalFire) requirements and maintained to ensure on-site circulation for emergency vehicles during all weather conditions.



The project site is currently partially enclosed by existing fencing along the east and south site boundaries. This fencing would remain and fencing surrounding other areas would be installed. The rows of PV panels would be enclosed within the project site fencing. Fencing would be a six-foot tall wire fence topped by one foot-tall three-strands of barbed wire. Fencing would be “wildlife friendly” with a five to seven-inch diagonal grid width at the lower portion to allow for the safe passage of small and medium sized mammals. The fence would include slats or similar visual screening material above the bottom diagonal grid pattern along the southern boundary that faces an existing residence.

Signage would be installed on the fence in the vicinity of the main entry gates on the north side of the project site. The signage would identify the project owner, operator, and emergency contacts and provide safety and security information. Additionally, small-scale signage would be posted at the main entry gates and intermittently along the fencing around the PV panels to indicate “No Trespassing” and “Private Property” for security and safety purposes. All signage would conform to Kern County signage requirements.

A security company would be contracted by the project proponent for security purposes during construction. A security system would also be installed as part of the proposed project. During project operation, security monitoring would occur 24 hours a day. Should the security system detect the presence of unauthorized personnel, the project manager or surrogate would verify the appropriate response and appropriate local authorities would be notified if necessary. A Knox-Box containing keys for the proposed project would be installed to permit emergency access to the site.

Stormwater Management

At this preliminary stage of site design, it has not been determined whether on-site stormwater management facilities, such as detention ponds, would be necessary. This will be determined through further hydrological analysis and if required, these facilities will be described and addressed in the EIR.

Lighting

The proposed in-site lighting would allow for maintenance and security activities during project operation. Low-level lighting would be installed at the entry gates, substation, PCS, and O&M building. Proposed lighting outside of the substation would be downward facing, shielded, or otherwise modified to prevent emission of light or glare beyond the property line or upward into the sky as required by Kern County Ordinance (Chapter 19.81) - Outdoor Lighting-Dark Skies requirements.

Arco Substation and PG&E Upgrades

To allow for project connection, the existing Arco Substation would need be modified in order to accommodate a new 70 kV bus terminal required by the project. This work would be performed by PG&E and would include the construction of new substation equipment adjacent to the existing equipment. An existing 70 kV single breaker double bus configuration would be extended with three (3) new bay structures. The first new bay structure would be for the customer-owned photovoltaic solar project generation tie-line. The second bay structure would be used to relocate the existing Arco – Tulare Lake 70kV line. The third bay structure would be used as a spare for future equipment.

Existing power poles and conductors located outside of the existing substation would also be reconfigured to connect with the new substation equipment. Limited construction of new power line structures and removal of existing structures would be necessary to optimize the power line routing into the modified substation taking into consideration land availability and access to pole locations.



Construction Activities

The construction period for the proposed project from site preparation through construction and testing is expected to commence in 2022 and would extend for approximately 12 months.

Construction of the proposed project would include the following activities:

- Site preparation
- Construction of access and internal circulation roads
- Grading and earthwork
- Panel installation
- Concrete foundations
- Structural steel work
- Electrical/instrumentation work
- Collector line installation
- Stormwater management facilities
- Architecture and landscaping

Schedule and Workforce

Construction traffic would access the project site from King Road. It is estimated that up to 500 workers per day (during peak construction periods) would be required during construction of the proposed project. Employees would have the option to drive their own automobiles to the project site however, employees would be encouraged to carpool. Employees would park within the project site. The proposed project requires the temporary construction of approximately 1.5 acres within the project site for all-weather parking spaces, temporary office facilities, and equipment staging area. This area could be expanded to accommodate increased worker needs.

The first phase of construction would include roadway improvements from the existing paved segment extending westerly from King Road/25th Avenue. A roadway extension from approximately 0.8 miles west of that point south to the proposed solar facility would be constructed to enable access. (This segment of roadway would be paved. Construction activities are typically expected to occur between 6:00 am and 5:00 pm, Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Some activities may continue 24 hours per day, seven days per week. Low level noise activities may potentially occur between the hours of 10:00 pm and 7:00 am. Nighttime activities could potentially include, but are not limited to, refueling equipment, staging equipment and material for the following day's construction activities, quality assurance/control, and commissioning.

Construction materials and supplies would be delivered to the project site by truck. It is anticipated that all such materials and supplies would be stored in a staging area on-site within the project boundaries for each phase of. When possible, equipment and materials would be stored in proximity to the area where work would be undertaken. For work along the gen-tie routes, it is anticipated that adequate land areas within the



affected easements or rights-of-way would be available to accommodate staging/laydown areas during the construction phase and that off-site lands would not be affected. Truck deliveries would normally occur during daylight hours. However, there would be offloading and/or transporting to the project site on weekends and during evening hours.

Site Preparation, Earthwork and Construction Control Measures

The project site would be cleared and graded as needed to allow for the installation of the roadway extension, solar arrays, BESS, related infrastructure, interior access roads, and temporary construction staging areas. Sediment and erosion controls would be installed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). Stabilized construction entrances and exits would also be installed at the project entrance driveways to ensure that potential for tracking of sediment onto adjacent public roadways is minimized.

The project site is mostly flat and would require minimal grading to allow for installation of the PV panels. Minimal grading is expected for the construction of the PCS, substation, and driveways and tracker installation. The roadway extension is anticipated to be constructed by clearing, leveling, and surfaced with decomposed granite/gravel and/or compacted road base. Access roads within the interior of the site would be constructed by placing two to four inches of decomposed granite gravel and/or compacted road base or comparable material directly on the existing soil. Soil compaction, soil strengthening agents, or geo fabric may be used for access driveways. Compaction may also be required for the construction of the PCS, substation, control rooms, and access roads to support construction and ensure access for emergency vehicles.

Dust-minimizing techniques, such as watering active construction sites would occur and would be based on the type of operation, soil, and wind exposure. Prohibition of grading activities during periods of high wind (over 20 miles per hour), limiting vehicle speed on-site to 15 miles per hour, and covering trucks hauling dirt, sand, or loose materials would be implemented as needed. Project grading would be minimized to the extent feasible to reduce unnecessary soil disturbance and movement. Earthwork would require the use of scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders. On-site trenching also would be required to enable the placement of underground electrical and communication lines. Certain access roads and turn-arounds may also be surfaced with aggregate or decomposed granite in conformance with emergency access requirements. Proposed grading would balance on-site and import or export of soils would not be required.

Noise-generating construction activities would be limited to construction hours allowed by the County's noise ordinance. All stationary construction equipment that may result in excessive noise or vibration levels would be operated away from sensitive noise receptors to the extent feasible. Construction activities would occur such that maximum noise levels at affected sensitive noise receptors (i.e., rural residential uses) would not exceed the County's adopted noise threshold levels.

Applicable local, State, and federal requirements and best management practices (BMPs) would be implemented during the construction phase. Consistent with the County zoning ordinance and with guidelines provided in the California Stormwater Quality Association's Construction Best Management Practice Handbook, BMPs would be implemented, including preparation of a SWPPP and a soil erosion and sedimentation control plan to reduce the potential for erosion and to minimize effects on stormwater quality. Stabilized construction entrances and exits would be installed at the entrances to each site to reduce the tracking of sediment onto adjacent public roadways. All site preparation would occur in conformance with County BMPs and San Joaquin Valley Air Pollution Control District rules for dust control.



Construction Water Use

Water would be required during the construction phase for dust suppression during such activities as clearing, grading, and soil compaction. Water may also be used at ingress/egress points to minimize tracking of dirt off-site onto local roadways (King Road/25th Avenue) from construction vehicles. Water would be obtained from on-site wells or delivered via truck from an off-site source(s) within the project vicinity. If water is trucked into the site, it is anticipated that an available local water source would be selected to minimize truck trips/lengths in transporting water to/from the site.

Water usage during construction, primarily for dust-suppression purposes, is not anticipated to exceed 75 acre-feet over the 12-month construction phase. The water would be trucked and stored on-site to be primarily used for dust suppression, soil compaction, concrete hydration and other miscellaneous activities requiring non-potable water during construction.

Bottled water would be provided to the construction workers for consumption. Additionally, on-site restroom facilities for the construction workers would be provided by portable units to be serviced by licensed providers. No connection to a public sewer system is proposed or required for project construction or operation.

Electrical Supply

The temporary construction facilities would obtain electricity from a temporary drop off line from the local electrical distribution system. Up to ten portable electrical generators that meet local and State emission controls would be used during construction.

Project Operation and Maintenance Activities

Once the proposed project is constructed, maintenance would generally be limited to the following:

- Cleaning of PV panels
- Monitoring electricity generation
- Providing site security
- Facility maintenance – replacing or repairing inverters, wiring, and PV modules

Schedule and Workforce

During the operational phase, the project would employ up to 5 full-time equivalent (FTE) personnel (or personnel hours totaling 5 FTE positions (i.e., an average of 200 personnel hours per week) who would commute to the site. Additional operational staff of up to five full-time employees could be on-site at any time when urgent repairs or maintenance are required.

The facility would operate seven days a week, 24 hours a day, generating electricity during normal daylight hours when the solar energy is available. Maintenance activities may occur seven days a week, 24 hours a day to ensure PV panel output when solar energy is available.

Operational Water Usage

Water demand for panel washing and O&M domestic use (sinks, lavatories, landscape irrigation, drinking) is not expected to exceed 75 acre-feet per year. Water is anticipated to be obtained from on-site wells or



delivered via truck from an off-site source(s) within the project vicinity. If water is trucked into the site, it is anticipated that an available local water source would be selected to minimize truck trips/lengths in transporting water to/from the site.

Electrical Supply

Power for plant auxiliaries would be provided by the project's electrical generation or supplied by the local power provider. The proposed project would require power for the O&M facilities, electrical enclosures, tracker motors, associated structures, and for lighting and security.

Project Features and Best Management Practices

The following sections describe standard project features and best management practices that would be applied during construction and long-term operation of the project to maintain safety and minimize or avoid environmental impacts.

Hazardous Waste and Hazardous Materials Management

The proposed project would have minimal levels of materials on-site that have been defined as hazardous under 40 CFR, Part 261. Materials such as the following would be used during the construction, operation, and long-term maintenance of the proposed project:

- Diesel fuel, gasoline and motor oil– used for electrical equipment
- Mineral oil - to be sealed within the transformers
- Various solvents/detergents – equipment cleaning
- Lead acid-based and/or lithium ion batteries – used for emergency backup

Hazardous materials and wastes will be managed, used, handled, stored, and transported in accordance with applicable local and State regulations. All hazardous wastes will be maintained at quantities below the threshold requiring a Hazardous Material Management Program (HMMP) (one 55-gallon drum). Though not expected, should any on-site storage of hazardous materials exceed one 55-gallon drum, an HMMP would be prepared and implemented.

Chemical storage tanks (if any) would be designed and installed to meet applicable local and state regulations. Any wastes classified as hazardous such as solvents, degreasing agents, concrete curing compounds, paints, adhesives, chemicals, or chemical containers would be stored (in an approved storage facility/shed/structure) and disposed of as required by local and state regulations. Material quantities of hazardous wastes are not proposed or anticipated to be used.

Non-Hazardous Wastes/Inert Solids

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type 1-4 plastics, drywall, wood, and lubricating oils. Non-recyclable items include insulation, other plastics, food waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. A Construction Waste Management Plan will be prepared for review by the County. Consistent with local regulations and the California Green Building Code, the Plan would provide for diversion of a minimum of 50 percent of construction waste from landfills.



Spill Prevention and Containment

Spill prevention and containment for construction and operation of the proposed project will adhere to the Environmental Protection Agency's (EPA) guidance on Spill Prevention Control and Countermeasures (SPCC).

Wastewater/Septic System

A standard on-site septic tank and leach field would be used at the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. The septic system and leach field would be sized according the number of employees.

Health and Safety

The proposed project would adhere to all Kern County Improvement Standards to ensure accessibility for emergency vehicles and safe operation during construction on project operation. The proposed project would implement measures for worker safety during construction in accordance with California Division of Occupational Safety and Health (CalOSHA) regulations and guidance and other best management practices. The proposed project will have an Emergency Response Plan (ERP). The ERP will address potential emergencies including chemical releases, fires, and injuries. All employees will be provided with communication devices, cell phones, or walkie-talkies, to provide aid in the event of an emergency.

To help ensure safety procedures are following, the proposed project would include safety training for construction workers and operational personnel. This would include both classroom and hands-on training in operating and maintenance procedures, general safety items, and the planned maintenance program. Training would include emergency procedures, fire prevention, and discussion of the location and proper use of emergency equipment. In addition, contact numbers for various local emergency response agencies, including fire, police, and medical services would be provided, and instruction for communication procedures to report potential health hazards and concerns would be a part of the training.

The proposed project also would include training on procedures to preventing electrical hazards that would reduce the potential for igniting combustible materials. The project also would limit areas where employee can smoke and parking areas for both personal, heavy equipment, and for project operations would be provided over mineral soil, asphalt, or concrete and at a safe distance from dry vegetation. In addition, heavy equipment also would also be equipped with other mechanisms such spark arresters or turbo-charging (which eliminates sparks in exhaust). Lastly, all project vehicles would be equipped with fire extinguishers, and training on their maintenance and how to extinguish small fires would be provided

As discussed above, these safety precautions and emergency systems would be implemented as part of, design, construction, operation, and maintenance of the proposed project to ensure safe and reliable operation.

Decommissioning

Solar equipment has a typical lifespan of over 30 years. The proposed project expects to sell the renewable energy produced by the project under the terms of a long-term Power Purchase Agreement (PPA) with a utility or other power off taker. Upon completion of the PPA term, the project operator may, at its discretion, choose to enter into a subsequent PPA or decommission and remove the system and its components. Upon



decommissioning, the solar facility could be converted to other uses in accordance with applicable land use regulations in effect at that time.

It is anticipated that, during project decommissioning, project structures that would not be needed for subsequent use would be removed from the project site. The site would revert to undeveloped land that supports agricultural production and wildlife habitat. The decommissioning and restoration process involves removing aboveground and belowground structures, restoring topsoil, revegetation, and seeding. Temporary erosion and sedimentation control BMPs would be used during the decommissioning phase.

Equipment would be de-energized prior to removal, salvaged (where possible), and shipped off-site to be recycled or disposed of at an appropriately licensed disposal facility. Once the solar modules are removed, the racks would be disassembled, and the structures supporting the racks would be removed. Site infrastructure would be removed, including fences, and concrete pads that may support the inverters, transformers and related equipment. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried by standard construction equipment. The fencing and gates would be removed, and all materials would be recycled to the extent practical. Project roads would be restored to their pre-construction condition unless they may be used for subsequent land use. The area would be thoroughly cleaned and all debris removed. Materials would be recycled to the extent feasible, with the remainder disposed of in landfills in compliance with all applicable laws.

1.5. Project Objectives

The project proponent had defined the following objectives for the project:

- The project would establish solar PV power-generating facilities that are of a sufficient size and configuration to produce approximately 60 megawatts (MW) of electricity and help to meet the increasing demand of the State of California for clean, renewable electrical power at a competitive cost.
- The project would generate up to 500 jobs during construction and approximately 5 permanent jobs during operation, which would provide increased business for local contractors and vendors.
- The project would minimize environmental effects by:
 - Locating generating facilities in a rural portion of northwestern Kern County which receives intense solar radiation;
 - Using existing electrical transmission facilities, rights-of-way, roads, and other existing infrastructure where practicable;
 - Minimizing water use; and
 - Reducing greenhouse gas emissions.
- The project would assist the state of California in achieving the Renewable Portfolio Standard (RPS) for 2030, by providing a new source of renewable energy (California State Assembly Bill [AB] 32, Senate Bill [SB] 1078, SB 107, SB 350, and SB 2).

1.6. Proposed Discretionary Actions/Required Approvals

The Kern County Planning and Natural Resources Department as the Lead Agency (per CEQA Guidelines



Section 15052) for the proposed project has discretionary responsibility for the proposed project. To implement this project, the project proponent may need to obtain discretionary and ministerial permits/approvals including, but not limited to, the following:

Federal

- U.S. Fish and Wildlife Service (USFWS) Section 10 Incidental Take Permit and Habitat Conservation Plan (if required)
- United States Army Corps of Engineers Section 404 Permit (if required)

State

- California Public Utilities Commission (CPUC)
 - Section 851 Permit
- California Department of Fish and Wildlife (CDFW)
 - Section 1600 et seq. permits (Streambed Alteration Agreements)
 - Section 2081 Permit (State-listed endangered species) (if required)
- Central Valley Water Quality Control Board (RWQCB)
 - Waste Discharge Requirements
 - Regional Water Quality Certification (401 Permit) (if required)
 - National Pollution Discharge Elimination System (NPDES) Construction General Permit
 - General Construction Stormwater Permit (Preparation of a SWPPP)
- California Department of Transportation (Caltrans)
 - Right-of-Way Encroachment Permit (if required)
 - Permit for Transport of Oversized Loads

Local

- Kern County
 - Certification of Final Environmental Impact Report
 - Adoption of Mitigation Monitoring and Reporting Program
 - Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
 - Approval of Conditional Use Permits
 - Approval of Williamson Act Contract Cancellation
 - Approval of Kern County Grading and Building Permits
 - Approval of Kern County Access Road Design and Encroachment Permits
 - Approval of Fire Safety Plan
- San Joaquin Valley Air Pollution Control District
 - Approval of Fugitive Dust Control Plan
 - Authority to Construct (ATC)
 - Permit to Operate (PTO)

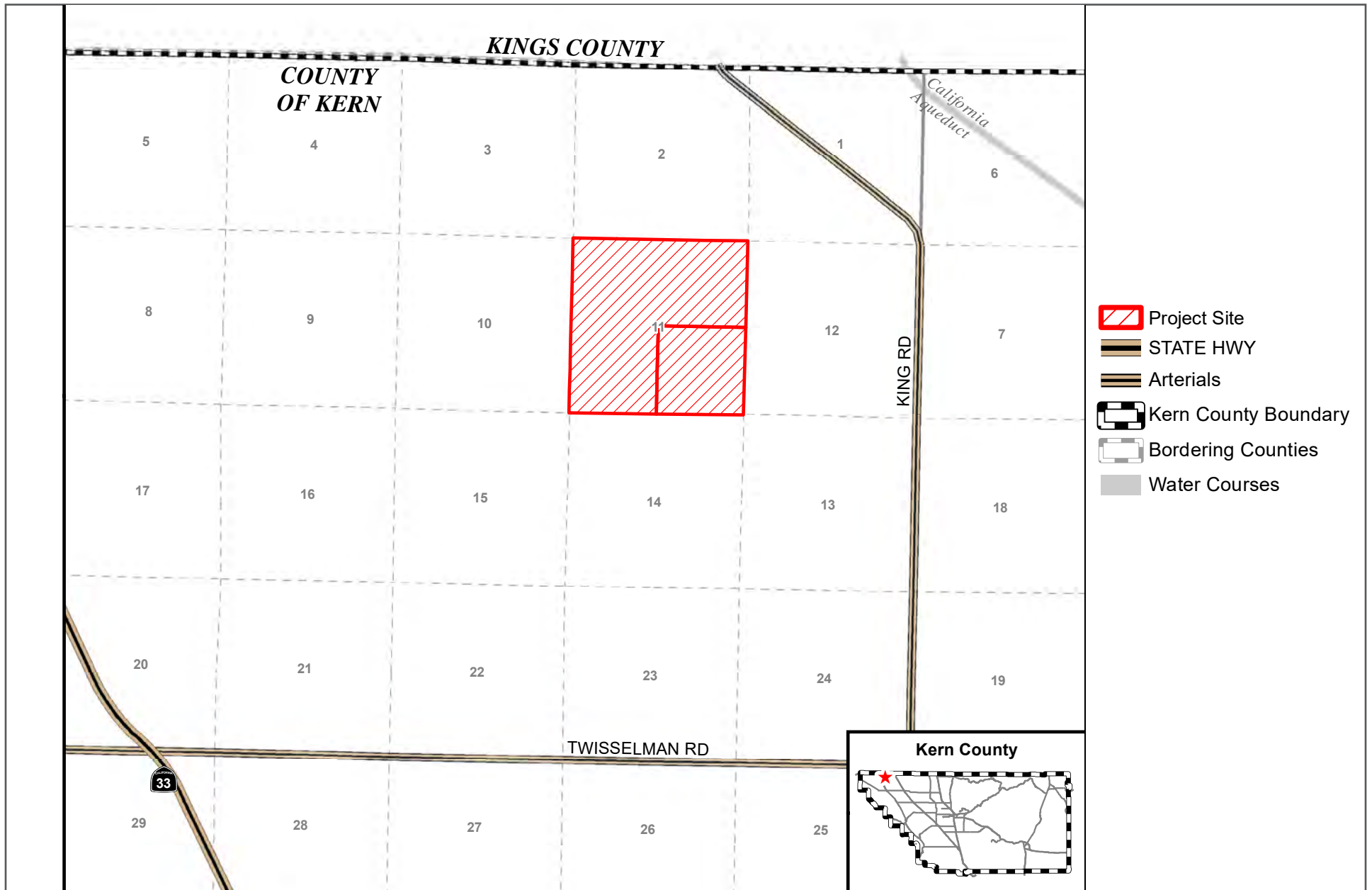


The preceding discretionary actions/approvals are potentially required and do not necessarily represent a comprehensive list of all possible discretionary permits/approvals required. Other additional permits or approvals from responsible agencies may be required for the proposed project.



SOURCE: Google Earth, 2021

FIGURE 1: Regional Vicinity Map



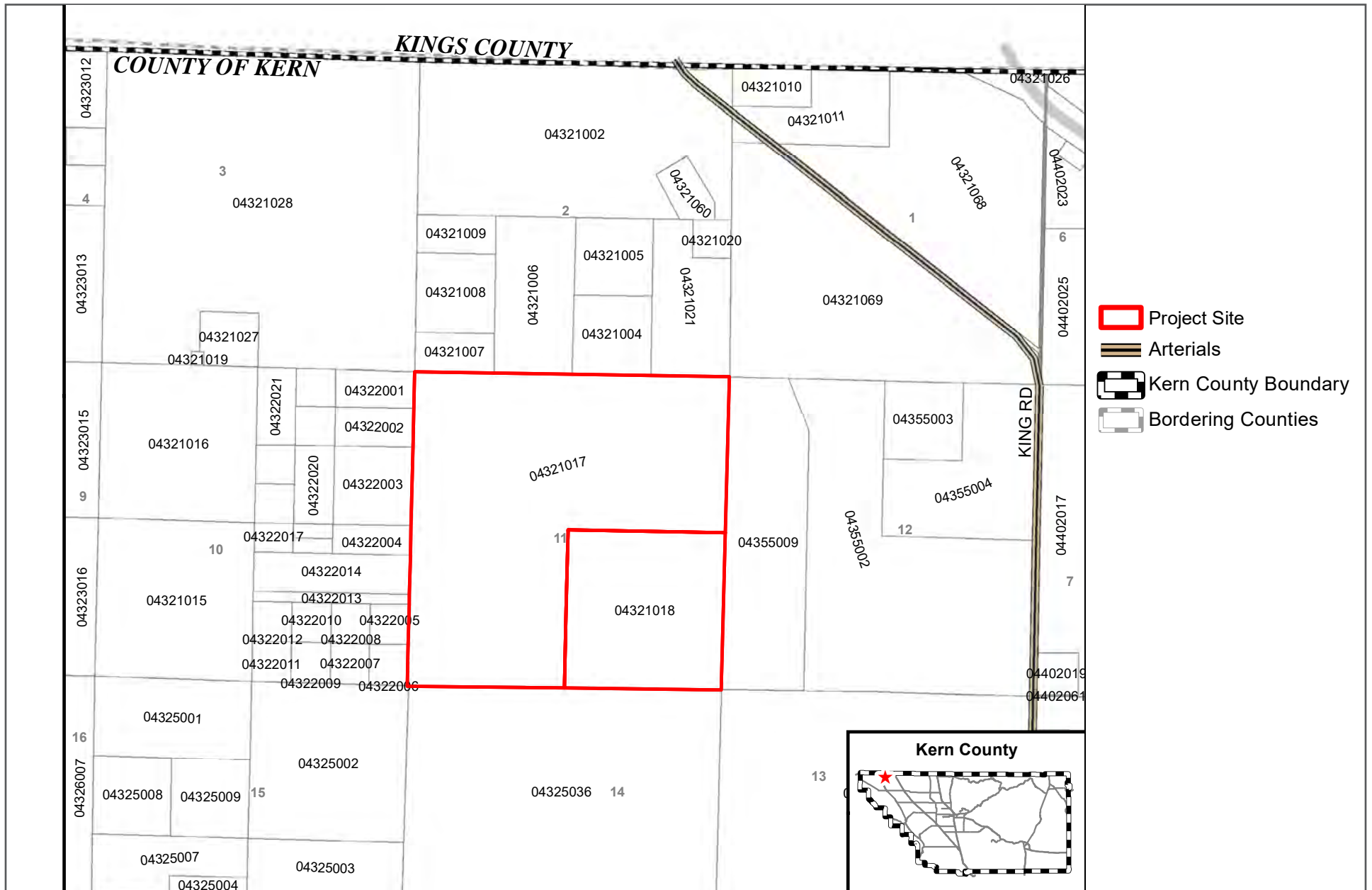
SOURCE: Kern County, 2021



N.T.S.

FIGURE 2: Local Vicinity Map

Azalea Solar Facility



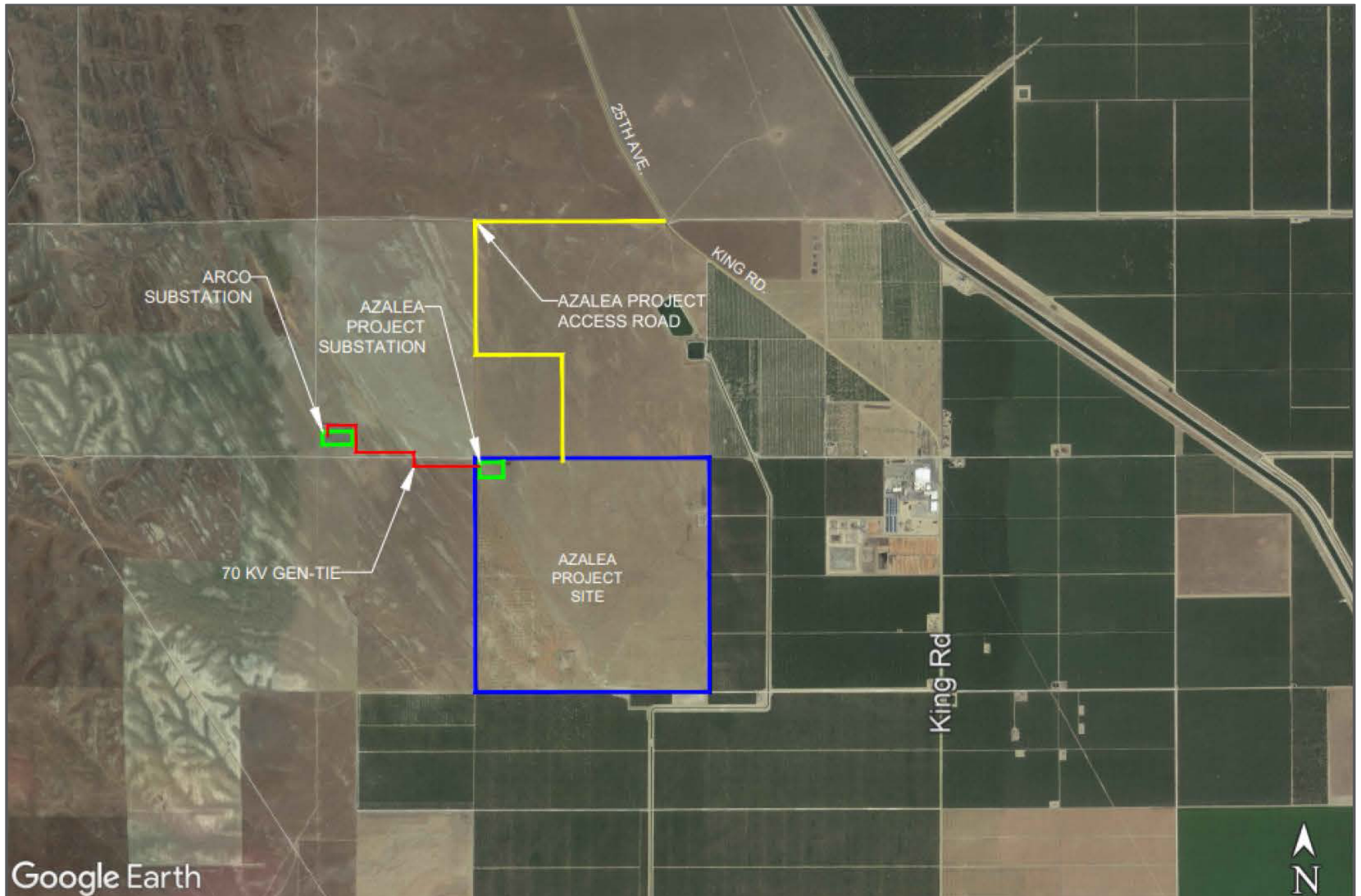
SOURCE: Kern County, 2021



N.T.S.

FIGURE 3: Existing Parcel Map

Azalea Solar Facility



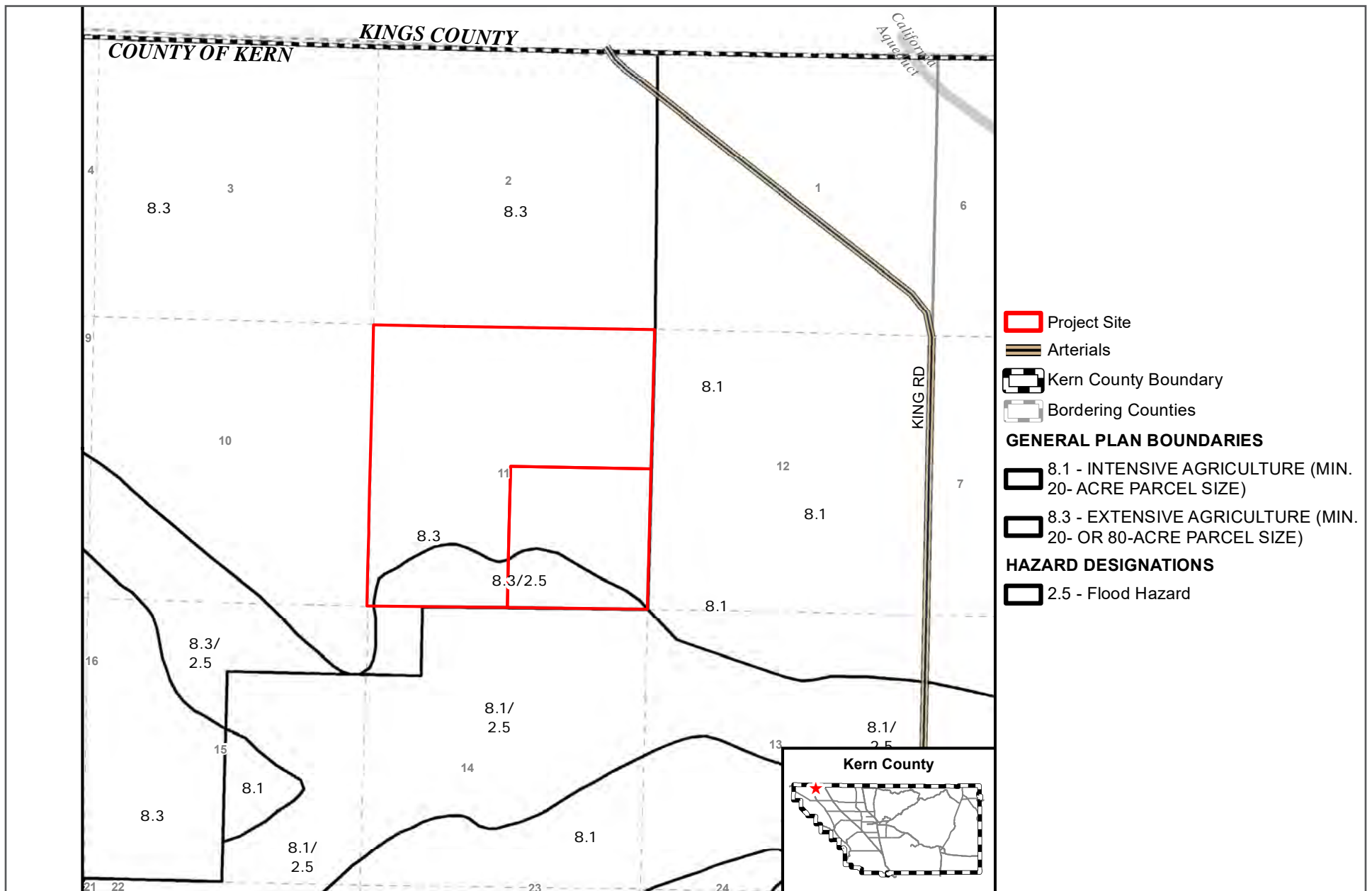
SOURCE: Google Earth, 2021



N.T.S.

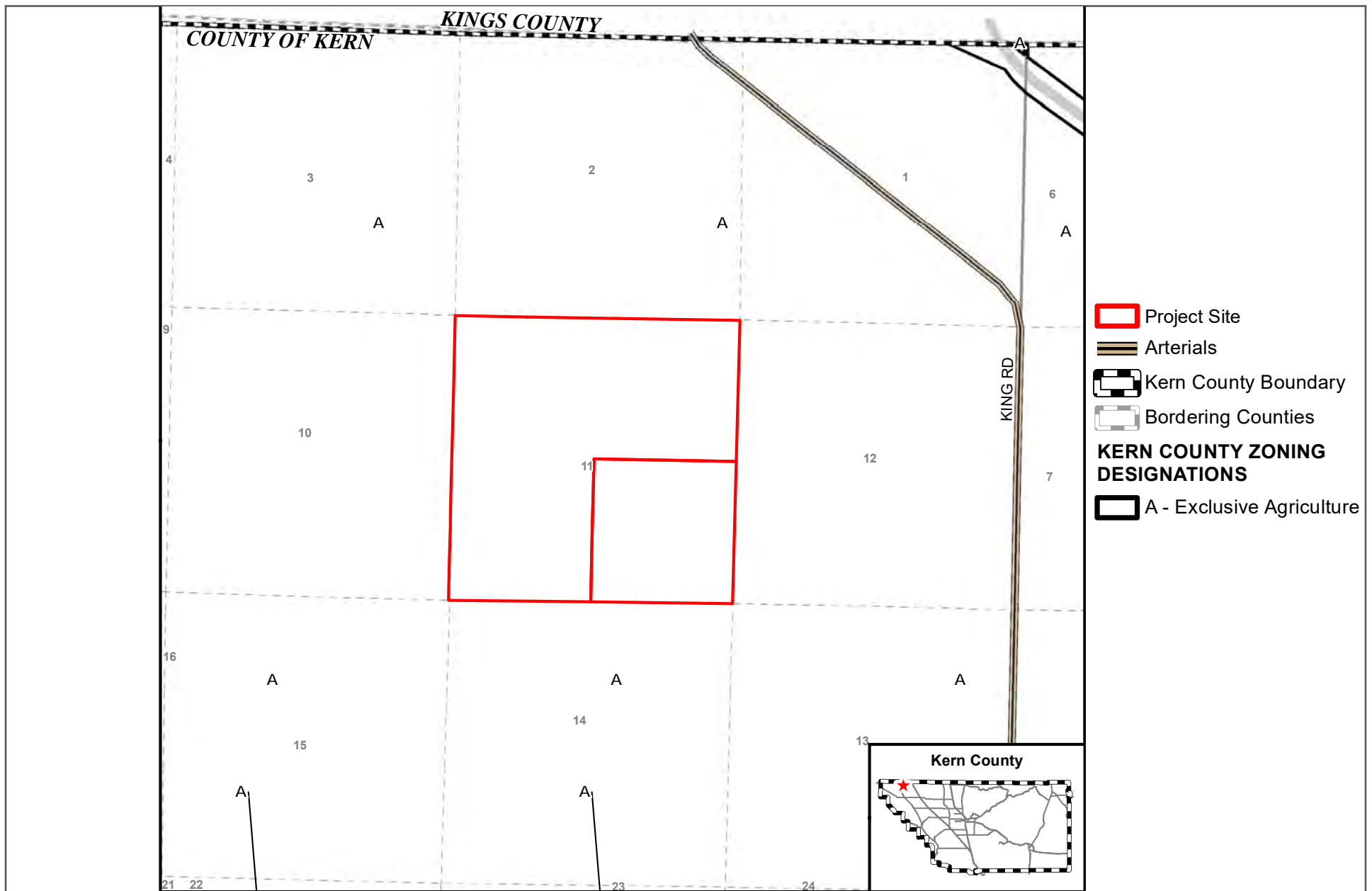
FIGURE 4: Aerial Photograph

Azalea Solar Facility



SOURCE: Kern County, 2021

FIGURE 5: Existing General Plan Designations

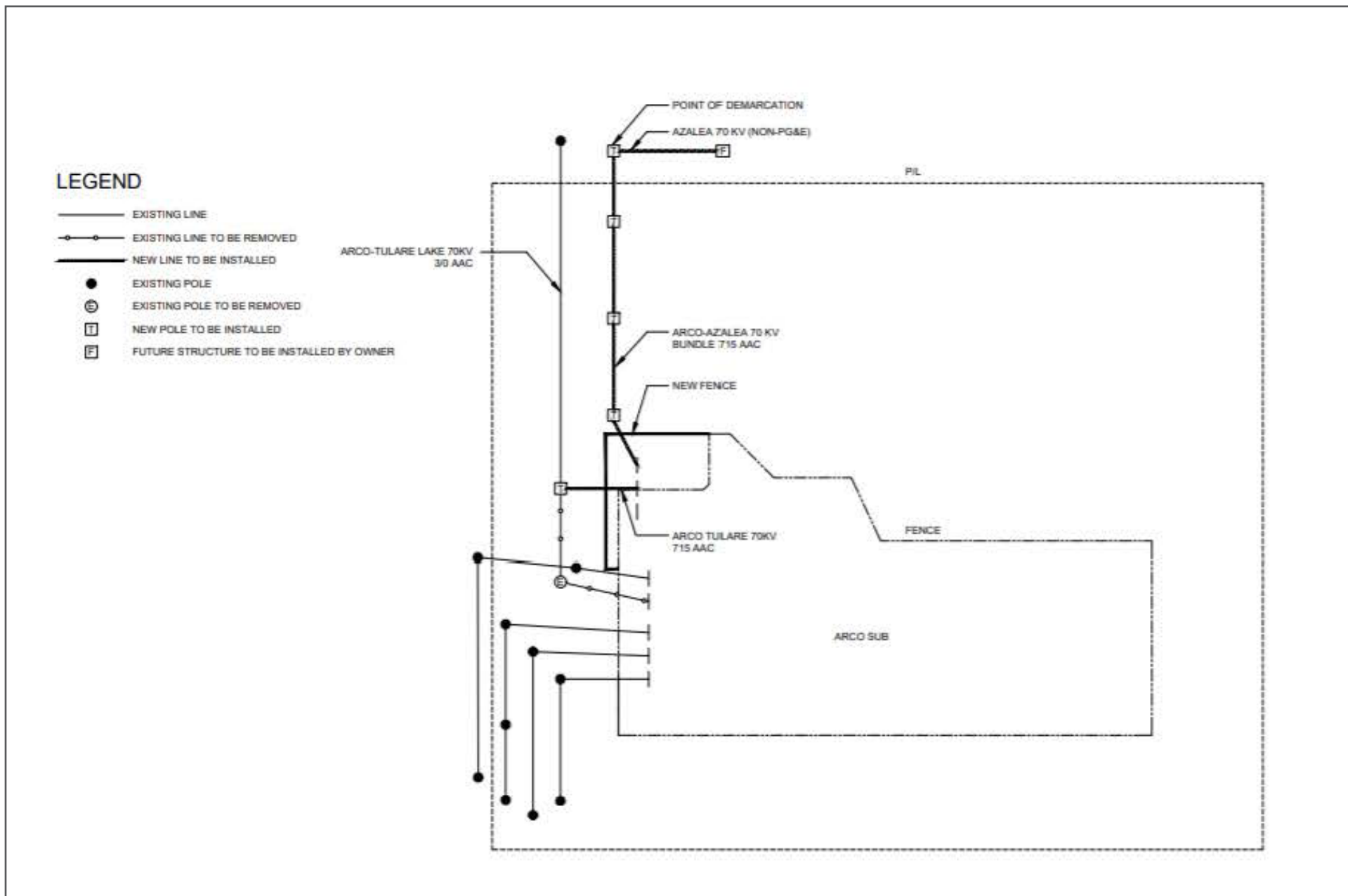


SOURCE: Kern County, 2021

FIGURE 6: Existing Zoning Classifications



SOURCE: US Federal Emergency Management Agency, 2021



SOURCE: SF Azalea, LLC, 2021

FIGURE 9: Proposed Substation General Arrangement



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"/> Agricultural 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"/> Energy
<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"/> Tribal Cultural Resources
<input checked="" type="checkbox"/> Utilities/Service Systems	<input checked="" type="checkbox"/> Wildfire	<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:

Printed Name:

Terrance Smalls

Date:

9/30/21

Title:

Supervising Planner



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 off-site as well as on-site, 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 Incorporated,” describe the mitigation measures that 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	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
I. 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. In nonurbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from public accessible vantage points) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RESPONSES:

(a-d) The aesthetic features of the existing visual environment in the project area are relatively uniform, with broad, dry, flat landscapes. The project site is generally surrounded by undeveloped land and agricultural land and facilities. The rural community of Lost Hills is located approximately 14 miles southeast of the project site and consists predominantly of rural residential uses. According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible state scenic highway is State Route (SR) 41 between SR 46 and SR 33 located approximately 12 miles northwest of the project site. Given the distance from the project site and intervening elevated topographic features including low lying hills, the proposed project would not substantially change existing views from SR 41. The proposed project, however, would alter the landscape on the project site and portions of the project would be visible from public roads such as King Road/25th Avenue. The solar arrays 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.

The above project impacts will be further evaluated in the EIR. .



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
II. Agriculture and Forest Resources				
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 a Williamson Act Contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 15205(b)(3) Public Resources Code)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

RESPONSES:

- (a) According to the California Department of Conservation (CCDOC), California Important Farmland Finder Map, there are no agricultural lands designated as Prime Farmland, Unique Farmland, Unique Farmland, or Farmland of Statewide Importance located within the project site. The portion of the project site that would be developed with the solar array is classified as Grazing Land and the portion of the site proposed to be developed with the gen-tie route is and the portion that would be developed as road access is classified as Grazing Land or Nonagricultural and Natural Vegetation. There is land designated as Prime Farmland immediately adjacent to the east and south of the project site and land designated as Unique Farmland immediately adjacent to the east of the project site. Construction



and/or operation of the proposed project would not result in the direct conversion of designated Farmland to a nonagricultural use and there would be no impact. No further analysis in the EIR is required.

- (b) The project site and surrounding area includes land that is currently zoned as A (Exclusive Agriculture). According to the Kern County Zoning Ordinance, a commercial solar facility is a compatible use within the A zone district. The construction and operation of a solar energy generating facility on the site would require the approval of a CUP. The project site does contain lands that are subject to Williamson Act contracts, either in active or in nonrenewal status. As such, there would be impacts to Williamson Act lands. This issue will be further evaluated in the EIR.
- (c) No lands affected by the proposed project are zoned as forest land or timberland, or for timberland production. Therefore, the project would not conflict with existing zoning for, or cause the rezoning of, forest land, timberland, or timberland zoned for timberland production. Therefore, there would be no impact and further analysis in the EIR is not required.
- (d) The project site is neither situated on forest or timberland nor is located near any such areas that are currently under production. There is no land in the vicinity of the project site that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there would be no impact related to the loss of forest land or conversion of forest land to non-forest use. No further analysis is warranted in the EIR.
- (e) As mentioned in responses (c) and (d), the project site is not designated as forest land and forest land or timberlands do not occur in the project vicinity. As mentioned in response (a) above, the project site is not classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance however, there are active farmlands located adjacent to the project site that are classified as Prime Farmland or Unique Farmland. The proposed project could have indirect impacts on the existing environment that would affect existing agricultural uses. Therefore, further evaluation is required in the EIR.
- (f) The project site is not subject to an open space contract made pursuant to the California Land Conservation Act of 1965 or the Farmland Security Zone Contract. The project would therefore 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 (Section 15205(b)(3) Public Resources Code). No impact would occur, and no further evaluation is required in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
III. Air Quality				
Where available, the significance criteria established by the applicable air quality management or air pollution control district shall 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. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard? Specifically, would implementation of the project exceed any of the following adopted thresholds:				
i. San Joaquin Valley Unified Air Pollution Control District:				
<u>Operational and Area Sources</u>				
Reactive organic gases (ROG): 10 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oxides of nitrogen (NO _x): 10 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>				
Severe nonattainment: 25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme nonattainment: 10 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Eastern Kern Air Pollution Control District.				
<u>Operational and Area Sources</u>				
Reactive organic gases (ROG): 25 tons per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oxides of nitrogen (NO _x): 25 tons per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Particulate matter (PM ₁₀): 15 tons per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>Stationary Sources – as Determined by District Rules</u>				
25 tons per year.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



RESPONSES:

- (a-d) The project site is located entirely within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD), in the San Joaquin Valley Air Basin (SJVAB). The SJVAB is designated as a nonattainment area for both the State and federal ozone standards and the State particulate matter (PM_{2.5}) 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.

SJVAPCD's most recently adopted air quality management plans are its 2016 Ozone Plan for 2008 8-Hour Ozone Standard (SJVAPCD, 2016) and its 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards (SJVAPCD, 2018). Further analysis of the project's air quality impacts is warranted to determine whether the proposed project would conflict with or obstruct implementation of SJVAPCD's applicable air quality plan for attainment and, if so, to determine the reasonable and feasible mitigation measures that could be imposed.

The proposed project is not located within the Eastern Kern Air Pollution Control District (EKAPCD) and, therefore, its adopted thresholds do not apply. However, as noted above, the project is located within the SJVAPCD, which is designated as a nonattainment area for the State and federal ozone standards and the State PM_{2.5} standard. As such, the emissions of ozone precursors (ROG and NO_x) and PM_{2.5} during construction and operation of the project could result in a cumulatively considerable net increase of these criteria pollutants in the SJVAPCD. Thus, the project's contribution to cumulative air quality impacts in the SJVAPCD could be potentially significant.

Sensitive receptors located in the project area consist of rural residential dwellings located at varying distances from the project site. The nearest sensitive receptor to the project site is the rural residence approximately 1 mile to the south of the project site. The closest school to the site is the A.M. Thomas Middle School, located approximately 14 miles southeast of the project site. The nearest sensitive receptor, the rural residence, could be exposed to pollutant emissions during construction of the proposed project. The proposed project's construction-related activities would result in diesel exhaust emissions and dust (also known as PM₁₀) that could adversely affect air quality for the sensitive receptor.

Additionally, 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 the sensitive receptor to these spores and thereby to the possibility of contracting Valley Fever.

The project would not have any stationary sources or equipment located on-site that would generate objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. These odors would be temporary and would be dispersed rapidly.

The project impacts listed above will be further evaluated in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
IV. 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 Game 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 Game 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 state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

RESPONSES:

- (a-d) The project site contains undeveloped land with grassland and natural vegetation. There is a potential for candidate, sensitive, or special-status plants and wildlife species to be present on-site or in the project vicinity. The findings of field surveys conducted to determine the presence of candidate, sensitive, or special-status plant and animal species on-site and in the surrounding area will be included in the EIR.



The project site is undeveloped and is dominated by grassland and natural vegetation. Field surveys for riparian and other sensitive natural communities will be completed for the proposed project, and the results will be incorporated into the EIR.

Federal or State-protected water-based resources such as streams and washes could be present on the project site and might be impacted by project construction activities. A determination as to whether the project site contains features under federal or State jurisdiction will be conducted as part of the EIR. Impacts to protected wetlands would be considered potentially significant. The project site and surrounding area may be used for migration or dispersal by some wildlife species. Project construction and operation could also remove foraging habitat.

These project impacts will be further evaluated in the EIR.

- (e-f) The project site is located outside of the range of Joshua tree (*Yucca brevifolia*) which are protected under the California Desert Native Plants Act (CDNPA) and California Endangered Species Act (CESA). There are no oak woodlands located within the project site and the proposed project does not conflict with General Provision 1.10.10 of the Kern County General Plan regarding oak tree conservation. Implementation of the proposed project also does not have the potential to impact Joshua tree because none exist on the project site.

As currently designed, the project is considered to be consistent with the Land Use, Open Space, and Conservation Element of the Kern County General Plan. There are no other adopted conservation plans for protection of biological resources governing the project area. No impact would occur as the proposed project would not conflict with the provisions of an adopted habitat conservation plan. No further analysis in the EIR is warranted.



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

RESPONSES:

(a-c) The project site consists of undeveloped land. Development of the proposed project would require ground disturbance for grading, installation of the solar arrays, gen-tie line, other electrical improvements such as the BESS and placement of underground electrical and communications lines. The proposed project could potentially impact historical or cultural resources, including resources that are undiscovered or that may be buried underground. A cultural resources survey will be conducted for the proposed project as part of the EIR, to determine presence or potential presence of archaeological and historical resources and identify potential impacts to historical and/or archaeological cultural resources and to formulate avoidance or mitigation measures, if applicable.

There is no evidence that the project site is located within an area likely to contain human remains, and discovery of human remains during project earthmoving activities is not anticipated. Although, impacts to human remains are anticipated to be less than significant, inadvertent discovery of such remains is possible and this issue will be further evaluated in the EIR.



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

RESPONSES:

- (a-b) Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid.

Following implementation of the proposed project, energy would switch from consumption to production. Operation of the proposed project would lead to an overall increase in the County's Renewable Portfolio and would align with the stated General Plan policy to encourage the development of renewable energy within Kern County.

The above listed project impacts will be further evaluated in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
VII. Geology and Soils				
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<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 wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



RESPONSES:

- (a-f) Due to the location of active faults in the general region, strong seismic ground shaking could occur at the project site, resulting in damage to above and below ground structures and other site improvements if not properly designed to withstand strong ground shaking. 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 CBC which imposes substantially similar requirements for design to resist strong ground motions as the IBC. Adherence to applicable regulations would minimize the potential impacts associated with the proposed project.

A geotechnical investigation of the project site will be conducted to determine the physical characteristics of the underlying soils and geologic formations and to identify if any unstable conditions exist that could be exacerbated by proposed construction activities. The results of these investigations will be provided in the EIR.

The above listed project impacts will be further evaluated in the EIR.



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

RESPONSES:

- (a-b) Greenhouse gas (GHG) emissions emitted by human activity are implicated in global climate change or global warming. The principal GHGs are CO₂, methane (CH₄), NO_x, 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 through exhaust emissions. However, as a solar facility, the proposed project is expected to displace traditional sources of electricity production that involve 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 fuel combustion sources of electricity. The project's GHG emissions generated during construction of the project and the potential GHG offsets resulting from operation of the project, as well as any potential conflicts with any applicable plan, policy or regulation will be identified and quantified in the EIR. Additionally, the project's potential GHG impacts and the potential GHG offsets resulting from operation of the project will be examined in the EIR, with respect to the objectives of statewide programs to reduce GHGs associated with energy generation.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
IX. Hazards and Hazardous Materials				
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or involve handling 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 that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<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 or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Expose people or structures, directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. 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:				



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
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 checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Are associated with design, layout, and management of project operations; and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Disseminate widely from the property; and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

RESPONSES:

- (a-b) Wastes that would be generated during construction of the proposed project would be non-hazardous, and would consist of materials such as cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools. 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, would be used in accordance with the manufacturer's specifications, and all applicable regulations. In addition, hazardous fuels and lubricants used on field equipment would be subject to a Construction Waste Management Plan and, if required, a Spill Prevention, Containment and Countermeasure Plan.

The operation of the proposed project would not involve the routine transport, use, or disposal of any hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act. 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.

Construction and operation of the proposed project may include the accidental release of storage materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Potential hazards associated with BESS include increased potential for electrical shock and chemical release associated with the batteries used. Impacts resulting from the transport, use, or disposal of hazardous materials during construction and operation of the proposed project will be evaluated further in the EIR.

- (c) The closest school to the project site is the A.M. Thomas Middle School, located approximately 14 miles southeast of the project site. The project site is not located within one quarter mile of a school. Additionally, the proposed project is not anticipated emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste. Therefore, there would be no impact and no further analysis is required in the EIR.



- (d-f) Based on a review of the Cortese List Data Resources, there are no hazardous materials sites located on the project site. The nearest hazardous materials sites listed on the State Water Resources Control Board's GeoTracker database are located approximately six miles southeast of the project site and are LUST cleanup sites (SWRCB, 2021). Therefore, there would be no impact and no further analysis is warranted in the EIR.

The nearest public airport to the project site is the Wasco-Kern County Airport located approximately 31 miles southeast of the project site. The project site is not located within any safety or noise zones for the Wasco-Kern County Airport. Due to the nature of the proposed land use, impacts from air traffic hazards or excessive aircraft noise are not anticipated to occur for people residing or working in the project area with respect to the project's proximity to an airport. Therefore, there would be no impact and no further analysis is warranted in the EIR.

As required by routine and standard construction specifications administered by Kern County, road access would be maintained throughout construction, and appropriate detours would be provided in the event of potential road closures. Therefore, no impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan would occur during construction.

The small size of the operational work force would not generate significant traffic volumes during an emergency evacuation scenario that could complicate area-wide emergency evacuation efforts. The access road that would be constructed as part of the proposed project would not affect designated emergency evacuation routes as King Road and 25th Avenue are not designated evacuation routes. No impacts are anticipated, further analysis of this issue in the EIR is not warranted.

- (g-h) According to the California Department of Forestry and Fire Protection (CalFire), Kern County Fire Hazards Severity Zone Maps, the project site is located within a Moderate Fire Hazard Severity Zone in a Local Responsibility Area (LRA) (CalFire, 2007). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The proposed project would comply with all applicable wildland fire management plans and policies established by CalFire and the Kern County Fire Department. Accordingly, the proposed project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Project-related facilities would not result in features or conditions that could potentially 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, food containers, etc.) that would be stored in enclosed containers, then transported to and disposed of at approved disposal facilities. Construction and operation of the proposed solar arrays and associated facilities would not produce uncontrolled wastes that could support vectors and would not generate any standing water or other features that would attract nuisance pests or vectors. Although impacts are anticipated to be less than significant, further analysis of this issue will be discussed in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
X. Hydrology and Water Quality				
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input 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 or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RESPONSES:

- (a-b) Construction of the project would be subject to County, State, and federal water quality regulations. The project site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). 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 project site. During construction, potable water would be brought to the site for



drinking and domestic needs. Non-potable water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 75 acre-feet over the 12-month construction phase. A comprehensive hydrology and water quality impact analysis as well as a water supply assessment will be prepared, and the findings will be further analyzed in the EIR.

- (c) Construction and operational activities associated with the proposed project would alter existing drainage conditions and create impervious surfaces that would have the potential to result in an increase in the rate or amount of surface runoff during storm events. A hydrologic study will be prepared for the project in accordance with Kern County requirements. Potentially significant impacts will be analyzed in the EIR.

During construction and following installation of the solar arrays, the majority of the site would remain as pervious surface. The design of the solar arrays is such that storm water infiltration would occur similar to the existing conditions. No discharges to or alterations of any municipal stormwater drainage systems are proposed. Similarly, no component of the project would generate a substantial source of polluted runoff. The construction period SWPPP and the operational period Water Quality Management Plan would ensure the proper control and treatment, if necessary, of any storm water prior to discharge. This impact will be further discussed in the EIR.

- (d) The project 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 relatively flat topography of the project site and surrounding area, the potential to be inundated by mudflow is considered remote.

The proposed project would not result in any construction within the Zone A area. The project would be reviewed by the Kern County Public Works Department for adherence to all applicable floodplain management standards. Because of the potential for flood hazards to occur, and related risk of release of pollutants due to project inundation, further analysis of this is required in the EIR.

- (e) The project site is located within the San Joaquin Valley Groundwater Basin which is governed by the Irrigated Lands Discharge Program under the Central Valley Regional Water Quality Control Board (CVRWQCB, 2006), located immediately adjacent to the east and south of the project site. All water usage for the proposed project would conform to all of the applicable plans and BMPs. A water supply assessment will be completed for the project to analyze potential impacts to groundwater resources, including any potential conflicts with the IRWMP. This impact will be further analyzed in the EIR.



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

RESPONSES:

- (a) The project site is located on undeveloped land. The rural community of Lost Hills is located approximately 15 miles southeast of the project site and consists predominantly of rural residential uses. Rural residential uses in Kettleman City, a census-designated place in Kern County, are also located approximately 15 miles north of the project site. The proposed project would neither physically encroach into nor divide or restrict access to Lost Hills or Kettleman City. No new roadways or other linear elements that would have the potential to restrict existing access or movement within the local community are proposed. The proposed project would not physically divide an established community and there would be no impact. Therefore, no further analysis in the EIR is warranted.
- (b) The project site is located within the Kern County General Plan area with portions of the parcels that would be developed with the project access road located in Kings County. As shown on *Figure 5: Existing General Plan Land Use Designations*, the project site consists of 6 parcels designated by the Kern County General Plan as map code 8.3/2.5 (Extensive Agriculture, Minimum 20 Acre Parcel Size, Flood Hazard Overlay) and 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size). Kings County land use designations include General Agricultural 40 and zone AG-40. No change to the existing land use designations is required or proposed with project implementation, and therefore, the project would not cause a significant environmental impact due to a conflict with any land use plan or policy for the purpose of avoiding or mitigating an environmental effect in this regard.

The project proponent is requesting a CUP to allow for the construction and operation of a solar facility and BESS. Use of the A zone district for a solar project is listed as an allowable use. At the end of the project's operational term, the project proponent would determine whether the project site should be decommissioned and deconstructed or if it would seek an extension of its CUP.

With approval of the requested CUP the proposed project is not anticipated to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. However, further assessment will be provided in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XII. Mineral Resources				
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

RESPONSES:

- (a) The project site is neither designated as a mineral recovery area nor within a designated mineral and petroleum resource site by the Kern County General Plan. Additionally, the site is not identified as a mineral resource zone by the State Department of Conservation – Geologic Energy Management (CalGEM) Division. However, research has found that there are mineral rights holders within the project area. While it is not anticipated that construction and operation of the proposed project would interfere with mineral extraction and processing, research is ongoing to determine the depth of the mineral rights and therefore impacts are unknown at this time. If determined to be of no impact to mineral rights holders through continued research, the topic may be scoped out from further analysis in the EIR.
- (b) As mentioned previously, the project site is not located within a designated mineral and petroleum resource site within the Kern County General Plan. The project site is not located within the County’s NR (Natural Resources) or PE (Petroleum Extraction) zoned districts. Therefore, the installation of the solar facilities would not preclude future mineral resource development nor would it result in the loss of a locally important mineral resource recover site. There would be no impact and no further analysis is warranted in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XIII. Noise				
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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. For a project located within the vicinity of a private airstrip or 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"/>

RESPONSES:

- (a-c) 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. Lost Hills Wonderful Park, a local park, is located approximately 15 miles southeast of the project site. The closest school to the site is the A.M. Thomas Middle School, located approximately 14 miles southeast of the project site.

Noise generated by the proposed project would occur primarily during the construction phase whereas as the long-term operation of the solar facility would be relatively quiet. Groundborne vibration and groundborne noise could originate from the operation of heavy off-road equipment and heavy-duty trucks delivering materials and machinery during the construction phase of the project. Operation of the proposed project would generate very little noise and would generate minimal noise from employee vehicle trips and work including repairs and maintenance of the facilities. Potential noise impacts during project construction or operations will be further analyzed in the EIR.

- (d) The nearest public airport to the project site is the Wasco-Kern County Airport located approximately 31 miles southeast of the project site. The project site is not located within any safety or noise zones for the Wasco-Kern County Airport. Noise from occasional aircraft flyovers would not have a significant effect on the small workforce on-site who would normally be working indoors except when outdoor maintenance or repair activities are required. The proposed project would not generate any impacts that could worsen the levels of aircraft noise. There would be no impacts and no further analysis of this issue is warranted in the EIR.



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

RESPONSES:

- (a) Although the proposed project would provide new employment consistent with the adopted Kern County General Plan goals, plans, and policies, long-term employment opportunities would be minimal. The proposed project would require an operational staff of up to five full-time employees.

It is estimated that up to 500 workers per day would be required during peak construction periods for the proposed project. The entire construction process is anticipated to take 12 months. Therefore, the majority of project-generated jobs would be from the local and regional area and would occur on a temporary and short-term basis. Construction workers are expected to travel to the site from various local communities and locations throughout Southern California, and few, if any workers expected to relocate to the surrounding area because of these temporary jobs. If temporary housing should be necessary, it is expected that accommodations (i.e., extended stay hotels, apartments, RV parks, homes for rent or sale) would be available in the nearby communities of Lost Hills and Kettleman City. Therefore, the project is not anticipated to directly or indirectly induce the development of any new housing or businesses within the local communities.

During the operational phase, the project would require up to five full-time equivalent (FTE) personnel (or personnel hours totaling 5 FTE positions), who would commute to the site. Due to the small number of full-time employees, it is anticipated that the local housing stock would be adequate to accommodate operations personnel should they relocate to the area, without requiring the need for the construction of new housing. The proposed project would not directly or indirectly induce substantial unplanned population growth and further analysis in the EIR is not warranted.

- (b) The project site is currently undeveloped and does not contain any existing housing units. The proposed project would therefore not displace any existing people or housing, necessitating the construction of replacement housing elsewhere. No further evaluation of this issue is required in the EIR.



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

RESPONSES:

(a)(i) **Fire Protection.** The Kern County Fire Department provides fire suppression and emergency medical services to the project area. The project site would be served by Fire Station #26, located at 14670 Lost Hills Rd, in the community of Lost Hills, approximately 15 miles southeast of the project site. Adherence to all applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. However, construction and operation activities may result in increased demand for firefighting services in the area. Therefore, the potential impact on fire services from construction and operation of the project is considered potentially significant and will be further evaluated in the EIR.

(a)(ii) **Police Protection.** Law enforcement and public safety services in the project area are provided by the Kern County Sheriff's Department. The project site would be served by the North Area Substation located at 181 East First. Although the potential is low, the proposed project may attract vandals or thieves that would require response from the Sheriff's Department. On-site security measures (i.e., on-site monitoring equipment, gated access) would be provided and access to the project site during construction and operation would be restricted, thereby minimizing the need for local Sheriff surveillance. Nonetheless, project impacts on local sheriff services could potentially result in an increased demand for law enforcement services, or require the construction of new facilities that could result in an environmental impact. This issue will be evaluated in the EIR.

(a)(iii) **Schools.** During project construction, a relatively large number of construction workers would be required. It is expected that most of these workers would live in the local as well as broader regional



area and commute to the project site from the surrounding communities where their children would already be enrolled in school. In addition, employee such as these would already be making contribution through local taxes that would be used to fund schools. . The proposed project would not require employees or their children to relocate to the project area. Therefore, substantial temporary increases in population that would adversely affect local school populations are not expected. Likewise, the operational workforce is small (approximately 5 full-time positions) and not anticipated to generate a permanent increase in population that would impact school populations or require construction of new school facilities. Therefore, no significant impacts to schools are anticipated to occur and further analysis is not warranted in the EIR.

- (a)(iv) **Parks.** The population increase that would be experienced during the construction phase of the proposed project would be temporary and limited to construction workers at the project site. Such conditions would not result in a substantial new demand for parks or recreational facilities. The number of employees required for project operations would be minimal and they would not likely frequent any public parks during, before, or after their work shifts. The up to 5 full-time equivalent employees would not result in construction of numerous new housing units that could significantly increase the local population and related demand for public parkland with the result of requiring the construction of new park facilities. Therefore, no significant impacts to parks are anticipated to occur, and further analysis of this issue is not warranted in the EIR.
- (a)(v) **Other Public Facilities.** Implementation of the proposed project may have impacts on the ability of the county to provide adequate county-wide comprehensive public facility services. Public policies in the Kern County General Plan require development to address economic deficiencies in public services and facilities costs. Therefore, the proposed project's impacts on public facilities are potentially significant and will be evaluated in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XVI. Recreation				
Would the project:				
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"/>

RESPONSES:

- (a) It is estimated that up to 500 workers per day during peak construction periods would be required on-site during construction of the proposed project. These workers would not have time to visit any local parks or recreation facilities during the workday. Further, few workers are expected to relocate to this area temporarily while the construction is underway and there would be little or no impact on local recreational resources after work hours. Operation of the proposed project would require employees for maintenance and monitoring activities, but they would likely be drawn from the local labor force and would commute from their existing permanent residences to the project site. However, even if the maintenance/monitoring employees were hired from out of the area and relocated to eastern Kern County, the addition of any such families to the project area would not result in a substantial increase in the number of users at local parks or recreational facilities. As a result, there would not be a detectable increase in the use of existing neighborhood or regional parks or other recreational facilities, and therefore, no deterioration of any such facilities would occur or require the construction of new facilities as a result of project implementation. Impacts would not occur, and further analysis is not warranted in the EIR.
- (b) The proposed project does not include or require the construction of new or expansion of existing recreational facilities, and there are no recreational facilities on the project site that would be affected. No impact would result and no further analysis in the EIR is warranted.



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

RESPONSES:

- (a) There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the project site or along the surrounding roadways. Due to the rural nature of the project area, pedestrian and bicycle traffic is limited. The project is not located along an existing bus route and few bus stops exist on roadways that are likely to be used during construction and operation of the proposed project.

Further analysis in the EIR is required to determine whether construction traffic could disrupt normal traffic flows or otherwise conflict with the County's roadway performance policies and programs.

During operation, the proposed project would require up to five full-time employees who would commute to and from the site and would result in an addition of average daily trips. Ongoing maintenance and periodic repair are also anticipated to produce negligible traffic impacts. These potential impacts on the local roadway system from construction related vehicle trips and project's operational traffic on the area roadway system will be further evaluated in the EIR.

- (b) CEQA Guidelines section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shift the focus from driver delay to reduction of vehicular greenhouse gas emissions through creation of multimodal networks, and creation of a mix of land uses that can facilitate fewer and shorter vehicle trips. Vehicle miles traveled (VMT) is a measure of the total number of miles driven for various purposes and is sometimes expressed as an average per trip or per person. Construction traffic would be temporary and would not permanently affect VMT characteristics in this part of Kern County or elsewhere. Long-term, operational traffic would be limited, with a small work force of approximately 25 full-time equivalent employees. It is not known where the employees would live or how long their commuting trips would be. According to technical guidance issued by the Office



of Planning and Research, projects generating less than 110 or fewer daily vehicle trips may be presumed to have a less than significant impact involving VMT. Further analysis of the operational VMT characteristics of the project is required to determine whether the project is considered a “low-VMT” project due to small daily traffic volumes alone, or whether more extensive analysis is warranted. An assessment of the project’s VMT characteristics will be provided in the EIR, to ensure consistency with state and local guidance.

- (c) The proposed project would be primarily accessed from existing King Road to the east. During construction, especially during peak periods of heavy truck traffic and peak levels of construction workers, there is a potential for conflicts between construction traffic and normal traffic flows, especially at intersections where queuing could occur. This requires further analysis in the EIR.

No new roadway design or features (i.e., sharp curves, dangerous intersections, or other hazardous features) would be required that could result in transportation-related hazards or safety concerns. The new access road and internal site access roads must be designed in accordance with the County’s street standards that assure safe ingress/egress. The project buildings and other structures would be set back from roadways as required by the Kern County Zoning Ordinance. Given these considerations, significant impacts related to increased hazards are not anticipated to occur; however, additional analysis will be included in the EIR.

- (d) Emergency vehicle access must be maintained at all times throughout construction activities, in accordance with the County’s routine/standard construction specifications.. Further, construction activities would not be permitted to impede emergency access to any local roadways or surrounding properties. Construction period impacts are considered less than significant but will be further analyzed in the EIR.

Although no significant operational impacts related to emergency access are anticipated to occur, further analysis of this issue will be provided in the EIR.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XVIII. Tribal Cultural Resources				
Would the project:				
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register or historical resources as defined in Public Resources Code section 5020.1(k), or	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RESPONSES:

- (a)(i)-(a)(ii) Since the project site is undeveloped, there is a potential for tribal cultural resources to exist either on-site or on surrounding lands. Therefore, the proposed project has the potential to impact tribal cultural resources during site clearance and earthmoving activities. All tribes with possible cultural affiliation and interest within the project area will be notified pursuant to the requirements of Assembly Bill 52, and consultation with the potentially affected tribes will occur, as appropriate, between the County and the tribes. Further evaluation in the EIR is warranted to identify potential impacts to tribal cultural resources and to formulate avoidance or mitigation measures, if applicable.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XIX. Utilities and Service Systems				
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider that 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"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

RESPONSES:

- (a) The proposed project would not require or result in the relocation or construction of new or expanded municipal wastewater facilities, and no connection to a public wastewater system is required or proposed. Impacts would be less than significant in this regard; however, further analysis in the EIR will be provided. The proposed project would not require expanded or new storm drainage facilities because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events. The proposed project is not anticipated to result in a significant increase in water demand/use; however, water would be needed for solar panel washing and dust suppression during operation. Impacts associated with construction of the telecommunications and transmission line facilities will be evaluated in the EIR.

Impacts would be potentially significant and further analysis in the EIR is warranted.



- (b) Water demand for panel washing and O&M domestic use is not expected to exceed 60 acre-feet per year during operation. Water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 75 acre-feet over the 12 month construction phase. Water is anticipated to be obtained from on-site wells or delivered via truck from an off-site source(s). A water supply assessment will be completed for the project to analyze potential water sources and potential impacts to water supplies. This potentially significant impact will be addressed further in the EIR.
- (c) The proposed project would include construction of an on-site septic system to serve the O&M building. All wastewater disposal for project operations would be handled on-site. Therefore, the project would not adversely affect any existing wastewater treatment facilities and further analysis of this issue is not warranted in the EIR.
- (d) The proposed project is not expected to generate a significant amount of solid wastes because of the small number of workers and the absence of activities that would generate wastes on an ongoing basis. It is not anticipated that the amount of solid waste generated by the proposed project would exceed the capacity of local landfills needed to accommodate the waste. Impacts are anticipated to be less than significant and no further analysis in the EIR is warranted.
- (e) The proposed project would generate solid waste during construction, operation, and decommissioning, thus requiring the consideration of waste reduction and recycling measures. Further analysis of the pertinent solid waste reduction and management regulations applicable to this project will be included in the EIR.



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

RESPONSES:

- (a-d) According to the California Department of Forestry and Fire Protection (CalFire), Kern County Fire Hazards Severity Zone Maps, the project site is located within a Moderate Fire Hazard Severity Zone in a Local Responsibility Area. Therefore, the potential for wildfire on the project site exists. The site is located in a rural, sparsely developed area with limited population. The project site is not identified for any purpose in an adopted emergency evacuation plan to address wildfires or other types of emergencies. Further analysis of prevailing winds is required to determine if there are periodic high winds that could influence the spreading and velocity of wildfires. Adherence to applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. The proposed project involves the development of a solar energy generation and storage facility. The proposed project would include the construction of power transmission lines, inverters, roads, and an energy storage facility.



	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
XXI. Mandatory Findings of Significance				

- | | | | | | |
|----|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. | Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <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 that 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"/> |

RESPONSES:

- (a) The EIR’s biological, cultural, and tribal cultural resources sections will discuss specific project impacts on plants and wildlife including avian species and impacts to cultural and tribal cultural resources. The document will also evaluate the project’s contribution to cumulative biological, cultural and tribal cultural resources impacts and propose mitigation that will reduce the impacts to less than significant levels, where feasible.
- (b) The project has the potential to contribute to cumulatively significant aesthetics, air quality, biological resources, cultural resources, tribal cultural resources, greenhouse gas emissions, traffic, and wildfire impacts. Such impacts could occur during the construction phases and/or as a result of the fully built and operational project. The EIR will evaluate the project’s contribution to cumulative impacts in these and other areas.
- (c) The proposed project would not result in the long-term air pollutant emissions or noise sources that would adversely affect nearby sensitive receptors. The solar farm would not include any kinds of industrial processes or equipment that would generate hazardous substances or wastes that would



threaten the well-being of people on- or off-site. However, short-term construction activities could result in temporary increases in pollutant concentrations and potentially significant off-site noise impacts. Pollutants of primary concern commonly associated with construction-related activities include toxic air contaminants gaseous emissions of criteria pollutants, and fugitive dust. Within the project area, the potential for increased occurrences of Valley Fever is also of concern. Human health impacts from the short-term cumulative contribution to air quality impacts from project construction will be further evaluated in the EIR.



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



December 6, 2021

Terrance Smalls
Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, California 93301

Subject: Azalea Solar Project by SF Azalea (Project)
Notice of Preparation (NOP)
State Clearinghouse No. 2021090602

Dear Terrance Smalls:

The California Department of Fish and Wildlife (CDFW) received a NOP for an Environmental Impact Report (EIR) from Kern County, as Lead Agency, for the Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code. While the comment period may have ended, we appreciate your consideration of our comments.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 2

projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

As a responsible agency, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

CDFW has jurisdiction over fully protected species of birds, mammals, amphibians and reptiles, and fish, pursuant to Fish and Game Code sections 3511, 4700, 5050, and 5515. Take of any fully protected species is prohibited and CDFW cannot authorize their incidental take. However, CDFW may authorize, pursuant to Fish and Game Code section 2081.12, by permit, the take or possession of the State fully-protected blunt-nosed leopard lizard (*Gambelia sila*) resulting from impacts attributable to or otherwise related to the Project.

Other Rare Species: Species of plants and animals need not be officially listed as Endangered, Rare or Threatened (E, R, or T) on any State or federal list pursuant to CESA and/or the federal Endangered Species Act (ESA) to be considered E, R, or T under CEQA. If a species can be shown to meet the criteria for a listing as E, R, or T under CESA and/or ESA as specified in the CEQA Guidelines (Cal. Code Regs. tit. 14, Chapter 3, § 15380), it should be fully considered in the environmental analysis for the Project.

Nesting Birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include, sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 3

PROJECT DESCRIPTION SUMMARY

Proponent: SF Azalea, LLC

Objective: The Azalea Solar Project, as proposed by SF Azalea, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 60 megawatt-alternating current (MW-AC) of renewable energy, on approximately 640 acres of privately-owned land. The project site consists of 1 site located on 2 parcels. The project would be supported by a 230-kilovolt (kV) gen tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the nearby PG&E Substation. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance facilities.

Location: The proposed project is located approximately 2.5 miles northeast of Twisselman Road and Kings Road, approximately 16 miles south of Kettleman City, approximately 14 miles northwest of the community of Lost Hills, approximately 6 miles west of the Interstate 5, and approximately 4 miles east of the State Route 33. The proposed Project is located in the northwest portion of the Southern San Joaquin Valley.

Timeframe: Unspecified

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the CEQA document.

The Project area is within the geographic range of several special-status animal species including the State and federally endangered and State fully protected blunt-nosed leopard lizard (*Gambelia sila*); the State and federally endangered giant kangaroo rat (*Dipodomys ingens*); the State threatened and federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*); and the State threatened Swainson's hawk (*Buteo swainsoni*) and San Joaquin (also known as Nelson's) antelope squirrel (*Ammospermophilus nelsoni*). The Project area is also in the range of several special-status plant species including the State and federally endangered and California rare plant rank (CRPR) 1B.1 California jewelflower (*Caulanthus californicus*); the federally endangered and CRPR 1B.2 San Joaquin woollythreads (*Monolopia congdonii*), the State species of special concern American badger (*Taxidea taxus*), short-nosed kangaroo rat

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 4

(*Dipodomys nitratoides brevinasus*), burrowing owl (*Athene cunicularia*), and western spadefoot (*Spea hammondi*).

CDFW requests that the EIR fully identify potential impacts to biological resources, including the above-mentioned species. In order to adequately assess any potential impact to biological resources, focused biological surveys should be conducted by a qualified wildlife biologist/botanist during the appropriate survey period(s) in order to determine whether any special-status species and/or suitable habitat features may be present within the Project area. Properly conducted biological surveys, and the information assembled from them, are essential to identify any mitigation, minimization, and avoidance measures and/or the need for additional or protocol-level surveys, and to identify any Project-related impacts under CESA and other species of concern. CDFW recommends that the following be incorporated into the EIR.

I. Environmental Setting and Related Impact

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the United States Fish and Wildlife Service (USFWS)?

COMMENT 1: Blunt-nosed Leopard Lizard (*Gambelia sila*; BNLL)

Issue: BNLL have been documented to occur in the Project area (CDFW 2021).. Suitable BNLL habitat includes areas of grassland and upland scrub that contain requisite habitat elements, such as small mammal burrows. BNLL also use open space patches between suitable habitats, including disturbed sites, unpaved access roadways, and canals. Based on our familiarity with BNLL in the Project Area vicinity, there is a high likelihood that BNLL are present within the Project Area.

Specific impact: Without appropriate avoidance and minimization measures for BNLL, potentially significant impacts associated with ground-disturbing activities include habitat loss, burrow collapse, reduced reproductive success, reduced health and vigor of eggs and/or young, and direct mortality.

Evidence impact is potentially significant: Habitat loss resulting from agricultural, urban, and industrial development is the primary threat to BNLL (ESRP 2020a). Little suitable habitat for BNLL remains in Kern County (USFWS 1998). The Project and surrounding area contain undeveloped land; therefore, subsequent ground disturbing activities and conversion of suitable habitat associated with the Project may have the potential to significantly impact local BNLL populations.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 5

Recommended Mitigation Measure 1: BNLL Surveys

CDFW recommends conducting surveys in accordance with the “Approved Survey Methodology for the Blunt-nosed Leopard Lizard” (CDFW 2019). This survey protocol, designed to optimize BNLL detectability, reasonably assures CDFW that ground disturbance will not result in take of this fully protected species.

CDFW advises that BNLL surveys be completed no more than one year prior to initiation of ground and/or vegetation disturbance. Please note that protocol-level surveys must be conducted on multiple dates during late spring, summer, and fall of the same calendar year, and that within these time periods, there are specific protocol-level date, temperature, and time parameters that must be adhered to. As a result, protocol-level surveys for BNLL are not synonymous with 30-day “preconstruction surveys” often recommended for other wildlife species. In addition, the BNLL protocol specifies different survey effort requirements based on whether the disturbance results from maintenance activities or if the disturbance results in habitat removal (CDFW 2019).

Recommended Mitigation Measure 2: BNLL Take Avoidance

BNLL detection during protocol-level surveys warrants consultation with CDFW to discuss how to implement ground-disturbing activities and avoid take, which may not be possible for a project this size if BNLL are present; this scenario would affect the viability of the Project in its entirety. To avoid “take,” construction and operations activities would have to avoid all observed lizards by a distance of no less than the distance that BNLL are known or expected to travel within their home range, based on telemetry, mark-recapture, or other data. Because BNLL is a State Fully Protected species, no take incidental or otherwise, can be authorized by CDFW.

Avoidance of BNLL is difficult, if not infeasible, when the Project site is known to be occupied by the species, the Project site is comprised entirely of suitable habitat, and the actual distribution of the species across the Project site has not yet been determined. When specific avoidance measures are ultimately proposed in response to survey detections of BNLL, the following should be considered:

- BNLL are not in the center of their home range when detected on the surface, and they may in fact be on the perimeter of their home range where detected.
- BNLL surveys detect only some of the lizards at a given location.
- The location where a BNLL is detected on the surface is not where it will be when construction commences, and the location of that lizard underground will be unknown when construction commences.

Terrance Smalls
 Kern County Planning and Natural Resources Department
 December 6, 2021
 Page 6

- Surveys detect only some of the lizards; some BNLL will be underground during surveys and some or all will be underground during construction.
- We now know that many BNLL have much larger home ranges than previously thought.

Dr. David Germano's unpublished data show that male BNLL have home ranges up to 52 acres and that female BNLL have home ranges exceeding 98 acres. As a result, CDFW recommends a minimum 395-acre buffer around any BNLL detections, which is based on the known maximum home range sizes observed for the species, the unknown specific footprint of the individual BNLL's home range relative to where the lizard was observed on the surface, and the unknown location of the lizard underground when construction commences. Given the size of this recommended buffer relative to the overall size of the proposed Project, along with the known presence of BNLL in the Project Area vicinity, we recommend early consultation with CDFW, ideally well in advance of DEIR circulation, to discuss BNLL.

COMMENT 2: San Joaquin Kit Fox (SJKF)

Issue: SJKF occurrences have been documented near the Project site (CDFW 2021). The NOP states that the Project site is comprised of agricultural field, non-native annual grassland habitat, and patches of ruderal habitat, all of which are habitat types known to support SJKF. In addition to grasslands, SJKF den in a variety of areas such as rights-of-way, vacant lots, agricultural and fallow or ruderal habitat, dry stream channels, and canal levees, and populations can fluctuate over time. SJKF are also capable of occupying urban environments (Cypher and Frost 1999). SJKF may be attracted to the Project area due to the type and level of ground-disturbing activities and the loose, friable soils resulting from intensive ground disturbance. There is a high likelihood that SJKF occupy the Project site and surrounding area.

Specific impact: Without appropriate avoidance and minimization measures for SJKF, potential significant impacts associated with Project related activities include, den collapse, inadvertent entrapment, reduced reproductive success, reduction in health and vigor of young, and direct mortality of individuals.

Evidence impact is potentially significant: Habitat loss resulting from land conversion to agricultural, urban, and industrial development is the primary threat to SJKF (Cypher et al. 2013). Western Kern County supports relatively large areas of high suitability habitat and one of the largest remaining populations of SJKF (Cypher et al. 2013). The Project and surrounding area contain undeveloped land; therefore, subsequent ground disturbing activities and conversion of suitable habitat associated with the Project may have the potential to significantly impact local SJKF populations.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 7

Recommended Mitigation Measure 3: SJKF Surveys

CDFW recommends assessing presence/absence of SJKF by conducting surveys following the USFWS' "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance" (2011). Specifically, CDFW advises conducting these surveys in all areas of potentially suitable habitat no less than 14-days and no more than 30-days prior to beginning of ground and/or vegetation disturbing activities. While these surveys will identify if there are SJKF dens on site, a lack of den detection does not mean that SJKF are not foraging and otherwise utilizing the site. Given the Project site location, it is likely that SJKF are utilizing the Project site.

Recommended Mitigation Measure 4: SJKF Den Avoidance

CDFW recommends implementing no-disturbance buffers, as described in the USFWS "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance" (2011) around den sites.

Recommended Mitigation Measure 5: SJKF Take Authorization

While den surveys should be conducted to determine if SJKF are denning on site, CDFW recommends assuming presence of SJKF acquiring an Incidental Take Permit (ITP) prior to ground-disturbing activities, pursuant to Fish and Game Code section 2081 subdivision (b).

Recommended Mitigation Measure 6: Perimeter Fences

CDFW recommends all perimeter fencing be raised five to seven inches above ground level and knuckled under to allow SJKF movement through the Project site and to minimize impacts to SJKF habitat connectivity.

COMMENT 3: Giant Kangaroo Rat (GKR) and Short-Nosed Kangaroo Rat (SNKR)

Issue: GKR, and SNKR have been documented to occur near the Project site (CDFW 2021). These species inhabit sandy-loam soils located in grassland habitat with scattered shrubs. Suitable habitat includes areas of grassland, upland scrub, and alkali sink habitats that contain requisite habitat elements, such as small mammal burrows. The land use described in the NOP indicates that suitable habitat is present on the Project site therefore, there is potential for these species to occupy or colonize the Project.

Specific impact: Without appropriate avoidance and minimization measures for GKR and SNKR, potential significant impacts from Project activities include loss of

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 8

habitat, burrow collapse, inadvertent entrapment of individuals, reduced reproductive success such as reduced health or vigor of young, and direct mortality of individuals.

Evidence impact is potentially significant: Habitat loss resulting from agricultural, urban, and industrial development is the primary threat to GKR and SNKR. Further, habitat fragmentation may accelerate the decline of these species. The Project and surrounding area contain undeveloped land; therefore, if the Project area is occupied by GKR or SNKR subsequent ground disturbing activities and conversion of suitable habitat associated with the Project may have the potential to significantly impact local populations of these species.

Recommended Mitigation Measure 7: GKR and SNKR Trapping Surveys

CDFW recommends that a trapping plan for determining presence of GKR and SNKR be submitted to and approved by CDFW prior to subsequent trapping efforts. CDFW recommends these surveys be conducted by a qualified biologist who holds a CDFW Memorandum of Understanding for GKR and SNKR, and any appropriate USFWS permit(s). CDFW further recommends that these surveys be conducted between April 1 and October 31, when kangaroo rats are most active and well in advance of ground- and/or vegetation-disturbing activities in order to determine if impacts to GKR and SNKR could occur. Once completed, all survey results should be sent to CDFW.

Recommended Mitigation Measure 8: GKR and SNKR Avoidance

In addition to trapping surveys, CDFW advises maintenance of a 50-foot minimum no-disturbance buffer around all small mammal burrow entrances where feasible. In addition, CDFW advises that Fish and Game Code section 86 defines take as hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. Although these recommended buffer distances may be sufficient to avoid direct mortality or burrow destruction, encircling a burrow with development activities would inhibit the ability of GKR and SNKR to freely disperse to and from burrows and has the potential to be considered “capture” and/or ultimately result in take in the form of mortality. Therefore, CDFW recommends that in addition to the buffer distances, that no burrow is surrounded more than 180 degrees by development activities.

Recommended Mitigation Measure 9: GKR Take Authorization

If GKR are found within the Project area during trapping as described above, preconstruction surveys, or construction activities, consultation with CDFW is advised to immediately occur to discuss how to implement the Project and avoid take; or if avoidance is not feasible, to acquire an ITP prior to any ground-disturbing activities, pursuant Fish and Game Code Section 2081 subdivision (b).

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 9

COMMENT 4: San Joaquin (also known as Nelson's) Antelope Squirrel (SJAS)

Issue: SJAS have been documented to occur near the Project site (CDFW 2021). Suitable SJAS inhabit sandy-loam soils in areas of grassland, upland scrub, and alkali sink habitats that contain requisite habitat elements, such as small mammal burrows. The Project site and its surrounding area consist of undisturbed habitat, therefore, there is potential for SJAS to occupy or colonize the Project.

Specific impact: Without appropriate avoidance and minimization measures for SJAS, potential significant impacts include loss of habitat, burrow collapse, inadvertent entrapment of individuals, reduced reproductive success such as reduced health or vigor of young, and direct mortality of individuals.

Evidence impact is potentially significant: Habitat loss resulting from agricultural, urban, and industrial development is the primary threat to SJAS. Further, habitat fragmentation may accelerate the decline of the species. Very little suitable habitat for this species remains outside of the western Kern County and eastern San Luis Obispo County area (ESRP 2020e, USFWS 1998). The Project and surrounding area contain undeveloped land; therefore, subsequent ground disturbing activities and habitat conversion associated with the Project may have the potential to significantly impact local SJAS. populations.

Recommended Mitigation Measure 10: SJAS Surveys

Prior to initiating ground- and/or vegetation- disturbing activities, CDFW recommends that a qualified biologist conduct focused daytime visual surveys for SJAS using line transects with 10- to 30-meter spacing. CDFW further advises that these surveys be conducted between April 1 and September 20, during daytime temperatures between 68° and 86° F, to maximize detectability (CDFG 1990). All survey results should be sent to CDFW after completion.

Recommended Mitigation Measure 11: SJAS Avoidance

If potential habitat is present and surveys are not feasible, CDFW advises maintenance of a 50-foot minimum no-disturbance buffer around all small mammal burrow entrances until the completion of Project activities. As recommended for GKR and SNKR, CDFW recommends that in addition to the buffer distances, that no burrow is surrounded more than 180 degrees by development activities.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 10

Recommended Mitigation Measure 12: SJAS Take Authorization

SJAS detection warrants consultation with CDFW to discuss how to avoid take or, if avoidance is not feasible, to acquire a State ITP prior to ground-disturbing activities, pursuant to Fish and Game Code section 2081 subdivision (b).

COMMENT 5: Swainson's Hawk (SWHA)

Issue: SWHA have the potential to nest near the Project site, and forage within the Project site. SWHA have been documented to occur approximately 2 miles from the Project site (CDFW 2021). The habitat types present at the Project site all provide suitable foraging habitat for SWHA, increasing the likelihood of SWHA occurrence within the vicinity. In addition, any trees in the Project vicinity have the potential to provide suitable nesting habitat.

Specific impact: Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include: nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), and direct mortality. All trees, including non-native or ornamental varieties, near the Project site may provide potential nesting sites.

Evidence impact would be significant: SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat limits their local distribution and abundance (CDFW 2016). If potential nest site occur in the Project vicinity, approval of the Project may lead to subsequent ground-disturbing activities that involve noise, groundwork, construction of structures, and movement of workers that could affect nests and has the potential to result in nest abandonment and/or loss of foraging habitat, significantly impacting local nesting SWHA. In addition, conversion of undeveloped land can directly influence distribution and abundance of SWHA, due to the reduction in foraging habitat.

Recommended Mitigation Measure 13: Focused SWHA Surveys

To evaluate potential Project-related impacts, CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the entire survey methodology developed by the SWHA Technical Advisory Committee (SWHA TAC 2000) prior to Project implementation (during CEQA analysis). SWHA detection during protocol-level surveys warrants consultation with CDFW to discuss how to implement Project activities and avoid take.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 11

Recommended Mitigation Measure 14: SWHA Avoidance

CDFW recommends that if Project-specific activities will take place during the SWHA nesting season (i.e., March 1 through September 15), and active SWHA nests are present, a minimum ½-mile no-disturbance buffer be delineated and maintained around each nest, regardless if when it was detected by surveys or incidentally, until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, to prevent nest abandonment and other take of SWHA as a result of Project activities.

Recommended Mitigation Measure 15: SWHA Take Authorization

CDFW recommends that in the event an active SWHA nest is detected, and a ½-mile no-disturbance buffer is not feasible, consultation with CDFW is warranted to discuss how to implement the project and avoid take. If take cannot be avoided, take authorization through the issuance of an ITP, pursuant to Fish and Game Code section 2081 subdivision (b) is necessary to comply with CESA.

Recommended Mitigation Measure 16: Loss of SWHA Foraging Habitat

CDFW recommends compensation for the loss of SWHA foraging habitat as described in CDFW's "Staff Report Regarding Mitigation for Impacts to Swainson's Hawks" (CDFG 1994) to reduce impacts to foraging habitat to less than significant. The Staff Report recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites. CDFW has the following recommendations based on the Staff Report:

- For projects within 1 mile of an active nest tree, a minimum of 1 acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of ¾ acre of HM land for each acre of development is advised.
- For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of ½ acre of HM land for each acre of development is advised.

Recommended Mitigation Measure 17: SWHA Tree Removal

CDFW recommends that the removal of known SWHA nest trees, even outside of the nesting season, be replaced with an appropriate native tree species planting at a ratio of 3:1 at or near the Project area or in another area that will be protected in

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 12

perpetuity. This mitigation would offset the local and temporal impacts of nesting habitat loss.

COMMENT 6: Special-status Plants

Issue: Several special-status plant species meeting the definition of rare or endangered under CEQA section 15380 are known to occur near the Project area, but not limited to, the State and federally endangered and CRPR 1B.1 California jewelflower and the federally endangered and CRPR 1B.2 San Joaquin woollythreads.

Specific impact: Without appropriate avoidance and minimization measures for special-status plants, potential significant impacts associated with subsequent construction include loss of habitat, loss or reduction of productivity, and direct mortality.

Evidence impact would be significant: The California jewelflower, San Joaquin woollythreads, and many other special-status plant species are threatened by grazing and agricultural, urban, and energy development. Many historical occurrences of these species are presumed extirpated (CNPS 2020). Though new populations have recently been discovered, impacts to existing populations have the potential to significantly impact populations of plant species.

Recommended Mitigation Measure 18: Special-Status Plant Surveys

CDFW recommends that individual Project sites be surveyed for special-status plants by a qualified botanist following the “Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities” (CDFG 2018). This protocol, which is intended to maximize detectability, includes the identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period.

Recommendation Mitigation Measure 19: Sensitive Natural Communities

In addition to surveying for special-status plants as stated above, CDFW recommends the Project area is also surveyed for the presence of sensitive natural communities, which is also part of CDFW’s botanical survey protocol (CDFW 2018). If sensitive natural communities are found, CDFW recommend impacts to them are fully evaluated in the CEQA document.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 13

Recommended Mitigation Measure 20: Special-Status Plant Avoidance

CDFW recommends that special-status plant species be avoided whenever possible by delineating and observing a no-disturbance buffer of at least 50 feet from the outer edge of the plant population(s) or specific habitat type(s) required by special-status plant species. If buffers cannot be maintained, then consultation with CDFW may be warranted to determine appropriate minimization and mitigation measures for impacts to special-status plant species.

Recommended Mitigation Measure 21: Listed Plant Species Take Authorization

If a State-listed plant species is identified during botanical surveys, consultation with CDFW is warranted to determine if the Project can avoid take. If take cannot be avoided, take authorization is warranted. Take authorization would occur through acquisition of an ITP, pursuant to Fish and Game Code section 2081 subdivision (b).

COMMENT 7: Burrowing Owl (BUOW)

Issue: BUOW are known to occur in the Project area vicinity (CDFW 2021). BUOW inhabit open grassland and similar habitat types containing small mammal burrows, a requisite habitat feature used by BUOW for nesting and cover. The NOP reports that these habitat features are present on the Project site, therefore, there is potential for BUOW to occupy or colonize the Project.

Specific impact: Potentially significant direct impacts associated with subsequent activities and land conversion include habitat loss, burrow collapse, inadvertent entrapment, nest abandonment, reduced reproductive success, reduction in health and vigor of eggs and/or young, and direct mortality of individuals.

Evidence impact is potentially significant: BUOW rely on burrow habitat year-round for their survival and reproduction. Habitat loss and degradation are considered the greatest threats to BUOW in California's Central Valley (Gervais et al. 2008). The Project and surrounding area contain undeveloped land; therefore, subsequent ground-disturbing activities associated with the Project have the potential to significantly impact local BUOW populations. In addition, and as described in CDFW's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), excluding and/or evicting BUOW from their burrows is considered a potentially significant impact under CEQA.

Terrance Smalls
 Kern County Planning and Natural Resources Department
 December 6, 2021
 Page 14

Recommended Mitigation Measure 22: BUOW Surveys

CDFW recommends assessing presence or absence of BUOW by having a qualified biologist conduct surveys following the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and the "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), which suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (i.e., April 15 to July 15), when BUOW are most detectable. In addition, CDFW advises that surveys include a minimum 500-foot buffer area around the Project area.

Recommended Mitigation Measure 23: BUOW Avoidance

Should a BUOW be detected, CDFW recommends that no-disturbance buffers, as outlined in the "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), be implemented prior to and during any ground-disturbing activities. Specifically, CDFW's Staff Report recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

Recommended Mitigation Measure 24: BUOW Passive Relocation and Mitigation

If BUOW are found within these recommended buffers and avoidance is not possible, it is important to note that according to the Staff Report (CDFG 2012), excluding birds from burrows is not a take avoidance, minimization, or mitigation method and is instead considered a potentially significant impact under CEQA. However, if it is necessary for Project implementation, CDFW recommends that burrow exclusion be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty through non-invasive methods, such as surveillance. CDFW recommends replacement of occupied burrows with artificial burrows at a ratio of one (1) burrow collapsed to one (1) artificial burrow constructed (1:1) to mitigate for

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 15

evicting BUOW and the loss of burrows. BUOW may attempt to colonize or re-colonize an area that will be impacted; thus, CDFW recommends ongoing surveillance at a rate that is sufficient to detect BUOW if they return.

COMMENT 8: Other State Species of Special Concern

Issue: San Joaquin pocket mouse, western spadefoot, and American badger, and have the potential to occur in the Project area. These species have been documented to occur in the vicinity of the Project site, which supports requisite habitat elements (CDFW 2021).

Specific impact: Without appropriate avoidance and minimization measures for these species, potentially significant impacts associated with ground disturbance include habitat loss, nest/den/burrow abandonment, which may result in reduced health or vigor of eggs and/or young, and direct mortality.

Evidence impact is potentially significant: Habitat loss threatens all of the species mentioned above (Gittleman et al. 2001, Shuford and Gardali 2008, Thomson et al. 2016). The Project and surrounding area contain undeveloped land; therefore, subsequent ground disturbing activities and habitat conversion associated with the Project may have the potential to significantly impact local the populations of these species.

Recommended Mitigation Measure 25: Habitat Assessment

CDFW recommends that a qualified biologist conduct a habitat assessment in advance of project implementation, to determine if project areas or their immediate vicinity contain potential habitat for the species mentioned above.

Recommended Mitigation Measure 26: Surveys

If potential habitat is present, CDFW recommends that a qualified biologist conduct focused surveys for applicable species and their requisite habitat features to evaluate potential impacts resulting from ground and vegetation disturbance.

Recommended Mitigation Measure 27: Avoidance

Avoidance whenever possible is encouraged via delineation and observance a 50-foot no-disturbance buffer around dens of mammals like the American badger as well as the entrances of burrows that can provide refuge for special-status small mammals and western spadefoots.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 16

Editorial Comments and/or Suggestions

Federally Listed Species: CDFW recommends consulting with USFWS regarding potential impacts to federally listed species including but not limited to the blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, California jewelflower, and San Joaquin woollythreads. Take under the Federal Endangered Species Act (FESA) is more broadly defined than CESA; take under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with FESA is advised well in advance of any Project activities.

Lake and Streambed Alteration: If streams, swales, or drainages occur on the Project site, Project activities may be subject to CDFW's regulatory authority pursuant Fish and Game Code section 1600 et seq. Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may (a) substantially divert or obstruct the natural flow of any river, stream, or lake; (b) substantially change or use any material from the bed, bank, or channel of any river, stream, or lake (including the removal of riparian vegetation); (c) deposit debris, waste or other materials that could pass into any river, stream, or lake. "Any river, stream, or lake" includes those that are ephemeral or intermittent as well as those that are perennial.

CDFW is required to comply with CEQA in the issuance of a Lake or Streambed Alteration Agreement (LSAA); therefore, if the CEQA document approved for the Project does not adequately describe the Project and its impacts to lakes or streams, a subsequent CEQA analysis may be necessary for LSAA issuance. For information on notification requirements, please refer to CDFW's website (<https://wildlife.ca.gov/Conservation/LSA>) or contact CDFW staff in the Central Region Lake and Streambed Alteration Program at (559) 243-4593

Nesting Birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

CDFW encourages Project implementation to occur during the bird non-nesting season; however, if Project activities must occur during the breeding season (i.e., February through mid-September), the Project applicant is responsible for ensuring that implementation of the Project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 17

To evaluate Project-related impacts on nesting birds, CDFW recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground disturbance to maximize the probability that nests that could potentially be impacted by the Project are detected. CDFW also recommends that surveys cover a sufficient area around the work site to identify nests and determine their status. A sufficient area means any area potentially affected by a project. In addition to direct impacts (i.e., nest destruction), noise, vibration, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends that a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends that a qualified biologist continuously monitor nests to detect behavioral changes resulting from the project. If behavioral changes occur, CDFW recommends that the work causing that change cease and CDFW be consulted for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction area would be concealed from a nest site by topography. CDFW recommends that a qualified wildlife biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDDB. The CNDDDB field survey form can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be mailed electronically to CNDDDB at the following email address: CNDDDB@wildlife.ca.gov. The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 18

FILING FEES

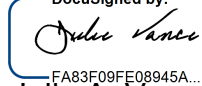
The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP to assist Kern County in identifying and mitigating Project impacts on biological resources.

If you have any questions, please contact Jaime Marquez, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 580-3200, or by electronic mail at Jaime.Marquez@wildlife.ca.gov.

Sincerely,

DocuSigned by:

FA83F09FE08945A...
Julie A. Vance
Regional Manager

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 19

REFERENCES

- California Burrowing Owl Consortium (CBOC). 1993. Burrowing owl survey protocol and mitigation guidelines. Pages 171-177 in Lincer, J. L. and K. Steenhof (editors). 1993. The burrowing owl, its biology and management. Raptor Research Report Number 9.
- California Department of Fish and Game (CDFG). 1990. Approved Survey Methodologies for Sensitive Species. San Joaquin Antelope Squirrel, *Ammospermophilus nelsoni*. California Department of Fish and Game, Region 4. May 8, 1990.
https://www.fws.gov/sacramento/es_species/Accounts/Mammals/giant_kangaroo_rat/documents/980930a.pdf
- CDFG, 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California. California Department of Fish and Game.
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83992&inline>
- CDFG. 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. March 7, 2012.
- California Department of Fish and Wildlife (CDFW), 2016. Five Year Status Review for Swainson's Hawk (*Buteo swainsoni*). California Department of Fish and Wildlife. April 11, 2016.
- CDFW, 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. California Department of Fish and Wildlife. March 20, 2018.
- CDFW, 2019. Approved Survey Methodology for the Blunt-nosed Leopard Lizard. California Department of Fish and Game, October 2019 (Revised).
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=174900&inline>
- CDFW, 2021. Biogeographic Information and Observation System (BIOS).
<https://www.wildlife.ca.gov/Data/BIOS>. Accessed October 28, 2021.
- California Native Plant Society, Rare Plant Program (CNPS). 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website
<http://www.rareplants.cnps.org>. Accessed July 14, 2020.
- Cypher, B. and N. Frost. 1999. Condition of San Joaquin kit foxes in urban and exurban habitats. Journal of Wildlife Management 63: 930-938.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 20

Cypher, B.L., S.E. Phillips, and P.A. Kelly. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. *Canid Biology & Conservation* 16(7): 25-31.

Endangered Species Recovery Program (ESRP), 2020a. Blunt-nosed leopard lizard. <http://esrp.csustan.edu/speciesprofiles/profile.php?sp=gasi>. Accessed July 15, 2020.

ESRP, 2020c. Giant kangaroo rat. <http://esrp.csustan.edu/speciesprofiles/profile.php?sp=diin>. Accessed July 15, 2020.

ESRP, 2020d. Short-nosed kangaroo rat. <http://esrp.csustan.edu/speciesprofiles/profile.php?sp=dinib>. Accessed July 15, 2020.

ESRP, 2020e. San Joaquin antelope squirrel. <http://esrp.csustan.edu/speciesprofiles/profile.php?sp=amne>. Accessed July 15, 2020.

Estep, J. 2009. The influence of vegetation structure on Swainson's hawk (*Buteo swainsoni*) foraging habitat suitability in Yolo County, California. Prepared for the Yolo Natural Heritage Program, Woodland, CA.

Gervais, J. A., D. K. Rosenberg, and L. A. Comrack. 2008. Burrowing Owl (*Athene cunicularia*) In California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California (W. D. Shuford and T. Gardali, editors). Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Gittleman, J. L., S. M. Funk, D. MacDonald, and R. K. Wayne, 2001. Carnivore conservation. Cambridge University Press, Cambridge, United Kingdom.

Hatfield, R, S. Colla, S. Jepsen, L. Richardson, R. Thorp, and S. Foltz Jordan. 2014. Draft IUCN Assessments for North American *Bombus* spp. for the North American IUCN Bumble Bee Specialist Group. The Xerces Society for Invertebrate Conservation, www.xerces.org, Portland, OR.

Thomson, R. C., A. N. Wright, and H. Bradley Shaffer, 2016. California Amphibian and Reptile Species of Special Concern. California Department of Fish and Wildlife and University of California Press: 84–92.

Terrance Smalls
Kern County Planning and Natural Resources Department
December 6, 2021
Page 21

Shuford, W. D. and T. Gardali (editors). 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Published by Western Field Ornithologists and California Department of Fish and Game.

Swainson's Hawk Technical Advisory Committee (SWHA TAC), 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley of California. Swainson's Hawk Technical Advisory Committee. May 31, 2000.

United States Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.
https://www.fws.gov/sacramento/es_species/Accounts/Mammals/giant_kangaroo_rat/documents/980930a.pdf

USFWS. 2011. Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance. United States Fish and Wildlife Service. January 2011.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds, 1988–1990d. Northern California legless lizard In Life history accounts for species in the California Wildlife Habitat Relationships (CWHR) System. California's Wildlife. Vol I-III. California Department of Fish and Game, Sacramento, California.

Attachment 1

**MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)
FOR CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
RECOMMENDED MITIGATION MEASURES**

**PROJECT: Azalea Solar
SCH No.: 2021090602**

RECOMMENDED MITIGATION MEASURE	STATUS/DATE/INITIALS
<i>Before Disturbing Soil or Vegetation</i>	
Mitigation Measure 1: BNLL Surveys	
Mitigation Measure 3: SJKF Surveys	
Mitigation Measure 5: SJKF Take Authorization	
Mitigation Measure 7: GKR and SNKR Trapping Surveys	
Mitigation Measure 9: GKR Take Authorization	
Mitigation Measure 10: SJAS Surveys	
Mitigation Measure 12: SJAS Take Authorization	
Mitigation Measure 13: Focused SWHA Surveys	
Mitigation Measure 15: SWHA Take Authorization	
Mitigation Measure 16: Loss of SWHA Foraging Habitat	
Mitigation Measure 17: SWHA Tree Removal	
Mitigation Measure 18: Special-Status Plant Surveys	
Mitigation Measure 19: Sensitive Natural Communities	
Mitigation Measure 21: Listed Plant Species Take Authorization	
Mitigation Measure 22: BUOW Surveys	
Mitigation Measure 24: BUOW Passive Relocation and Mitigation	
Mitigation Measure 25: Habitat Assessment	
Mitigation Measure 26: Surveys	
<i>During Construction</i>	
Mitigation Measure 2: BNLL Take Avoidance	
Mitigation Measure 4: SJKF Avoidance	
Mitigation Measure 6: Perimeter Fences	
Mitigation Measure 8: GKR and SNKR Avoidance	
Mitigation Measure 11: SJAS Avoidance	
Mitigation Measure 14: SWHA Avoidance	
Mitigation Measure 20: Special-Status Plant Avoidance	

Mitigation Measure 23: BUOW Avoidance	
Mitigation Measure 27: Avoidance	



NATIVE AMERICAN HERITAGE COMMISSION

October 6, 2021

Governor's Office of Planning & Research

Oct 07 2021

STATE CLEARINGHOUSE

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain
Apache

COMMISSIONER
Julie Tumamait-
Stenslie
Chumash

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

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

Re: 2021090602, Azalea Solar Project by SF Azalea, LLC Project, Kern County

Dear Mr. Smalls:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015. If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). Both SB 18 and AB 52 have tribal consultation requirements. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:

Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- a. A brief description of the project.
- b. The lead agency contact information.
- c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- a. Alternatives to the project.
- b. Recommended mitigation measures.
- c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- a. Type of environmental review necessary.
- b. Significance of the tribal cultural resources.
- c. Significance of the project's impacts on tribal cultural resources.
- d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
- b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

- 7. Conclusion of Consultation:** Consultation with a tribe shall be considered concluded when either of the following occurs:
- a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).
- 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:** Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).
- 9. Required Consideration of Feasible Mitigation:** If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).
- 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:**
- a.** Avoidance and preservation of the resources in place, including, but not limited to:
 - i.** Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i.** Protecting the cultural character and integrity of the resource.
 - ii.** Protecting the traditional use of the resource.
 - iii.** Protecting the confidentiality of the resource.
 - c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).
 - e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
 - f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).
- 11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:** An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
 - b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

- 1. Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe. (Gov. Code §65352.3 (a)(2)).
- 2. No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
- 3. Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
- 4. Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
 - a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

- 1.** Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a.** If part or all of the APE has been previously surveyed for cultural resources.
 - b.** If any known cultural resources have already been recorded on or adjacent to the APE.
 - c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d.** If a survey is required to determine whether previously unrecorded cultural resources are present.
- 2.** If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
 - b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:
Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

This Page Intentionally Left Blank

Appendix B

Agricultural Conversion Study

Agricultural Conversion Study

For Kern County Azalea Solar Energy Project

SF Azalea, LLC

Lost Hills, California 93249

1



Prepared By:

Surf to Snow Environmental Resource Management, Inc. (S2S)
2246 Camino Ramon
San Ramon, CA 94583
Brian Frantz, Chief Operating Officer
Phone: 925-718-6275/ Email: brian.frantz@s2serm.com

Bob Masuoka, S2S Principal Regulatory Specialist
Phone: 415-317-7620/ Email: bob.masuoka@S2serm.com

Date: July 2021

Submitted to:

Sam Holing
50 California Street, Suite 820
San Francisco, CA 94111
sam.holing.0170@idemitsurenrenewables.com

TABLE OF CONTENTS

1 – ACRONYMS AND ABBREVIATIONS.....	III
2 – SUMMARY OF FINDINGS.....	4
3 – INTRODUCTION	6
3.0 Project Description.....	6
3.1 Project Purpose.....	6
3.2 Description of Study.....	7
3.3 Agricultural Study Area Location	8
4 – POLICY AND REGULATORY SETTING	9
4.0 Introduction and Approach.....	9
4.1 Federal	10
4.2 State of California.....	10
4.3 Kern County.....	14
5 – EXISTING AGRICULTURAL CHARACTER.....	15
5.0 Agricultural Setting	15
6 – FARMLAND CONVERSION ASSESSMENT	17
6.0 Farmland Conversion Impacts	17
6.1 Mitigation Measures.....	26
7 – CEQA INITIAL STUDY CHECKLIST	27
8 – REFERENCES	32

LIST OF FIGURES

Figure 1: Regional Map
 Figure 2: Vicinity Map
 Figure 3: Project and APN Map
 Figure 4: General Plan Map
 Figure 5: Zone District Map
 Figure 6: Agricultural Preserves and Lands Under Williamson Act Land Use Contracts
 Figure 7: Important Farmland Map
 Figure 8: Soils Map

LIST OF TABLES

Table 1: Projected Spatial Requirements.....	6
Table 2: Parcels Comprising the Project	8
Table 3: Agricultural Potential of Soils per USDA Land Capability Classification System	16
Table 4: Evaluation of Alternative Solar Sites	19
Table 5: Assessment of Potential Mitigation Measures	26
Table 6: CEQA Initial Study Checklist for Agriculture and Forest Resources	28

LIST OF ATTACHMENTS

Attachment A: Figures
 Attachment B: State of California Government Code, Section 51282 – Williamson Act
 Attachment C: Form 725 – Guidelines for Agricultural Soils/Farmland Conversion Studies
 Attachment D: Kern County Pathway for Processing Conversion of Agricultural Land to Solar PV Use

Attachment E: Williamson Act Contract

Attachment F: Petition for Cancellation of a Land Use Contract

Attachment G: Soil Profiles for the Azalea Solar Energy Project Site

Acronyms and Abbreviations

amsl	Above Mean Sea Level
AC	Alternating Current
APN	Assessor's Parcel Number
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CUP	Conditional Use Permit
DC	Direct Current
EIR	Environmental Impact Report
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
KCGP	Kern County General Plan
KCZO	Kern County Zoning Ordinance
kV	Kilovolt
MW	Megawatt
NRCS	National Resource Conservation Service
PG&E	Pacific Gas and Electric
PV	Photovoltaic
S2S	Surf to Snow Environmental Resource Management
SB 100	California Senate Bill 100; 100 Percent Clean Energy Act of 2018
SGMA	Sustainable Groundwater Management Act
Williamson Act	California Land Conservation Act Of 1965

This Page Intentionally Left Blank

1 – SUMMARY OF FINDINGS

SF Azalea, LLC contracted with Surf to Snow Environmental Resource Management (S2S) to perform an Agricultural Conversion Study of the following parcels located in Lost Hills, California (herein referred to as “Site”): APNs 043-210-17, -18, -27, -28, and 043-220-01. The solar project land use application to Kern County requests approval of a Conditional Use Permit for the entire solar PV facility and a Williamson Act Contract Cancellation for APN no. 043-210-17 (485.84 acres).

The Site is located in an agricultural area in Northeast Kern County and is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (figs, pistachios, and almonds). Research into historical land use of the area indicates that from the early 1900s through the early 2000s, the Site was largely open area periodically used for livestock grazing. In the late 1960s or early 1970s, a PG&E power substation and associated transmission lines were constructed on two of the proposed Site’s parcels (Assessor's Parcel Number (APN) 043-210-27 and -28). Orchards were planted east and south of the Site in the late 1960s/early 1970s. By the 2000s, - including the current time, the Site is also used for occasional dry farming. Figures 1 through 8 are provided at the end of this report in Attachment A.

This study has been prepared according to Kern County Form No. 725 - Guidelines for Agricultural Soils/Farmland Conversion Studies. A Petition for Cancellation of a Land Use Contract under the California Land Conservation Act was signed by the property owners of Kern County APN 043-210-17, on August 5, 2020. Under California Government Code § 51282(a) - The board or council may grant tentative approval for the cancellation of a contract only if the cancellation is in the public interest. Approval of contract cancellation for the single project site parcel is in the public interest because solar development of the property aligns with State laws (SB 100) and policies (Executive Order N-79-20 targeting climate change and reduction of greenhouse gases through promoting renewable energy). County General Plan policies and programs also support renewable energy development and its employment benefits.

Additional required findings, as listed on California Government Code Section 51282(b) and on Kern County Form 725, have been addressed in this Agricultural Conversion Study.

Farmland conversion means changing Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps of the California Resources Agency, to non-agricultural uses. The United States (US) Department of Agriculture (USDA) Natural Resource Service has determined that none of the project site's soils is considered prime farmland. The California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program (FMMP) list no prime soils on the Project Site, and the CDOC FMMP does not show any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance for any project parcels. Therefore, implementing the proposed solar facility would not result in the conversion of any designated Farmland and would not remove any Farmland from production.

The proposed solar facility would not affect agricultural uses on adjacent or nearby properties under Williamson Act land-use contracts or within agricultural zoning designations for three reasons: (1) the project would not introduce a non-agricultural use that is sensitive to or incompatible with agricultural operations that would occur nearby; (2) at the end of its operating life, infrastructure associated with the facility would be removed, which would allow the project site to return to agricultural use; and (3) the project does not include a zone change so that the entire project site would remain zoned for agriculture, which would encourage future agricultural uses on the property rather than non-agricultural uses. Therefore, the project would not result in farmland conversion impacts.

The project would be consistent with the goals, policies, implementation measures, and action programs of the Kern County General Plan (Goals 2, 3, and 5; Policies 7, 9, and 12) that promotes the preservation and use of available natural resources. Even though agricultural uses would not occur with the proposed project, should the solar facility cease operations, agricultural zoning and the County's standard mitigation measure requiring a Decommissioning Plan and financial assurances would promote the project area's conversion back to agricultural uses. As a result, potential conflicts with agricultural uses would be considered less than significant.

An alternative site assessment of 57 surrounding land parcels has concluded that there are no suitable alternative sites within a 1 mile radius of the proposed solar project site.

2 – INTRODUCTION

2.0 PROJECT DESCRIPTION

The Azalea Solar Energy Project involves constructing a 60- Megawatt (MW) utility-scale solar facility, including solar panels, security fencing, energy storage battery systems and associated Gen-tie lines. In addition to the construction of the solar facility and Gen-tie line, the project will involve expanding the existing Pacific Gas and Electric Company's (PG&E's) Arco Substation facility within its existing property and providing road access for the project's temporary construction and long-term operation.

The project will interconnect at PG&E's Arco Substation via a 0.75-mile generation-tie line that will enter the substation property's northeast corner. The project has an expected Commercial Operation Date of December 2022. SF Azalea, LLC. (Project Sponsor) will be required to permit the expansion of PG&E's Arco Substation as well as the relocation of the Arco-Tulare 70 kilovolt (kV) transmission line. The acreage amounts for the project facilities are shown in the table below.

Table 1: Projected Spatial Requirements

PROJECT COMPONENT	SPACIAL REQUIREMENT
Entire Project Area	640 acres
Fenced Area	340 acres
Solar Array Field	266 acres
Access Roads	23.5 acres
Substation	0.5 acres
Battery Storage	5 acres
Gen-Tie	6 acres

2.1 PROJECT PURPOSE

The Project Sponsor plans to develop a utility-scale solar facility to provide clean, renewable energy that will assist California's utilities in meeting the Renewable Portfolio Standard and reducing climate change impacts. The Renewable Portfolio Standard was established by California Senate Bill 100, also known as the 100 Percent Clean Energy Act of 2018. The Act specifies that utilities must procure 50 percent of the electrical power sold to retail customers from renewable energy resources by 2026, 60 percent by 2030, and 100 percent from eligible renewable energy resources and zero-carbon resources year 2045.

More recently (September 23, 2020), Governor Newsom signed Executive Order N-79-20 targeting climate change, stating:

"It shall be a goal of the State that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035. It shall be a further goal of the State that 100 percent of medium- and heavy-duty vehicles in the State be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks. It shall be further a goal of the State to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible."

The September 2020 Executive Order will support implementing the Renewable Portfolio Standard mandated under SB 100 by increasing demand for zero-emission (mostly electric) vehicles and the renewable energy to charge them.

The Azalea Solar Project will also have an energy storage (batteries) component, facilitating further integration of renewable energy resources to the electrical grid by matching solar energy supply with peak demand times. The project will enable the State to decrease reliance on fossil fuels and increase reliance on renewable energy sources by providing electricity generated from a renewable energy resource.

2.2 DESCRIPTION OF STUDY

This Agricultural Conversion Study presents the results of an evaluation of agricultural land use changes associated with the Azalea Solar Energy Project, a solar photovoltaic (PV) facility project in Kern County, California. This study has been prepared for the Project Sponsor to support the Azalea Solar Facility (Project) application to the Kern County Planning and Natural Resources Department, Community Development Division (County).

The land use application to the County requests approval of a Conditional Use Permit (CUP) for the entire solar PV facility and a Williamson Act Contract Cancellation for APN no. 043-210-17 (485.84 acres). This study has been prepared according to Kern County Form No. 725 - Guidelines for Agricultural Soils/Farmland Conversion Studies (see Attachment B).

A Petition for Cancellation of a Land Use Contract under the California Land Conservation Act was filed by the property owners of Kern County Assessor's Parcel Number (APN) 043-210-17, on August 5, 2020. The petition (see Attachment F) provides the following statement indicating why the proposed cancellation complies with California Government Code Section 51282:

"The proposed cancellation is in the public interest as it would help further the State's progress toward achieving its goal for increased renewable energy and reduced greenhouse emission. The proposed project would generate renewable energy for the State while also providing jobs to local residents."

This Agricultural Conversion study will also be used for the project's environmental evaluation and therefore has been developed according to § 15126.2(b) of the 2020 California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). The CEQA Guidelines Initial Study checklist in Appendix G of the CEQA Guidelines (2020), the "Environmental Checklist Form," evaluates agricultural resources.

2.3 AGRICULTURAL STUDY AREA LOCATION

The proposed solar project site is located in an unincorporated area of northwestern Kern County. Specifically, the project area is approximately 2.5 miles northwest of Twisselman Road and King Road and directly south of the Kern County/Kings County boundary line. The project area is situated on agricultural lands, and agricultural uses and undeveloped lands largely dominate the surrounding area. Figure 1 shows the project site's location in its larger regional setting. Figure 2 depicts the site vicinity with the Project APN parcels shown, while Figure 3 displays APN parcels for the study area. *All Figures are provided at the end of this report in Attachment A.*

The solar project site encompasses approximately 640 acres across two privately owned parcels: 043-210-17 and 043-210-18. The larger parcel, 043-210-17, has been under a Williamson Act Contract since 1970. The Project study area also includes two additional parcels designated for the proposed Gen-tie lines plus the Arco Substation property (043-210-27), and access roads. The larger Gen-tie parcel encompasses approximately 615 acres, and the smaller Gen-tie parcel encompasses about 21 acres. These four vacant, undeveloped parcels total approximately 1,288 acres.

An approximately 20.3-acre parcel of property surrounding the existing PG&E's Arco Substation is located adjacent to the central-southern portion of the Solar Facility parcel. The Arco Substation encompasses approximately 4.75 acres of the parcel. The address of the Arco Substation is 10011 King Rd, Lost Hills, California 93249.

Two alternative access routes for project construction and operation, Access Option Road 1 and Access Option Road 2, are under consideration and assessed in this report. These existing, unpaved access roads would connect the Site with King Road via a combination of gravel and compacted dirt roads that would require relatively minor improvements.

The proposed facility would be located within the following assessor's parcel numbers (APN) shown on the table below.

Table 2: Parcels Comprising the Project

APN	DESCRIPTION	ACRES (APN)	EXISTING LAND USE	PROPOSED LAND USE
043-210-17	Solar Project Site	485.84	Agricultural; under Williamson Act Contract	Solar Project
043-210-18	Solar Project Site	162.8	Agricultural	Solar Project
043-210-27	PG&E Arco Substation	20.30	PG&E Power Substation	PG&E Power Substation
043-210-28	Gen Tie Connection Parcel	620.67	Agricultural	Agricultural with Gen Tie
043-220-01	Gen Tie Connection Parcel	19.22	Agricultural	Agricultural with Gen Tie
Kings County 048-350-017	Access Road Parcel	~160	Agriculture with Access Road	Agricultural with Access Road
Kings County 048-350-020	Access Road Parcel	~160	Agriculture with Access Road	Agricultural with Access Road

2.3.0 General Plan Land Use and Zoning Classification

The project site is designated by the Kern County General Plan (KCGP) as Map Codes 8.3 (Extensive Agriculture) and 8.3/2.5 (Extensive Agriculture/Flood Hazard). Areas designated Map Code 8.1 require a

minimum 20-acre parcel size, unless under a Williamson Act Contract, which calls for an 80-acre minimum parcel size (Figure 4 - General Plan Map).

As shown in Figure 5, the proposed solar project site and the surrounding area have a zoning classification of A (Exclusive Agriculture), as designated by the Kern County Zoning Ordinance (KCZO), Chapter 19.12. The Exclusive Agriculture (A) District aims to establish areas suitable for agricultural uses and prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Uses in the A District are limited primarily to agriculture and other activities compatible with farming. Other uses, including renewable energy facilities, are allowed in the A District, subject to securing a conditional use permit for project construction and operation.

2.3.1 Site Reconnaissance Survey

On September 21, 2020, S2S personnel conducted a site reconnaissance survey to observe and document existing site conditions. The Project area APN parcels and perimeter were systematically traversed primarily via vehicle and on foot during the site survey.

The project grounds were observed to consist of five gently sloping, vacant, and undeveloped parcels of land covered with sparse to moderately dense non-native vegetation currently used for grazing. Metal fencing, with gates at the entry and exit points, was observed around each of the two large parcels (043-210-17 and 043-210-28) with dirt roads bisecting the perimeter and central portions of the site. Although dirt paths were observed on-site, no livestock was present during the reconnaissance. Field visit. A watering trough area where livestock appear to gather was noticed in the northwest corner of parcel 043-210-17. No buildings were seen at the site.

A settling pond was observed along the eastern boundary of parcel 043-210-17. The pond appeared to be used to contain excess water runoff from adjacent pistachio orchards. The water in the pond was being pumped to a sprinkler system and sprayed over the area of parcel 043-210-18. North of the pond, dark soil was observed on the ground in trails originating from a linear sprinkler line. Distressed vegetation was noted in the area south of the eastern end of the sprinkler line. Between the sprinkler line and the property boundary, dark, abnormal soil was observed over an area of approximately 100 ft by 200 ft. The area appeared to be a land farm for the soil, which was darker than the surrounding soil. No other areas of distressed vegetation or discolored soil were observed.

On December 18, 2020, S2S Senior Environmental Planner, Deborah Kruse, interviewed Jim Anderson, the site landowner, over the phone. Mr. Anderson stated that the 043-210-170 and 43-210-18 have been used for grazing, dry farming, and occasionally for growing wheat. Mr. Anderson clarified that the pond near the eastern boundary of the site is owned and operated by the Wonderful Company. Per Mr. Anderson, the pond is used for collected surface runoff of agricultural water. Occasionally the sediment and "organics" on the pond's bottom are excavated and placed on the ground north of the pond by representatives from the Wonderful Company.

3 – POLICY AND REGULATORY SETTING

3.0 INTRODUCTION AND APPROACH

This Agricultural Soils/Farmland Conversion Study presents the results of an evaluation of agricultural land use changes associated with the Azalea Solar Energy Project, a solar PV facility project proposed for construction in Kern County, California. This study has been prepared to support the Project Sponsor's application to the Kern County Planning and Natural Resources Department.

Implementation of the proposed Azalea Solar Energy Project involves adherence to multiple State of California and Kern County policies, regulations, and guidelines. The land use application to the County Planning and Natural Resources Department, Community Development Division requests approval of a CUP for the entire solar PV facility and a Williamson Act Contract Cancellation for land within APN no. 043-210-17 (485.84 acres). It also requires preparation and certification of a CEQA Environmental Impact Report that meets Kern County (Lead Agency) standards. The State and County policies, regulations, and forms applicable to the proposed Azalea Solar Energy Project are discussed below.

3.1 FEDERAL

The Azalea Solar Energy Project is not planned as a federal project; however, it could become connected through federal funding or other indirect relationship. This has the potential to trigger federal requirements, and therefore federal farmland information is provided.

3.1.0 Farmland Protection Policy Act (7 U.S.C Section 4201) (FPPA)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. It additionally directs federal programs to be compatible with state and local policies for the protection of farmlands. Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) containing the FPPA—Subtitle I of Title XV, Section 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a federal agency or with assistance from a federal agency (NRCS, 1994).

For FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

3.2 STATE OF CALIFORNIA

The State of California regulations and guidelines applicable to the proposed Azalea Solar Facility project include the CDOC FMMP, CEQA, and the Williamson Act. These State laws are implemented by Kern County, using County procedures and forms, during the project planning and review process.

3.2.0 California Department of Conservation, Division of Land Resource Protection

The CDOC applies the soil classifications created by the NRCS to identify and plan for California's agricultural land resources. The CDOC has a minimum mapping unit of 10 acres, with units less than 10 acres being absorbed into the surrounding classifications. The list below describes the seven categories mapped by the CDOC FMMP (FMMP, see - <https://www.conservation.ca.gov/dlrp/fmmp>).

Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are defined as Farmland by the CDOC.

- **Prime Farmland** – This land has the best combination of physical and chemical characteristics for crop production. According to current farming methods, it has the soil quality, growing seasons, and moisture supply needed to produce sustained high yield crops when treated and managed, including water management. Land must have been used for irrigated agricultural production at some time during the last four years.
- **Farmland of Statewide Importance** - This land is similar to prime farmland but has minor

shortcomings, such as greater slopes or less ability to store moisture. Land must have been used for irrigated agricultural production at some time during the last four years.

- **Unique Farmland** – This is defined as land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance and land currently used to produce specific high economic value crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of specific crops (i.e., oranges, olives, avocados, cut flowers) when treated and managed according to current farming methods. This category may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the last four years.
- **Farmland of Local Importance** – Land of importance to the local agricultural as determined by each's County Board of Supervisors and a local advisory committee.
- **Grazing Land** – This is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing livestock. It is identified in minimum mapping units of 40 acres and does not include the land previously identified above.
- **Urban and Built-up Land** – This land is used by structures with a building density of at least 1 unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Examples include residential, industrial, commercial, construction, institutional, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.
- **Other Land** – This is land not included in any of the other mapping categories and generally includes rural development with a density of less than one structure per 1.5 acres, marginal agricultural lands, brush, timber, roads, and other rural land uses.

As defined by the CDOC, prime farmlands are soils that are best suited to producing food, seed, forage, fiber, and oilseed crops. Also, prime farmland produces the highest yields with minimal energy and economic resources and farming these soils results in the least damage to the environment. State soil scientists continually update farmland designations. None of the Project parcels are located in this category.

As defined by the California Land Conservation Act (G.C. §51201), prime agricultural soils include

c) "Prime agricultural land" means any of the following:

1. All land that qualifies for rating as class I or class II in the NRCS land use capability classifications.
2. Land which qualifies for rating 80 through 100 in the Storie Index Rating.
3. Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture.
4. Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre.
5. Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.

3.2.1 California Environmental Quality Act

The California Environmental Quality Act (Public Resources Code § 21000–21189) and the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, § 15000–15387) - <http://leginfo.ca.gov/> and <http://ccr.oal.ca.gov/> will be implemented by the County using County procedures and forms, during the Project planning process. As CEQA Lead Agency, the County will oversee an Environmental Impact Report (EIR) for the solar project. A discussion of CEQA topics is presented in Section 6.0 of this report.

3.2.2 California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code §51200-51297.4 and therefore applies only to specific land parcels within California. The Williamson Act enables local governments to enter into contracts with private landowners to restrict particular parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. Participation in the Williamson Act program is dependent on County adoption and implementation of the program and is voluntary for landowners (CDOC, 2020).

The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of nonrenewal or cancellation is filed. In return, the land is taxed at a rate based on the land's actual use for agricultural purposes instead of its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected County or city. Nonrenewal or immediate cancellation does not change the zoning of the property.

The Williamson Act states that a board or council by resolution shall adopt rules governing agricultural preserves' administration. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use would be permitted within any agricultural preserve. Local governments may also identify compatible uses that are allowed with a use permit.

California Government Code §51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities and other facilities, are determined to be compatible uses within any agricultural preserve. Section 51238 states that the board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with §51238.1.

Further, California Government Code §51238.1 allows a board or council to allow as compatible any use without conditions or mitigations would otherwise be considered incompatible (Attachment B).

However, this may occur only if that use meets the following requirements:

- The use would not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves.
- The use would not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of

commercial agricultural products including activities such as harvesting, processing, or shipping.

- The use would not result in the significant removal of adjacent contracted land from agricultural or open space use.

It should also be noted that Government Code §51284 states that no Contract may be canceled until after the County has given notice of and has held a public hearing on the matter. Notice of the hearing shall be published and mailed to the Director of the Department of Conservation and other specified entities. If the required findings, notice and public hearing conditions are met, the landowner is required to pay a cancellation fee equal to 12.5 percent of the cancellation valuation (unrestricted fair market value) of the property.

3.2.3 Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under this Act's provisions, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the County. There are no Farmland Security Zone properties located in the study area surrounding the project site.

3.2.4 Sustainable Groundwater Management

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). For the first time in its history, California has a framework for sustainable, groundwater management - "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results."

SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced pumping and recharge levels. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline.

It is not certain how much land in the project area is being taken out of production due to the Sustainable Groundwater Management Act (SGMA), however, the effect of the SGMA upon San Joaquin Valley groundwater basins is being considered by landowners seeking returns on their agricultural investments.

3.2.5 California Farmland Conversion Report: 2014-2016

The most recent available Farmland Conversion Report is for the 2014 - 2016 period (FMMP, 2016). During those two years, irrigated farmland in California decreased by a net 11,165 acres. The highest-quality farmland, known as Prime Farmland, fell by 18,312 net acres, coupled with a Farmland of Statewide Importance decrease of 26,557 net acres. Partially offsetting these losses was the addition of 33,704 net acres of irrigated crops on lesser quality soils, mapped as Unique Farmland.

Urban development, which totaled 44,942 acres, was virtually the same as the 2012-14 update. The highest amount of urban development - 47 percent - occurred in the San Joaquin Valley region. This is the first time the San Joaquin Valley has taken the top spot in the State for new Urban and Built-up Land

since FMMP began compiling regional conversion statistics in 1990. During this period, new Urban and Built-up Land included solar facility construction contributing over 19,000 acres. Without solar facility construction, recent data would have recorded one of the lowest new Urban and Built-up Land levels since 1984 when mapping began.

Land was removed from irrigated categories—to uses aside from urban—at a rate 17 percent lower than compared with the prior data (153,766 acres in 2014 and 128,105 acres in 2016). Land idling, where irrigated land was converted to nonirrigated land due to a lack of irrigation over time or conversion to dry farming, was responsible for 85 percent of this type of conversion. Irrigated land conversions due to idling are often associated with water resource limitations, market conditions, and salinity-related land idling. The southern San Joaquin Valley was most impacted by land idling with 70,886 acres of land reclassified from irrigated land to Grazing Land or Farmland of Local Importance in the San Joaquin Valley due to idling, comprising 65 percent of the statewide total.

Conversions of range and other lands to new irrigated land between 2014 and 2016 totaled 129,494 acres, an increase of 9 percent from the prior cycle. Sixty-five percent of these new irrigated lands did not have soil qualities to meet the Prime Farmland criteria. Seven counties had irrigated land expansions greater than 5,000 acres which included all the San Joaquin Valley counties, except Kings County. Many of the San Joaquin Valley additions were orchards added in the valley and along the Sierra Nevada foothills. Sacramento Valley counties exhibited similar conversion patterns to the San Joaquin Valley with plantings of orchards, vineyards, and row crops exceeding 4,000 acres in both Tehama and Yolo counties.

Kern County ranks high on the list of California counties concerning urbanization and loss of farmland. From 2004 to 2018, 93,125 acres of Important Farmland were converted to another use according to the CDOC's Kern County 2004 -2018 Land Use Summary (CDOC, 2020). Grazing land acreages increased by 63,174 during the same period. Furthermore, according to CDOC, many property owners decided not to renew the Williamson Act—contracted acreage. This contributed to a net loss of 29,951 acres of prime and nonprime property through 2018. Continued population growth would likely decrease the amount of agricultural land in Kern County even further, by an estimated 43,256 acres averaging 4,512 acres per year over the 14 years.

3.3 KERN COUNTY

As indicated in the introduction to Section 3.1, State laws are implemented by Kern County during the project planning process, using County procedures and forms.

3.3.0 Williamson Act Standard Uniform Rules

To meet the County's requirements for the CUP and the Williamson Act contract cancellation, this study has been prepared according to Kern County Form No. 725 - Guidelines for Agricultural Soils/Farmland Conversion Studies (Attachment C) and the Kern County Kern County Pathway for Processing Conversion of Agricultural Land to Solar PV Use (Attachment D).

3.3.1 General Plan and Zoning Code

The County General Plan and Zoning Ordinance provide land use policy guidance and regulatory direction to all lands in the County. The project site is designated by the KCGP as Map Codes 8.3 (Extensive Agriculture) and 8.3/2.5 (Extensive Agriculture/Flood Hazard). Map Code 8.1 requires a minimum 20-acre parcel size, unless under a Williamson Act Contract, which calls for an 80-acre minimum parcel size (Figure 4 - General Plan Map).

As shown in Figure 5, the solar project site and the surrounding area have a zoning classification of A (Exclusive Agriculture), as designated by the KCZO, Chapter 19.12. The Exclusive Agriculture (A) District aims to establish areas suitable for agricultural uses and prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Uses in the A District are limited primarily to agriculture and other activities compatible with farming. Other uses, including renewable energy facilities, are allowed in the A District, subject to securing a conditional use permit.

4 – EXISTING AGRICULTURAL CHARACTER

Report Section 4 describes the agricultural character of the area covered by the proposed project activities. It also describes nearby, surrounding lands that may be affected by the conversion, and indicates statewide trends affecting agricultural lands.

4.0 AGRICULTURAL SETTING

The Site is located in an agricultural area in Northeast Kern County. The Site is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (figs, pistachios, and almonds). Historical research indicates that from the early 1900s through the early 2000s, the Site was largely open area periodically used for grazing. In the late 1960's or early 1970's, a PG&E power substation and associated transmission lines were constructed on two Site parcels (APN 043-210-27 and -28). Orchards have been planted toward the east and south of the Site in the late 1960's/early 1970's. By the 2000's, the Site appeared to also be used for occasional dry farming.

4.0.0 Agricultural Preserves and Lands under the Williamson Act Contract

Figure 6 shows the location of Agricultural Preserves and lands under Williamson Act Land Use Contracts in the project area. Figure 7 depicts Important Farmland in the project area. The acres and type of land in each parcel (i.e., whether prime or nonprime soils) are presented in Attachment G, Soil Profiles, which is summarized on Table 3.

The land proposed for cancellation was originally placed into contract during 1970 (Attachment E). There are no dwellings, barns and/or other structures that are permitted on the property under the provisions of the existing contract. According to the landowner, there are no wells, water storage tanks or other water supplied to this land other than natural rainfall.

4.0.1 USDA Land Capability Classification System

Table 3 shows the agricultural potential of project site soils based on the U.S. Department of Agriculture Land Capability Classification system. There are 12 soil types offered on Figure 8 – Soils, which are further described in this report's Attachment H – Soil Profiles, as well as on the NRCS (formerly SCS) website - <http://websoilsurvey.nrcs.usda.gov/>

Table 3: Agricultural Potential of Soils per USDA Land Capability Classification System

SOIL TYPE	USDA SOIL CAPABILITY SUBCLASS	SOIL DESCRIPTION (SEE ATTACHMENT H FOR FULL SOIL PROFILES)
109ki - Delgado sandy loam, 5 to 15 % slopes	IVe-1 (15), non-irrigated	Somewhat excessively drained; medium to very high runoff; moderately rapid permeability. This soil is used for livestock grazing during the late winter and spring. Natural vegetation is annual grasses, forbs and species of saltbush (<i>Atriplex</i>).
115 - Bitterwater sandy loam, 9 to 15 % slopes	VIIe-1 (15), non-irrigated	Well drained; medium to very rapid runoff; moderately rapid permeability. Used for spring grazing of sheet and cattle. Oil wells are a common feature on this soil. Natural vegetation consists of red brome, fescues, filaree, allscale, and saltbush (<i>Atriplex</i> spp.).
125 - Granoso loamy sand, 0 to 2 % slopes	IIIs-4 irrigated; VIIs non-irrigated	Somewhat excessively drained; negligible to low runoff; high saturated hydraulic conductivity. Granoso soils with sandy loam surface textures have moderately rapid over rapid permeability. Flooding is none to rare. Used primarily for irrigated crops such as cotton, alfalfa, dry beans, onions, carrots, lettuce, and wheat. Some areas are used for homesites and pasture. Native vegetation is dominantly annual grasses and forbs.
144 - Delgado sandy loam, 5 to 30 % slopes	VIIe (15), non-irrigated	Somewhat excessively drained; medium to very high runoff; moderately rapid permeability. This soil is used for livestock grazing during the late winter and spring. Natural vegetation is annual grasses, forbs and species of saltbush (<i>Atriplex</i>).
166 - Kecksroad silty clay loam, 5 to 15 % slopes	VIIe (15), non-irrigated	Well drained; medium or rapid runoff; slow permeability. This soil is used for spring grazing by cattle or sheep. Vegetation is annual grasses and forbs and is within the San Joaquin saltbush vegetation type of the Kuchler map.
129 - Carollo-Twisselman saline alkali association, 2 to 15 % slopes	VIIe (15-17), non-irrigated	Well drained; rapid runoff; very slow permeability. This soil is used for cattle and sheep grazing during the late winter and spring season. Natural vegetation is all scale saltbush (<i>Atriplex polycarpa</i>), filaree (<i>Erodium</i>), and foxtail barley (<i>Hordeum jubatum</i>).
174 - Kimberlina fine sandy loam, 0 to 2 % slopes	I (17), irrigated; VIIc non-irrigated	Well drained; negligible to medium runoff; moderately rapid and moderate permeability, however saline-sodic phases and soils with sandy clay loam substratums have moderately slow permeability. Used for growing irrigated field, forage, and row crops. Some areas used for livestock grazing. When not irrigated, vegetation is annual grasses, forbs, and <i>Atriplex</i> spp. in the San Joaquin Valley.
175 - Kimberlina sandy loam, 2 to 5 % slopes	IIe-1 (17) irrigated; VIIe non-irrigated	Well drained; negligible to medium runoff; moderately rapid and moderate permeability, however saline-sodic phases and soils with sandy clay loam substratums have moderately slow permeability. Used for growing irrigated field, forage, and row crops. Some areas used for livestock grazing. When not irrigated, vegetation is annual grasses, forbs, and <i>Atriplex</i> spp. in the San Joaquin Valley.
213 - Panoche clay loam, 5 to 9 % slopes	IIIs-1 (17) irrigated; VIIe non-irrigated	Well drained; negligible to medium runoff; moderate permeability. Used for irrigated crops such as alfalfa, almonds, barley, cotton, sugar beets and sorghum. Dryland areas are used as range following seasonal rains. A few areas are used for dryland grain but are seldom successful.

SOIL TYPE	USDA SOIL CAPABILITY SUBCLASS	SOIL DESCRIPTION (SEE ATTACHMENT H FOR FULL SOIL PROFILES)
235 - Twisselman clay, 0 to 2 % slopes	Ils-5 (17) irrigated; VIIs non-irrigated	Well drained; medium or slow runoff; slow permeability; very slow in saline-alkali phases. With irrigation, Twisselman soils are used for alfalfa, almonds, barley, cotton, wine grapes, sugar beets, olives, pistachios, and wheat. Areas with overblown sandy loam or fine sandy loam are used for growing carrots. In areas that are not developed, the land is used for spring grazing by sheep. Native vegetation is annual grasses, forbs, and desert saltbush (<i>Atriplex</i> spp.).
236 - Twisselman clay, 2 to 5 % slopes	Ile-1 (17) irrigated; VIIe non-irrigated	Well drained; medium or slow runoff; slow permeability; very slow in saline-alkali phases. With irrigation, Twisselman soils are used for alfalfa, almonds, barley, cotton, wine grapes, sugar beets, olives, pistachios, and wheat. Areas with overblown sandy loam or fine sandy loam are used for growing carrots. In areas that are not developed, the land is used for spring grazing by sheep. Native vegetation is annual grasses, forbs, and desert saltbush (<i>Atriplex</i> spp.).
253 - Yribarren clay loam, 2 to 5 % slopes	IIle-1 (17) irrigated; VIIe non-irrigated	This soil is used for irrigated cropland to produce almonds, barley, wheat, cotton, onions, sugar beets, watermelons, pistachios, and wine grapes. In uncultivated areas, this soil is used for livestock grazing to provide spring grazing for sheep and cattle. Native vegetation consists of annual grasses, forbs and desert saltbush (<i>Atriplex</i> spp.).

5 – FARMLAND CONVERSION ASSESSMENT

5.0 FARMLAND CONVERSION IMPACTS

This section of the report discusses the potential impacts, including farmland type, amount of land, and farmland conversion location, that could result from the project's implementation. This section also provides an assessment of potential mitigation measures that the County could use to avoid or reduce the proposed conversion impacts.

5.0.0 Existing Contract

The project area includes land within Agricultural Preserve No. 1. As described above, the project would involve the cancellation of a Williamson Act contract made according to the California Land Conservation Act of 1965 of a parcel about 486 acres within Agricultural Preserve No. 1. The adopted Kern County Agricultural Preserve Standard Uniform Rules require areas within agricultural preserves to be used for agricultural purposes to qualify for a contract. Land that is not used for agriculture would not meet the uniform rules and would not be eligible to remain under contract. Because the proposed project would change the land uses from inactive agricultural to a solar facility, which is not a qualified use under the uniform rules, the proposed solar facility would cancel an agricultural land use contract and removal from the Agricultural Preserve. The Preserve and Williamson Act lands near the project parcels are shown in Figure 6.

5.0.1 Farmland Conversion

Farmland conversion means changing Prime Farmland, Unique Farmland, or Farmland of Statewide Important (Farmland), as shown on the maps under the FMMP of the California Resources Agency, to non-agricultural uses. The United States Department of Agriculture Natural Resource Service USDA-

NRCS) has determined that none of the project site's soils is considered prime farmland (Figure 8, Soils Map). The California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program (FMMP) list no prime soils on the Project Site (see Table 4) and the CDOC FMMP does not show any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance for any project parcels (see Figure 6, Williamson Act). Therefore, implementing the proposed solar facility would not result in the conversion of any designated Farmland and would not remove any Farmland from production.

The proposed solar facility would not affect agricultural uses on adjacent or nearby properties under Williamson Act land-use contracts or within agricultural zoning designations for three reasons: (1) the project would not introduce a non-agricultural use that is sensitive to or incompatible with agricultural operations that would occur nearby; (2) at the end of its operating life, infrastructure associated with the facility would be removed, which would allow the project site to return to agricultural use; and (3) the project does not include a zone change so that the entire project site would remain zoned for agriculture, which would encourage future agricultural uses on the property rather than non-agricultural uses. Therefore, the project would not result in farmland conversion impacts.

The project would be consistent with the goals, policies, implementation measures, and action programs of the Kern County General Plan (Goals 2, 3, and 5; Policies 7, 9, and 12) that promotes the preservation and use of available natural resources. Even though agricultural uses would not occur with the proposed project, should the solar facility cease operations, agricultural zoning and the County's standard mitigation measure requiring a Decommissioning Plan and financial assurances would promote the project area's conversion back to agricultural uses. As a result, potential conflict with agricultural uses would not be considered significant.

5.0.2 Findings for a Williamson Act Cancellation

There are specific findings, pursuant to Section 51282, Government Code, that the Kern County Board of Supervisors must make in order for a Williamson Act Contract to be canceled. The Code is provided below, with text underlined to indicate the number of required findings.

51282. (a) The landowner may petition the board or council for cancellation of any contract as to all or any part of the subject land. The board or council may grant tentative approval for cancellation of a contract only if it makes one of the following findings:

- (1) That the cancellation is consistent with the purposes of this chapter.
- (2) That cancellation is in the public interest.

(b) For purposes of paragraph (1) of subdivision (a) cancellation of a contract shall be consistent with the purposes of this chapter only if the board or council makes all of the following findings:

- (1) That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245.
- (2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.
- (3) That cancellation is for an alternative use which is consistent with the applicable provisions of the city or county general plan.
- (4) That cancellation will not result in discontinuous patterns of urban development.
- (5) That there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

Table 4: Evaluation of Alternative Solar Sites

KERN COUNTY APN	ACRES	TOWNSHIP and RANGE	SECTION	WILLIAMSON ACT CONTRACT	FARMLAND CATEGORY	ALTERNATIVE SITE SUITABILITY
043-210-10	20.5	25S-19E	1	0	Prime	Not suitable - too small
043-210-11	57.44	25S-19E	1	0	Prime	Not suitable - too small
043-210-12	77.04	25S-19E	1	0	Grazing	Not suitable - too small
043-210-13	458.17	25S-19E	1	458.17	Prime	Not suitable - contract and prime
043-210-02	300.65	25S-19E	2	0	Natural Vegetation	Not suitable - too small
043-210-04	40.87	25S-19E	2	0	Vacant/Disturbed	Not suitable - too small
043-210-05	39.48	25S-19E	2	0	Natural Vegetation	Not suitable - too small
043-210-06	81.71	25S-19E	2	0	Natural Vegetation	Not suitable - too small
043-210-07	20.3	25S-19E	2	0	Natural Vegetation	Not suitable - too small
043-210-08	41.13	25S-19E	2	0	Natural Vegetation	Not suitable - too small
043-210-09	20.13	25S-19E	2	0	Natural Vegetation	Not suitable - too small
043-210-20	9.75	25S-19E	2	0	Built-up	Not suitable - too small
043-210-21	70.9	25S-19E	2	0	Vacant/Disturbed	Not suitable - too small
043-210-60	14.83	25S-19E	2	0	Built-up	Not suitable - too small
043-210-19	1.11	25S-19E	3	0	Grazing	Not suitable - too small
043-210-27	20.3	25S-19E	3	0	Grazing	Not suitable - too small
043-210-28	620.67	25S-19E	3	620.67	Grazing	Not suitable - contract
043-210-15	163.31	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-210-16	159.97	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-01	19.22	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-02	20.32	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-03	40.23	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-04	14.88	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-05	10.15	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-06	10.6	25S-19E	10	0	Natural Vegetation	Not suitable - too small

KERN COUNTY APN	ACRES	TOWNSHIP and RANGE	SECTION	WILLIAMSON ACT CONTRACT	FARMLAND CATEGORY	ALTERNATIVE SITE SUITABILITY
043-220-07	10.52	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-08	10.07	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-09	10.62	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-10	10.18	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-11	10.63	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-12	10.14	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-13	10.72	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-14	40.23	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-15	3.73	25S-19E	10	0	Grazing	Not suitable - too small
043-220-16	3.74	25S-19E	10	0	Grazing	Not suitable - too small
043-220-17	7.37	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-18	10.18	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-19	9.84	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-20	20.32	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-21	19.75	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-22	9.85	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-220-23	10.23	25S-19E	10	0	Natural Vegetation	Not suitable - too small
043-210-17	485.84	25S-19E	11	485.84	Grazing	Solar Energy Site
043-210-18	162.8	25S-19E	11	0	Grazing	Solar Energy Site
043-550-02	314.38	25S-19E	12	314.38	Prime	Not suitable - contract & prime
043-550-03	40.33	25S-19E	12	40.33	Built-up/Prime	Not suitable - too small
043-550-04	116.3	25S-19E	12	116.3	Built-up/Grazing/Disturbed	Not suitable - too small
043-550-09	163.19	25S-19E	12	163.19	Unique/ rime	Not suitable - too small
043-550-10	640.23	25S-19E	13	640.23	Prime	Not suitable - contract & prime
043-250-36	644.9	25S-19E	14	644.9	Prime	Not suitable - contract & prime
043-250-01	80.65	25S-19E	15	80.65	Natural Vegetation	Not suitable - too small

KERN COUNTY APN	ACRES	TOWNSHIP and RANGE	SECTION	WILLIAMSON ACT CONTRACT	FARMLAND CATEGORY	ALTERNATIVE SITE SUITABILITY
043-250-02	160.4	25S-19E	15	160.4	Prime/Unique/Statewide	Not suitable - too small
043-250-03	159.48	25S-19E	15	0	Grazing	Not suitable - too small
043-250-04	59.87	25S-19E	15	0	Vacant/Disturbed	Not suitable - too small
043-250-05	19.94	25S-19E	15	0	Natural Vegetation	Not suitable - too small
043-250-06	29.99	25S-19E	15	0	Natural Vegetation	Not suitable - too small
043-250-07	50.12	25S-19E	15	0	Natural Vegetation	Not suitable - too small
043-250-08	40.22	25S-19E	15	0	Natural Vegetation	Not suitable - too small
043-250-09	40.1	25S-19E	15	0	Natural Vegetation	Not suitable - too small
Total Acres	5,750.52			3,725.06		

This Page Intentionally Left Blank

As used in this subdivision "proximate, non-contracted land" means land not restricted by contract pursuant to this chapter, which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

5.0.3 Public Interest Finding

Under Section 51282. (a) - The board or council may grant tentative approval for the cancellation of a contract only if it makes one of the following findings:

- (1) That the cancellation is consistent with the purposes of this chapter.
- (2) That cancellation is in the public interest.

Approval of contract cancellation for one project site parcel is in the public interest because solar development of the property aligns with State laws (SB 100) and policies (Executive Order (N-79-20 targeting climate change and reduction of greenhouse gases through promoting renewable energy). County General Plan policies and programs also support renewable energy development and its employment benefits. As indicated in the applicant's petition:

"The proposed cancellation is in the public interest as it would help further the State's progress toward achieving its goal for increased renewable energy and reduced greenhouse emission. The proposed project would generate renewable energy for the State while also providing jobs to local residents."

Implementation of the proposed project will allow the siting of a solar photovoltaic facility, an authorized use with a Conditional Use Permit (CUP) in the 'A' zone. The General Plan encourages the development of alternative energy sources, such as solar energy, while protecting the environment.

The development of the proposed solar facility would address the public's concerns about energy security, global climate change, and the economy. Implementation of the project would not attract additional non-agricultural development to adjacent land (i.e., the solar facility would not induce residential or commercial growth in the area). The proposed solar facility would help the State of California achieve its goal of obtaining 33 percent of its energy from renewable resources. The proposed solar facility would generate renewable electrical power using solar PV panels and connect to the electrical grid. Should the Kern County Board of Supervisors determine that the contract's cancellation is in the public benefit (per Section 51282(a)), no conflict with Williamson Act contracted land would occur.

5.0.4 Additional Williamson Act Findings

Under §51282. (b) of the government code, five additional findings are to be made, as discussed below.

Finding (1) Notice of Nonrenewal - A petition was filed with the County in August 2020 (see Attachment F); therefore, the planned cancellation is on land for which a notice of nonrenewal has been served under §51245. An application for nonrenewal of a Land Use Contract was submitted to the County for approximately 485 acres currently under a Williamson Act Land Use Contract. The Land Use Contract will not expire until August 2030. No other parcels planned for the Azalea Solar Energy Project are under contract. Kern County may require a Mitigation Measure that requires payment of a Williamson Act Contract Cancellation penalty fee before issuing any development permits for the solar facilities if development occurs before the contract expiration.

Finding (2) Removal of Adjacent Lands - The proposed solar Energy would not affect agricultural uses on adjacent or nearby properties under Williamson Act land-use contracts or within agricultural zoning designations for three reasons: (1) the project would not introduce a non-agricultural use that is

sensitive to or incompatible with agricultural operations that would occur nearby; (2) at the end of its operating life, infrastructure associated with the Energy would be removed, which would allow the project site to return to agricultural use; and (3) the project does not include a zone change so that the entire project site would remain zoned for agriculture, which would encourage future agricultural uses on the property rather than non-agricultural uses. Therefore, the project would not result in farmland conversion impacts.

The project would be consistent with the goals, policies, implementation measures, and action programs of the Kern County General Plan (Goals 2, 3, and 5; Policies 7, 9, and 12) that promotes the preservation and use of available natural resources. Also, should the solar Energy cease operations, agricultural zoning and the County's standard mitigation measure requiring a Decommissioning Plan and financial assurances would promote the project area's conversion back to agricultural uses.

Finding (3) Alternative Use - The planned contract cancellation is for solar PV development, an alternative use consistent with the applicable provisions of the County general plan. The project would be consistent with the goals, policies, implementation measures, and action programs of the Kern County General Plan (Goals 2, 3, and 5; Policies 7, 9, and 12) that promotes the preservation and use of available natural resources. Even though agricultural uses would no longer occur with the proposed project, should the solar Energy cease operations, agricultural zoning and the County's standard mitigation measure requiring a Decommissioning Plan and financial assurances would promote the project area's conversion back to agricultural uses.

Construction of the PV solar power generation system facilities would also be consistent with and would not conflict with the project sites' zoning code designations. As shown in Figure 5, all of the project area is zoned Exclusive Agriculture (A). According to Kern County Zoning Ordinance 19.12.030, solar energy electrical facilities are permitted within the A (Exclusively Agricultural) Zone District with approval of a CUP.

Finding (4) Discontinuous Pattern - The cancellation will not result in discontinuous patterns of urban development because there is no urban development in the project vicinity. Developing the solar Energy would preclude the project sites from being available for agricultural production. However, using the sites for the generation of electricity through the passive conversion of sunlight is not anticipated to affect adjacent or nearby agricultural production negatively. There are lands adjacent to the project sites zoned for agricultural use, which are either used for agriculture or undeveloped. Converting the project sites' unused agricultural land to a solar resource is not anticipated to affect nearby growers.

Also, the proposed solar Energy would not place additional restrictions on noise, burning, or dust generation on surrounding operations. Kern County Ordinance Code 8.56 (Ordinance G-6664, Section 2 [2000], Right-to-Farm and Right-to-Business) encourages the operation of properly conducted businesses involved in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. To make potential solar developers and operators aware of possible impacts from nearby agricultural, oil, mining, manufacturing, and other nonresidential activities, the County requires a note on all project site plans that would inform the developer or operator that the property may be subject to inconveniences or discomforts arising from surrounding agricultural and/or oil exploration and extraction operations.

The following note shall appear on all site plans: *"The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights."*

Also, the development would not result in any significant environmental impacts on adjacent properties. Effects from construction and operation activities that may result from the release of fuels, solvents, pesticides, or herbicides onto adjacent properties would be reduced to less-than-significant levels by implementing a hazardous materials business plan during site construction and operation. As a result, the proposed project would not include activities that would restrict or impair agricultural production on adjacent land or nearby properties or otherwise create discontinuous development patterns.

Finding (5) Alternatives - No proximate non-contracted land suitable - An assessment of alternative sites for the planned solar development is discussed in Section 5.0.5 below.

5.0.5 Alternatives Assessment

Finding (5) asks "that there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than the development of proximate non-contracted land." An evaluation of the properties proximate to the project site was conducted to discover if one or more other parcels would suffice for the planned 70 MG solar project. Consideration of 'more contiguous patterns of urban development' was not assessed due to the area's rural nature. The criteria for available and suitable for solar PV development included:

- Land not under Williamson Act Contract
- Minimum parcel size of 400 acres
- Parcel located within 2 miles of the Arco Substation to facilitate tie-in to the electric power grid

The two project site parcels (043-210-170 and 43-210-18) are located in Township 25 South, Range 19 East, Section 11. Figure 3 shows assessor parcel numbers (APNs) for a one-mile radius around the project site totaling 57 parcels. The APN information and parcel size in acres were transferred to a spreadsheet and further information was compiled about each property using data for contracted and non-contracted land (Figure 6 - Williamson Act) and Important Farmland Map (Figure 7). As shown in Table 4, none of the 57 parcels meet the criteria for an alternative solar PV Energy site.

5.0.0 Cumulative and Growth Inducing Impacts

Form 725 requests a discussion of the cumulative and growth-inducing impact of farmland development in the project area and surrounding area. The potential for cumulative effects is also discussed in Section 6.0.3 (CEQA) of this report.

As defined in §15355 of the CEQA Guidelines, a cumulative impact occurs where there are "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." For this soil/farmland assessment, the cumulative impacts' discussion will focus on agricultural lands converted to non-agricultural uses.

The geographic scope for cumulative agricultural resources and forest resource impacts is Kern County as a whole. Kern County ranks high on the list of California counties concerning urbanization and loss of farmland. From 2004 to 2018, 93,125 acres of Important Farmland were converted to another use according to the CDOC's Kern County 2004 -2018 Land Use Summary (CDOC, 2020). The amount of grazing land increased by 63,174 during the same time frame. Furthermore, according to CDOC, many property owners decided not to renew the Williamson Act-contracted acreage. This contributed to a net loss of 29,951 acres of prime and nonprime property through 2018. Continued population growth would likely decrease the amount of agricultural land in Kern County even further, by an estimated 43,256 acres averaging 4,512 acres per year over the 14 years.

Multiple solar projects have been developed, more are currently proposed, and with increased State emphasis on meeting renewable energy goals, even more, are expected. Solar PV projects are especially sought after in areas with proximity to electric substations such as the PG&E Arco Substation. However, if approved, these projects have the potential to convert thousands of acres of agricultural lands, including lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to non-agricultural uses.

5.1 MITIGATION MEASURES

Form 725 provides a list of policy-level and site-specific measures for consideration. This section discusses potential mitigation measures and alternatives that would lessen the farmland conversion impacts of the project. However, as shown in Table 5, only the first measure - consideration of alternative sites - is considered applicable to the project. An alternative site evaluation is presented in Section 5.0.5 of this report. Further, Measure 5 (Right-to-Farm Ordinance) is a measure that the County has already had in place, as discussed in report Section 6.0.3.

Table 5: Assessment of Potential Mitigation Measures

NO.	POTENTIAL MITIGATION MEASURE	APPLICABILITY
1	Alternate site for proposed project; discuss directing proposed development to other site(s) containing lower quality soils to protect prime agricultural land; include lands under ownership of developer and lands not under ownership of developer, but still reasonably available for development (i.e., land is for sale, not in production, imported agriculture water not available, etc.).	This measure is applicable to the proposed project. Alternative sites are discussed in Section 5.0.5 of this report.
2	Limitation of subdivision to areas contiguous to existing development.	The applicable parcel would not be subdivided.
3	Increase in minimum lot sizes in agricultural areas and decrease in lot sizes in urban/suburban areas to reduce demands for farmland conversion.	This is a policy measure that the County might institute. This measure is not available as mitigation for a single site-specific parcel.
4	Protect other existing farmland of equivalent or better quality with Williamson Act Contracts; or require Contracts on adjacent lands to prevent further sprawl.	This is a policy measure that the County might institute. This measure is not available as mitigation for a single site-specific parcel with no neighboring urban uses or urban sprawl potential.
5	Implement right-to-farm ordinances to diminish nuisance impacts of urban uses on neighboring agricultural operations, and vice-versa.	A right-to-farm policy measure that the County has already has in-place is discussed in this report within CEQA Section 6.0.2.
6	Consider establishment of farmland trusts to preserve agricultural land.	There are existing farmland trusts in California. Establishment of additional trusts to support Kern County farmland preservation is a broad implementation measure that the County or other organization might institute. This measure is not available as mitigation for a single site-specific parcel.

7	Where land use designations or zoning districts exist on the property, provide for a transfer of development rights (TDR) to less agriculturally productive lands.	The grazing land parcel to be cancelled is not a candidate for TDR; it is not highly productive land and does not have high density land use or zoning designations.
---	--	--

6 – CEQA INITIAL STUDY CHECKLIST

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the agency's thresholds in determining the potential significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by Appendix F and the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines (2020), the "Environmental Checklist Form." The Environmental Checklist Form is a screening tool used to determine whether an effect may be significant.

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines and shown in Table 6, below, to determine if a project could potentially have a significant adverse effect on agriculture and forest resources. A project could have a significant adverse effect on agriculture and forest resources if it:

- a) Converts Prime Farmland, Unique Farmland, or Farmland of Statewide Important (Farmland), as shown on the maps pursuant to the FMMP of the California Resources Agency, to non-agricultural uses.
- b) Conflicts with existing zoning for agricultural use or a Williamson Act contract.
- c) Conflicts with existing zoning for, or causes rezoning of, forest land (as defined in public.
- d) Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).
- e) Results in the loss of forest land or conversion of forest land to non-forest use
- f) Involves 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; or Results in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).

The CEQA checklist (Table 6) items c and d concern forest resources and are not relevant to this project therefore will not be discussed at length. A discussion of the relevant items a, b, and e follows.

Table 6: CEQA Initial Study Checklist for Agriculture and Forest Resources

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

6.0.0 Conversion of Farmland

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Important (Farmland), as shown on the maps pursuant to the FMMP of the California Resources Agency, to non-agricultural uses?

The NRCS has determined that none of the project site's soils is considered prime farmland. The CDOC FMMP list no prime soils on the project site. The CDOC FMMP does not designate any Prime Farmland, Unique Farmland or Farmland of Statewide Importance mapped on any of the project parcels. Therefore, implementing the proposed solar energy project would not result in the conversion of any Prime Farmland and would not remove any Prime Farmland from production. There would be no impacts associated with the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance due to implementing the proposed solar project.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

Less than significant.

6.0.1 Conflicts with existing Zoning and Williamson Act Land Use Contract

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

Implementation of the proposed project will allow the siting of a solar PV Energy, which is an authorized use with a CUP in the 'A' zone. An application for Nonrenewal Land Use Contract has been submitted to the County for approximately 485 acres currently under a Williamson Act Land Use Contract. The Land

Use Contract will not expire until August 2030. No other parcels planned for the Azalea Solar Energy Project are under contract. Kern County may require a Mitigation Measure that requires payment of a Williamson Act Contract Cancellation penalty fee before issuing any development permits for the solar facilities if development occurs before the contract expiration.

The General Plan encourages the development of alternative energy sources, such as solar energy, while protecting the environment. Construction of the PV solar power generation system facilities would be consistent, and would not conflict, with the agricultural land use designation of the project sites. As shown in Figure 5, all of the project area is zoned Exclusive Agriculture (A). According to Kern County Zoning Ordinance 19.12.030, solar energy electrical facilities are permitted within the A (Exclusively Agricultural) Zone District with approval of a CUP. Therefore, the development of the project sites for use as a solar Energy is expected to result in a less-than-significant impact related to conflicts with existing zoning.

As indicated above, a Williamson Act Land Use Contract cancellation is also requested as part of the proposed project and a Petition for cancellation of the contract was submitted to the County pursuant to Section 51282(a)(1), which requires that the cancellation is in the public interest. The County may grant cancellation only if it makes the required statutory findings (Government Code §51282(a)). To determine that the cancellation is in the public interest, the County must find: (1) that other public concerns substantially outweigh the objectives of the Williamson Act, and (2) that there is no proximate non-contracted land that is both available and suitable for the proposed use or that development of the contracted land would provide more contiguous patterns of urban development (Government Code §51282(c)). There is also a 12.5 percent fee due to the State upon cancellation of a contract.

The development of the proposed solar energy project would address the public's concerns about energy security, global climate change, and the economy. Implementation of the project would not attract additional non-agricultural development to adjacent land (i.e., the solar Energy would not induce residential or commercial growth in the area). The proposed solar energy project would help the State of California achieve its goal of obtaining 33 percent of its energy from renewable resources. The proposed solar energy project would generate renewable electrical power using solar PV panels and connect to the electrical grid. Should the Kern County Board of Supervisors determine that the contract's cancellation is in the public benefit (per §51282(a)), no conflict with Williamson Act contracted land would occur. Impacts associated with Williamson Act lands would be less than significant.

The proposed solar energy project would not affect agricultural uses on adjacent or nearby properties under Williamson Act land-use contracts or within agricultural zoning designations for three reasons: (1) the project would not introduce a non-agricultural use that is sensitive to or incompatible with agricultural operations that would occur nearby; (2) at the end of its operating life, infrastructure associated with the Energy would be removed, which would allow the project site to return to agricultural use; and (3) the project does not include a zone change so that the entire project site would remain zoned for agriculture, which would encourage future agricultural uses on the property rather than non-agricultural uses. Therefore, the project would not result in farmland conversion impacts.

The project would be consistent with the goals, policies, implementation measures, and action programs of the Kern County General Plan (Goals 2, 3, and 5; Policies 7, 9, and 12) that promotes the preservation and use of available natural resources. Even though agricultural uses would not occur with the proposed project, should the solar energy project cease operations, agricultural zoning and the County's standard mitigation measure requiring a Decommissioning Plan and financial assurances would promote the project area's conversion back to agricultural uses. As a result, the impacts of conflict with agricultural

uses would be considered less than significant, and no mitigation other than fulfilling the California Department of Conservation Williamson Act Cancellation project and fee payment would be required.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

Less than significant.

6.0.2 Forest Land Related Issues

c. Conflicts with existing zoning for, or causes rezoning of, forest land (as defined in public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))

d. Results in the loss of forest land or conversion of forest land to non-forest use

The project site is not situated on forest or timberland with areas that are currently under production. There is no land in the vicinity of the project site that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there would be no impacts related to the rezoning of forest land, timberland, or timberland zoned for timberland production and no further analysis is warranted.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

No Impact.

6.0.3 Conversion of Farmland in the Existing Environment

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use; or Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code)?

The proposed solar energy project would not convert lands designated as Prime Farmland, Unique Farmland or Farmland of Statewide Importance to non-agricultural use. None of the project sites parcels are consistently farmed. Developing the solar Energy would preclude the sites from being available for agricultural production. However, the use of the sites for the generation of electricity through the passive conversion of sunlight is not anticipated to affect adjacent or nearby agricultural production negatively. There are lands adjacent to the project sites that are zoned for agricultural use, which are either used for agriculture or are undeveloped. Converting the project sites' unused agricultural land to a solar resource use is not anticipated to affect any nearby growers.

In addition, the proposed solar energy project would not place additional restrictions on noise, burning, or dust generation on surrounding operations. Kern County Ordinance Code 8.56 (Ordinance G-6664, §2 [2000], Right-to-Farm and Right-to-Business) encourages the operation of properly conducted businesses involved in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. In order to make potential solar developers and operators aware of possible impacts from nearby agricultural, oil, mining, manufacturing, and other non-residential activities, the County

requires a note on all project site plans that would inform the developer or operator that the property may be subject to inconveniences or discomforts arising from surrounding agricultural and/or oil exploration and extraction operations.

The following note shall appear on all site plans: *"The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights."*

There are two road access routes under consideration (Attachment 1, Figures 3 and 6) which would be used for construction activity. This temporary (12-14 months) construction activity would involve hauling heavy equipment and workers to and from the solar site, potentially using Road Access Option 2 through a Williamson Act contracted property. The contracted land (APN 043-210-28) is located north of the existing substation. Since use of the land for grazing livestock can be scheduled to accommodate the equipment and personnel hauling and the construction is temporary, this is not considered to be a significant impact.

Also, development would not result in any significant environmental impacts on adjacent properties. Impacts from construction and operation activities that may result from the release of fuels, solvents, pesticides, or herbicides onto adjacent properties would be reduced to less-than-significant levels through the implementation of a hazardous materials business plan during site construction and operation. As a result, the proposed project would not include activities restricting or impairing agricultural production on adjacent land or nearby properties. With implementation of project best management practices, environmental impacts would be considered less than significant.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

Less than significant.

6.0.4 Cumulative Impacts Discussion

As defined in §15355 of the CEQA Guidelines, a cumulative impact occurs where there are *"two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."* For this soil/farmland assessment, the cumulative impacts' discussion will focus on agricultural lands converted to non-agricultural uses.

The geographic scope for cumulative agricultural resources and forest resource impacts is Kern County as a whole. Kern County ranks high on the list of California counties concerning urbanization and loss of farmland. From 2004 to 2018, 93,125 acres of Important Farmland were converted to another use according to the CDOC's Kern County 2004 -2018 Land Use Summary (CDOC, 2020). The amount of grazing land increased by 63,174 during the same time period. Furthermore, according to CDOC, many property owners decided not to renew the Williamson Act–contracted acreage. This contributed to a net loss of 29,951 acres of prime and nonprime property through 2018. Continued population growth would likely decrease the amount of agricultural land in Kern County even further, by an estimated 43,256 acres averaging 4,512 acres per year over the 14 years.

Multiple solar projects have been developed, more are currently proposed, and with increased State emphasis on meeting renewable energy goals, even more, are expected. Solar PV projects are especially

sought after in areas with proximity to electric substations such as the PG&E Arco Substation. However, if approved, these projects have some potential to convert thousands of acres of agricultural lands, including lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to non-agricultural uses.

The Azalea Solar Energy Project would be built on land classified as grazing land; it would not convert land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use to accommodate the project. Therefore, conversion of lands specified as farmland (i.e. - Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) is not an issue for this project, and no further discussion of cumulative impacts is needed.

The Williamson Act contract nonrenewal for the 486-acre parcel (APN no. 043-210-17) combined with the Countywide trend to construct solar PV facilities indicates that cumulative effects for nonrenewal of Williamson Act contracts may result in cumulative impacts. However, review of solar project CEQA documents available from the County Planning and Natural Resources Department (<https://kernplanning.com/planning/environmental-documents/> - accessed on July 19, 2021) shows that few solar project proposals involve Williamson Act lands.

Review of the environmental documents listed on the County website indicated that only one solar project involved contract cancellation: Springbok Solar Farm 2 (MacIntosh and Associates, 2014) located in eastern Kern County was the only example found. This is probably due to the amount of non-contracted open lands available for solar development, plus the prolonged process and cancellation fee (equal to 12.5 percent of the cancellation valuation) due to the State of California Department of Conservation for cancelling a contract in order to develop land before its contract expires (https://www.conservation.ca.gov/dlrp/wa/Pages/removing_contracts_cancellations.aspx - accessed July 19, 2021). The existing Williamson Act cancellation process serves as a mitigation measure. For these reasons, cumulative impacts are considered less than significant, and no additional mitigation measures would be required.

Cumulative Impact: Mitigation Measures

No mitigation measures would be required.

Cumulative Impact: Level of Significance

Less than significant.

7 – REFERENCES

- Anderson, Jim. Project landowner, personal conversation, December 18, 2020.
- California Department of Food and Agriculture (Data and Statistics) <http://www.usda.gov>
- CDOC. California Department of Conservation. Kern County Important Farmland Data. <https://www.conservation.ca.gov/dlrp/fmmp/Pages/Kern.aspx>. Accessed December 21, 2020.
- CDOC, 2020. California Department of Conservation. Kern County Important Farmland Data. <https://www.conservation.ca.gov/dlrp/fmmp/Pages/Kern.aspx> Accessed December 21, 2020.
- OPR. 2020. California Governor's Office of Policy and Research (OPR). 2020. CEQA Guidelines. <https://www.opr.ca.gov/ceqa/> Accessed December 15, 2020.
- EDR, "Radius Map™ Report," unpublished report prepared for vacant parcels surrounding Latitude (North): 35.7743690 / Longitude (West): 119.9032450, dated September 30, 2020.

- FMMP. 2016. Farmland Mapping and Monitoring Program, State of California, Department Of Conservation (Farmland Conversion Report 2014 to 2016).
https://www.conservation.ca.gov/dlrp/fmmp/Pages/2014-2016_Farmland_Conversion_Report.aspx Accessed December 14, 2020.
- Kern County Department of Agriculture and Measurement Standards. Kern County Agricultural Crop Reports – Summary, Top Twenty Crops, Field Crops, and Vegetable Crops – 2019. Accessed December 14, 2020.
- Kern County. 2009. Kern County General Plan. Kern County Community Development. Bakersfield. September.
- NRCS. Soil Survey Kern County, California, Northwestern Part, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> accessed December 10, 2020.
- State of California, California Environmental Quality Act, CEQA Guidelines, Sacramento - January 2020. Accessed December 15, 2020.
- S2S. Site vicinity reconnaissance conducted by Deborah Kruse (S2S) and Tim Naughton (S2S) on September 21, 2020

This Page Intentionally Left Blank

Attachment A: Figures

Figure 1: Regional Map

Figure 2: Vicinity Map

Figure 3: Project and APN Map

Figure 4: General Plan Map

Figure 5: Zone District Map

Figure 6: Agricultural Preserves and Lands Under Williamson Act Land Use Contracts

Figure 7: Important Farmland Map

Figure 8: Soils Map

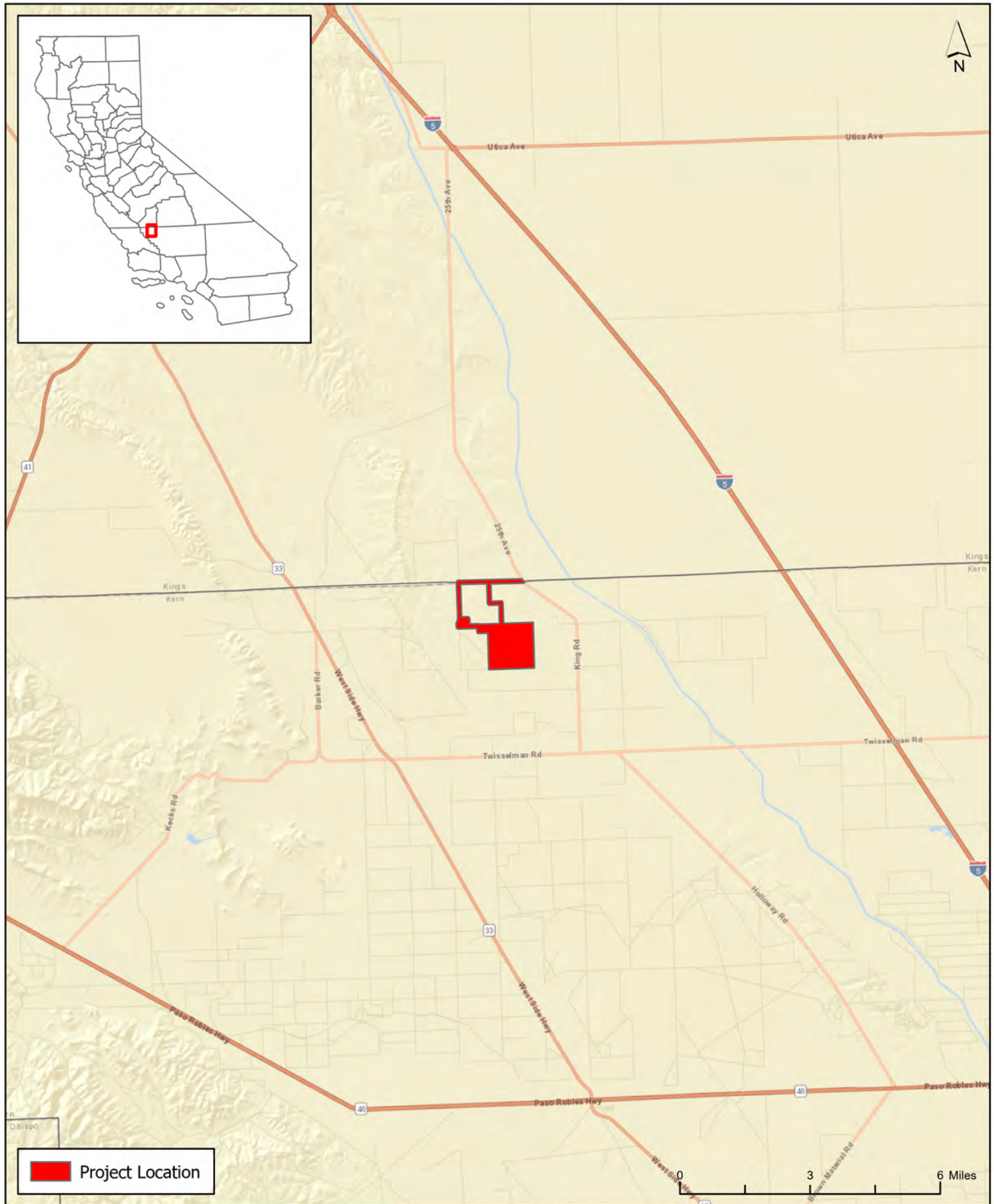
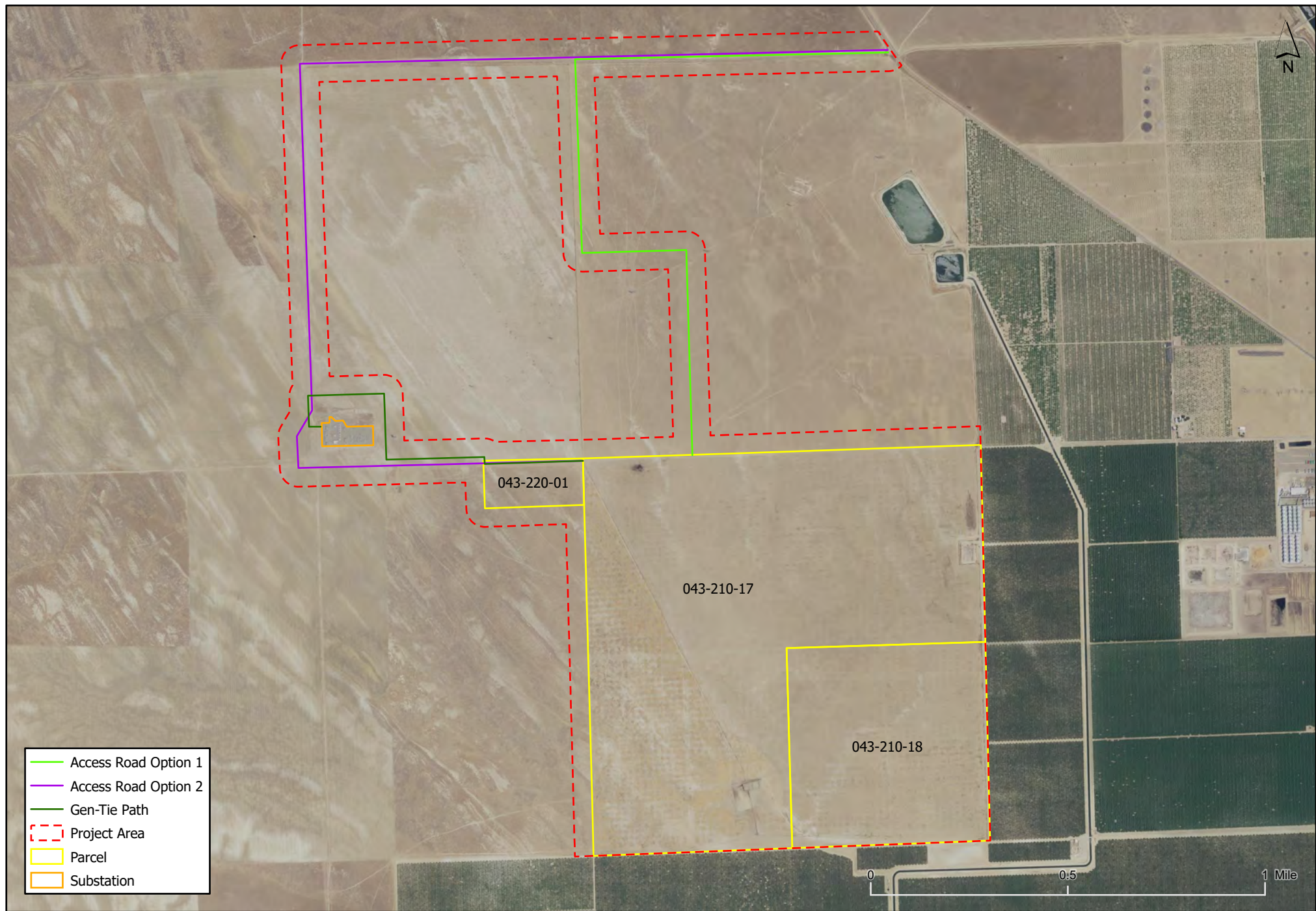


Figure 1: Vicinity Map
 Azalea Solar Facility Project
 Lost Hills, Kern County, CA 93249

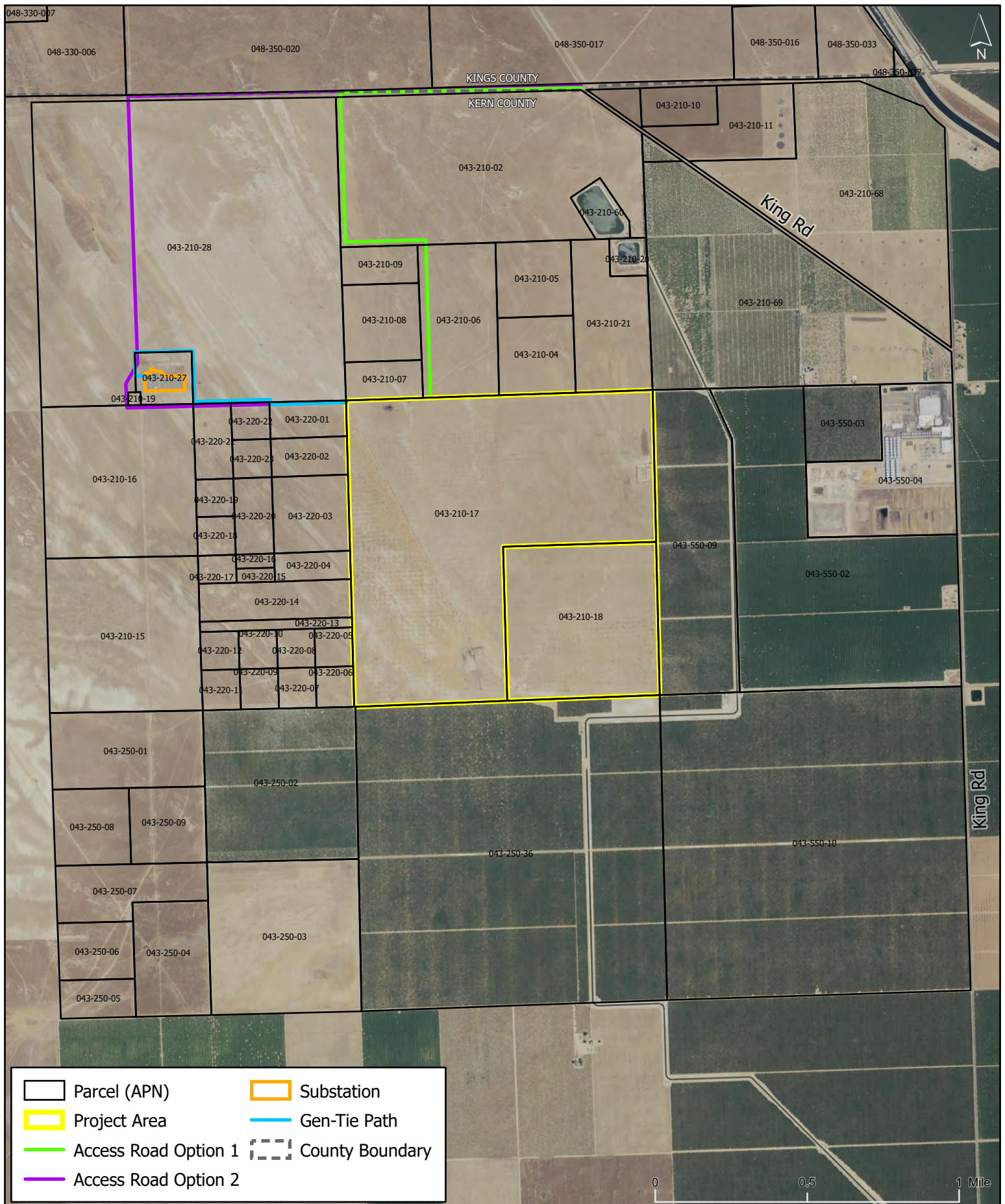


2246 Camino Ramon
 San Ramon, CA 94583
 (925) 362-3041



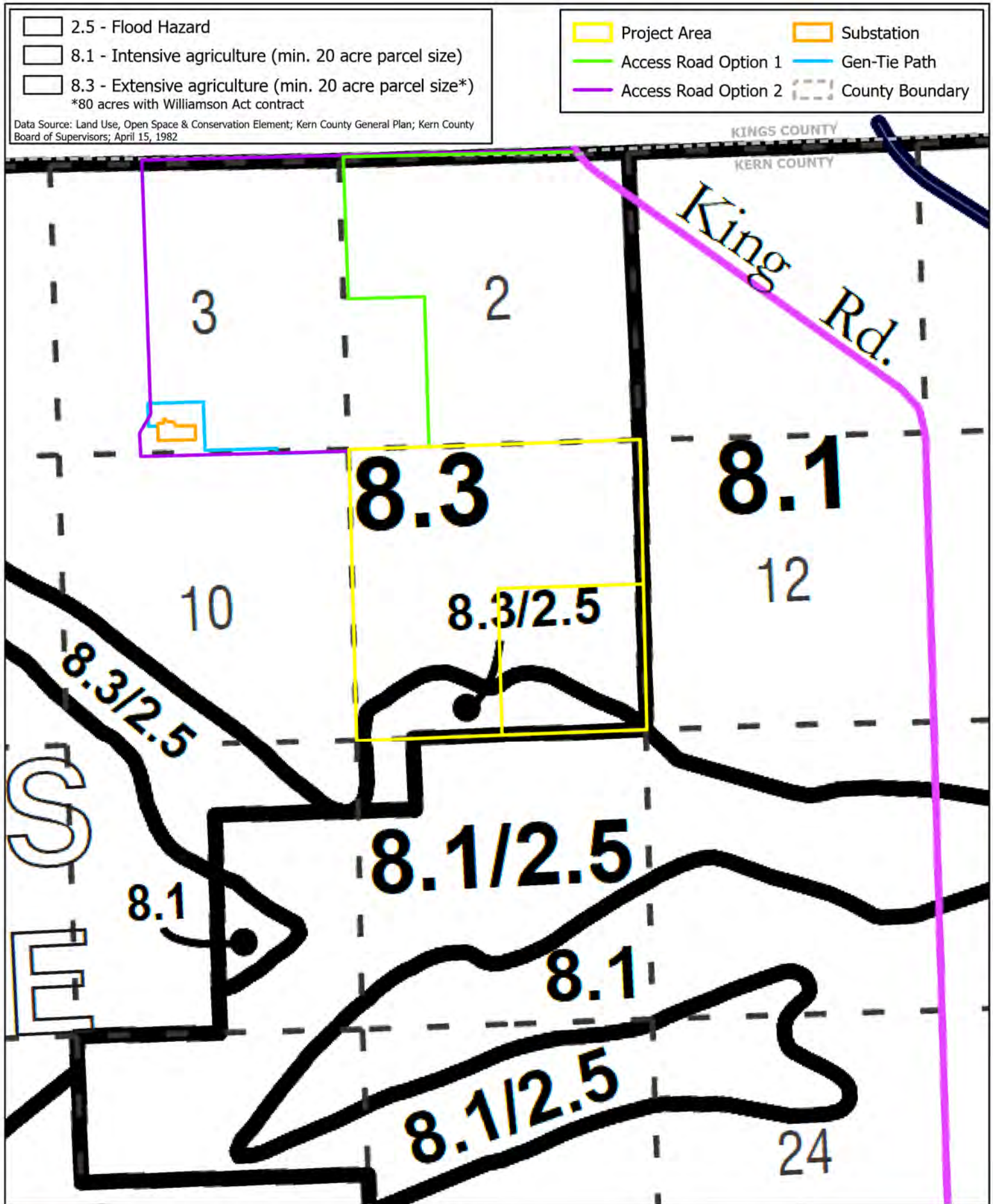
2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 2: Project Area
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 3: Assessor Parcel Number (APN)
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

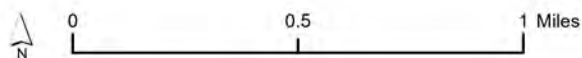
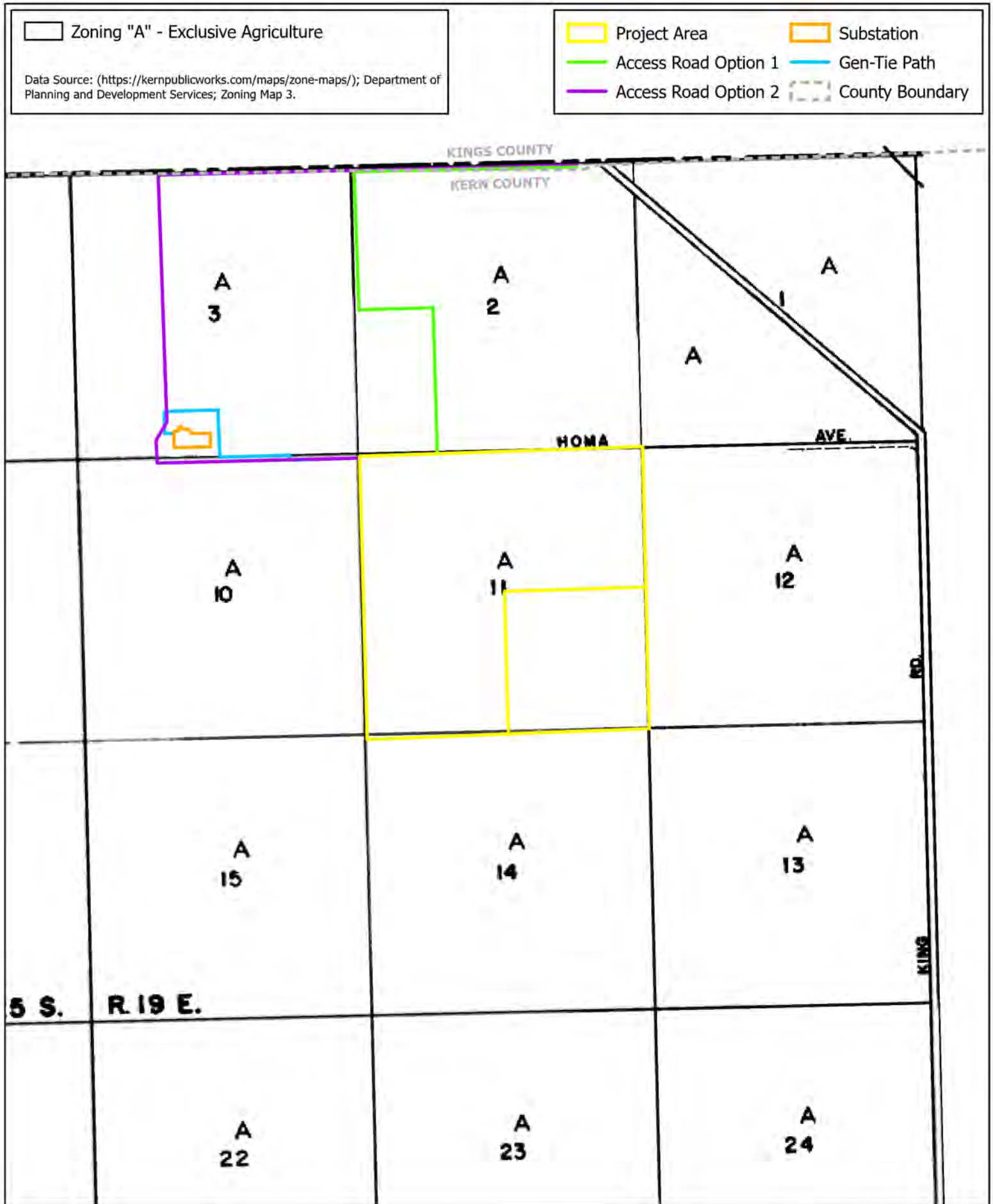


Figure 4: General Plan
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

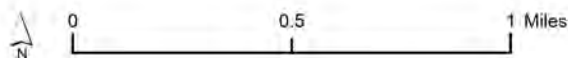


Figure 5: Zone District
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249

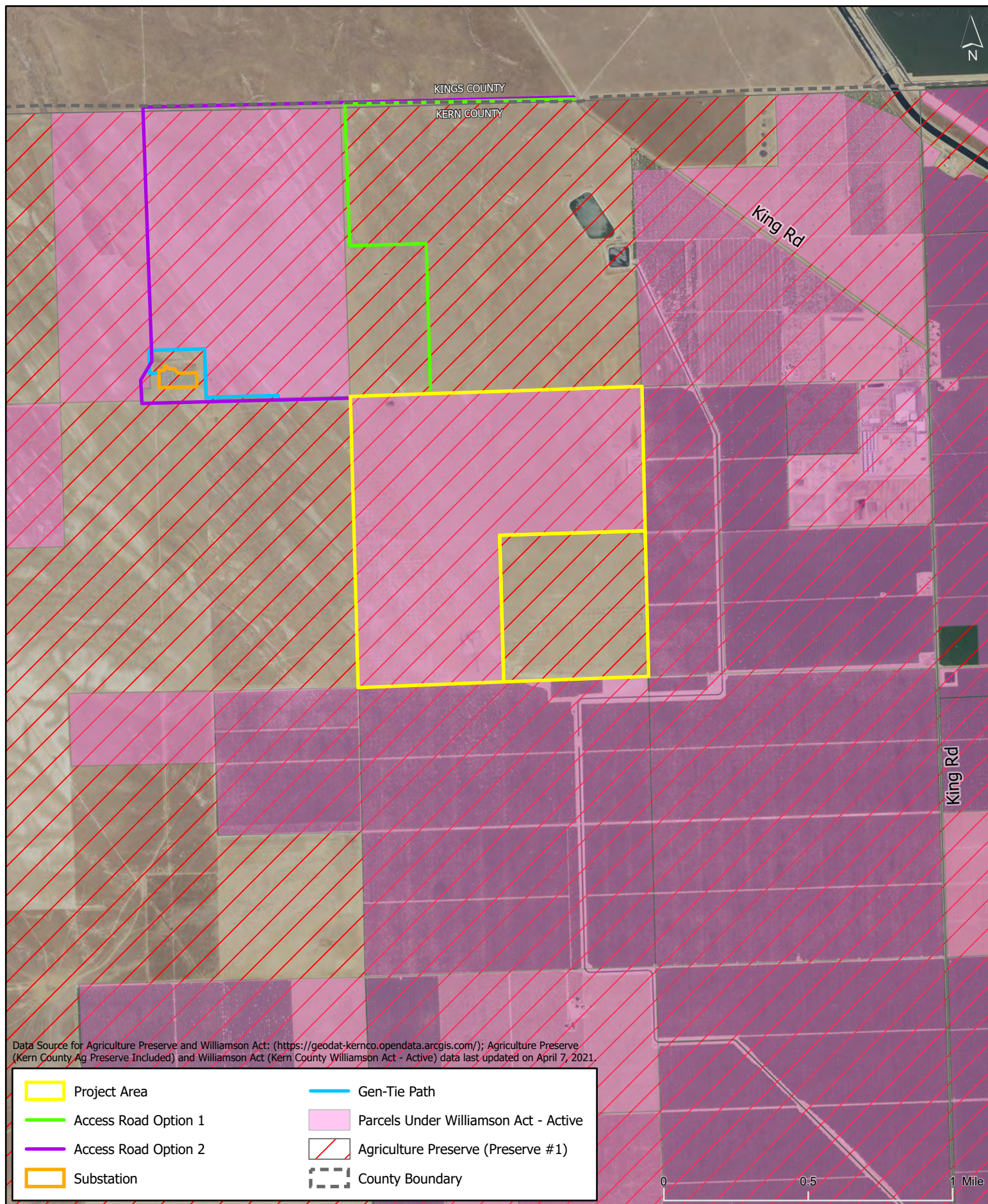
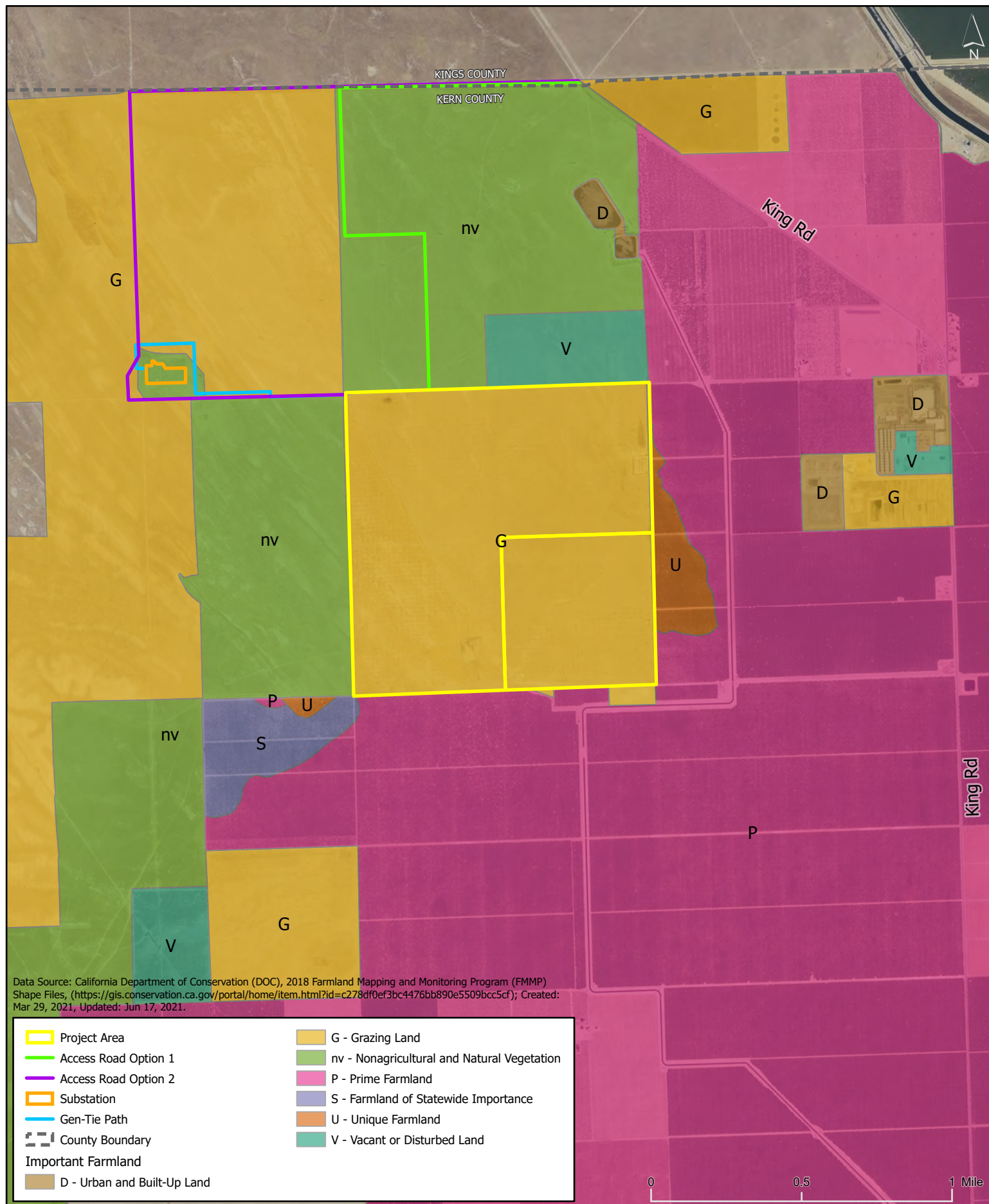


Figure 6: Agriculture Preserve and Parcels Under Active Williamson Act Contracts
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249

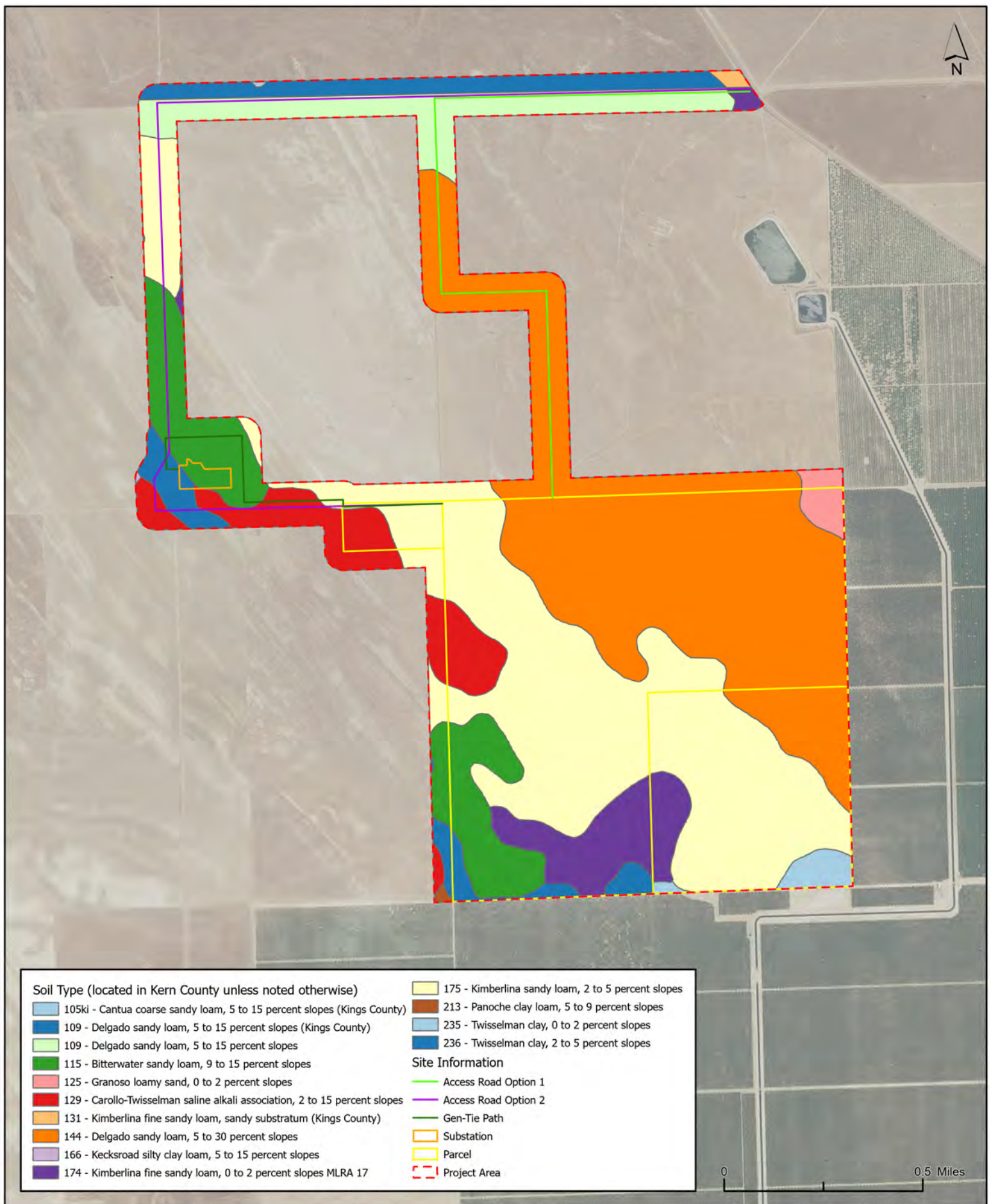


2246 Camino Ramon
 San Ramon, CA 94583
 (925) 362-3041



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 7: Important Farmland
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249



This Page Intentionally Left Blank

Attachment B: State of California Government Code, Section 51282 – Williamson Act

State of California

GOVERNMENT CODE

Section 51282

51282. (a) The landowner may petition the board or council for cancellation of any contract as to all or any part of the subject land. The board or council may grant tentative approval for cancellation of a contract only if it makes one of the following findings:

- (1) That the cancellation is consistent with the purposes of this chapter.
- (2) That cancellation is in the public interest.

(b) For purposes of paragraph (1) of subdivision (a) cancellation of a contract shall be consistent with the purposes of this chapter only if the board or council makes all of the following findings:

(1) That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245.

(2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.

(3) That cancellation is for an alternative use which is consistent with the applicable provisions of the city or county general plan.

(4) That cancellation will not result in discontinuous patterns of urban development.

(5) That there is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

As used in this subdivision "proximate, noncontracted land" means land not restricted by contract pursuant to this chapter, which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

As used in this subdivision "suitable" for the proposed use means that the salient features of the proposed use can be served by land not restricted by contract pursuant to this chapter. Such nonrestricted land may be a single parcel or may be a combination of contiguous or discontinuous parcels.

(c) For purposes of paragraph (2) of subdivision (a) cancellation of a contract shall be in the public interest only if the council or board makes the following findings:

(1) that other public concerns substantially outweigh the objectives of this chapter; and (2) that there is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

As used in this subdivision “proximate, noncontracted land” means land not restricted by contract pursuant to this chapter, which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

As used in this subdivision “suitable” for the proposed use means that the salient features of the proposed use can be served by land not restricted by contract pursuant to this chapter. Such nonrestricted land may be a single parcel or may be a combination of contiguous or discontiguous parcels.

(d) For purposes of subdivision (a), the uneconomic character of an existing agricultural use shall not by itself be sufficient reason for cancellation of the contract. The uneconomic character of the existing use may be considered only if there is no other reasonable or comparable agricultural use to which the land may be put.

(e) The landowner’s petition shall be accompanied by a proposal for a specified alternative use of the land. The proposal for the alternative use shall list those governmental agencies known by the landowner to have permit authority related to the proposed alternative use, and the provisions and requirements of Section 51283.4 shall be fully applicable thereto. The level of specificity required in a proposal for a specified alternate use shall be determined by the board or council as that necessary to permit them to make the findings required.

(f) In approving a cancellation pursuant to this section, the board or council shall not be required to make any findings other than or in addition to those expressly set forth in this section, and, where applicable, in Section 21081 of the Public Resources Code.

(g) A board or council shall not accept or approve a petition for cancellation if the land for which the cancellation is sought is currently subject to the process specified in Section 51250, unless the cancellation is a part of the process specified in Section 51250.

(Amended by Stats. 2008, Ch. 503, Sec. 6. Effective January 1, 2009.)

This Page Intentionally Left Blank

Attachment C: Form 725 – Guidelines for Agricultural Soils/Farmland Conversion Studies

GUIDELINES FOR AGRICULTURAL SOILS/FARMLAND CONVERSION STUDIES

I. DESCRIPTION OF EXISTING AGRICULTURAL CHARACTER

- A. Describe the agricultural character of the area covered by the proposed action and of nearby or surrounding lands which may be affected by the conversion.
1. Provide a map which identifies the location of Agricultural Preserves and lands under Williamson Act Land Use Contracts in the project area.
 2. Note the number of acres and type of land in each preserve (i.e., whether prime or nonprime soils).
 3. Describe the types and relative yields of crops grown in the affected areas, or in areas of similar soils under good agricultural management; where an area has been used historically for farming and is now fallow, this discussion should include the types of crops grown in the area and reasons for its present fallow condition. The following format could be used to describe crop types and yields:

<u>CROP</u>	<u>BEARING</u>	<u>PER ACRE</u>	<u>UNIT VALUE</u>	<u>TOTAL</u>
	<u>ACREAGE</u>	<u>YIELD/TON</u>	<u>PER TON</u>	<u>VALUE</u>

4. Agricultural potential based on the U.S. Department of Agriculture Land Capability Classification system.
- B. If the property is under Williamson Act Land Use Contract, describe the impacts of any required cancellations of such Contract(s) affecting the project site and surrounding properties; include the following data:
1. Indicate the location of Williamson Act Contracts on lands within and adjacent to the project area.
 2. Discuss the effects that cancellation of Williamson Act Contract might have on nearby properties also under contract.
 3. Discuss the specific findings pursuant to Section 51282, Government Code, that must be made by the Board of Supervisors in order for the Williamson Act Contract to be cancelled.
 4. Describe the location and types of dwellings and/or other structures that are permitted on the property under the provisions of the contract.

It should also be noted that Government Code Section 51284 states that no Contract may be cancelled until after the County has given notice of and has held a public hearing on the matter. Notice of the hearing shall be published and mailed to the Director of the Department of Conservation and other specified entities.

II. DISCUSSION OF FARMLAND CONVERSION IMPACTS

- A. Discuss the type, amount of land, and location of farmland conversion that would result from implementation of the project.
- B. Discuss the impact on current and future agricultural operations; include:
 - 1. From Countywide figures, the percentage of land no longer available for production of the types of crops grown on the site or on soils found on the site.
 - 2. The economic loss based on Countywide averages for the types of crops grown on the site or on soils found on the site.
 - 3. Any changes to methods of agricultural husbandry applies to adjacent lands that will occur as a result of implementation of the project.
- C. The cumulative and growth-inducing impact of the development on farmland in the project area and surrounding area. The cumulative impact discussion should treat this proposal within the context of all similar proposals approved within the past several years (five years), or pending approval, as well as applications for similar proposals expected within the foreseeable future (see Section 15355, State CEQA Guidelines).

III. DISCUSSION OF MITIGATION MEASURES AND ALTERNATIVES

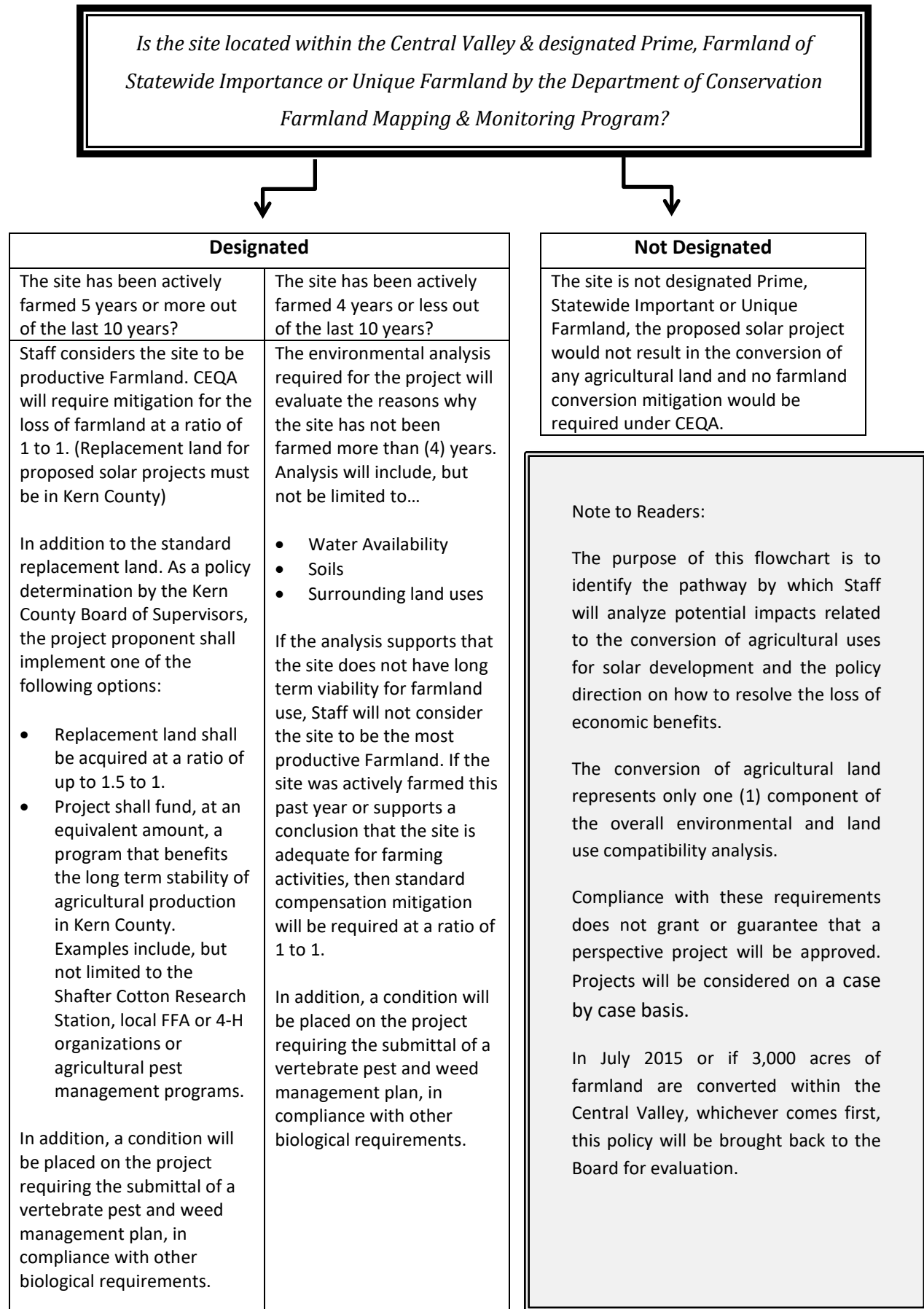
Provide a discussion of mitigation measures and alternatives that would lessen the farmland conversion impacts of the project; include:

- A. Alternate site for proposed project; discuss directing proposed development to other site(s) containing lower quality soils in order to protect prime agricultural land; include lands under ownership of developer and lands not under ownership of developer, but still reasonably available for development (i.e., land is for sale, not in production, imported agriculture water not available, etc.).
- B. Limitation of subdivision to areas contiguous to existing development.
- C. Increase in minimum lot sizes in agricultural areas and decrease in lot sizes in urban/suburban areas to reduce demands for farmland conversion.
- D. Protect other existing farmland of equivalent or better quality with Williamson Act Contracts; or require Contracts on adjacent lands to prevent further sprawl.
- E. Implement right-to-farm ordinances to diminish nuisance impacts of urban uses on neighboring agricultural operations, and vice-versa.
- F. Consider establishment of farmland trusts to preserve agricultural land.
- G. Where land use designations or zoning districts exist on the property, provide for a transfer of development rights to less agriculturally productive lands.

This Page Intentionally Left Blank

Attachment D: Kern County Pathway for Processing Conversion of Agricultural Land to Solar PV Use

PATHWAY FOR PROCESSING: CONVERSION OF AGRICULTURAL LAND TO SOLAR PV USE



This Page Intentionally Left Blank

Attachment E: Williamson Act Contract

RECORDED AT REQUEST OF,
AND RETURN TO:
CLERK OF THE BOARD
CIVIC CENTER - ROOM 600
BAKERSFIELD, CALIF. - 93301

FEB-27-70 10974 • 4:15 • D 18 FBK 2 10.80

Recorded By RAY A. VERCAMMEN, Kern Co. Recorder

LAND USE CONTRACT

(California Land Conservation Act of 1965,
and Open-Space Land Valuation Law of 1967.)

THIS CONTRACT, entered into this 18th day of February
1970 by and between the COUNTY OF KERN, a political subdivision of
the State of California, herein referred to as "COUNTY," and

JOSE ERROTABERE and EMILIE ERROTABERE

hereinafter referred to as "OWNER,"

W I T N E S S E T H :

(a) WHEREAS, Owner is the owner of certain real property
situate in the County of Kern, State of California, which is devoted
to agricultural use and is located within an area which has been
designated by the County as an agricultural preserve, and a description
of said land, together with a reference to the map showing the location
of said agricultural preserve, is set forth in Exhibit "A" attached
hereto and incorporated herein by reference; and

(b) WHEREAS, both Owner and County desire to limit the use
of such land for the purposes of preserving it pursuant and subject
to the conditions set forth in this Contract and in the California
Land Conservation Act of 1965, as amended, in order to preserve a
maximum amount of the limited supply of agricultural land and to there-
by conserve the State's economic resources, to maintain the agricultural
economy of the State, and to assure an adequate, healthful and nutri-
tious food for future residents of this State and nation; and

(c) WHEREAS, the Owner desires to have the benefits of Article
XXVIII of the California Constitution and of Sections 421 through 429,
inclusive, of the Revenue and Taxation Code and other provisions of
law relating to the valuation and assessment of open-space land subject
to enforceable restrictions, as are now or may be from time to time
in effect;

NOW, THEREFORE, the parties hereto, in consideration of the mutual covenants and conditions set forth herein and the substantial public benefits to be derived therefrom, do hereby agree as follows:

1. TERM OF CONTRACT; AUTOMATIC EXTENSION; NOTICE OF INTENT NOT TO RENEW:

(a) This Contract shall be effective as of the 28th day of February next succeeding the date of this Contract, to wit, the date which is first mentioned herein, and shall remain in effect for an initial term of ten (10) years from and including such date and during renewals of this Contract.

(b) Each 28th day of February of each year during which this Contract shall be in effect shall be deemed to be the annual renewal date of this Contract, as mentioned in Sections 51244 and 51245 of the Act. On said annual renewal date a year shall be added automatically to the initial term aforementioned, and the term of this Contract shall be thereby renewed and extended, unless notice of nonrenewal has been given as provided in Section 51245 of the Act.

(c) If the County or Owner gives notice of intent in any year not to renew this Contract, the Contract shall remain in effect for the balance of the term or extended term remaining since the original execution or the last renewal of the Contract, as the case may be.

2. CONTRACT MADE PURSUANT TO LAND CONSERVATION ACT:

This Contract is made and entered into pursuant to the California Land Conservation Act of 1965 (Chapter 7 of Part 1 of Division 1 of Title 5 of the California Government Code commencing with Section 51200) sometimes referred to herein as the "Land Conservation Act" or "Act," and is subject to all of the provisions thereof.

3. ENFORCEABLE RESTRICTION:

(a) It is mutually agreed that this Contract is and shall be an enforceable restriction within the meaning and for the purposes of Article XXVIII of the Constitution of the State of California, said Land Conservation Act, and said Sections 421 through 429, inclusive, of the Revenue and Taxation Code as are now or may be from time to time in effect; and it is contemplated that this Contract shall be enforced and administered by the County in such a manner as to accomplish the purposes of said Article of the California Constitution and the aforementioned statutes.

(b) It is mutually understood that the County may bring any action in court necessary to enforce this Contract, including, but not limited to, an action to enforce this Contract by specific performance or injunction.

4. CONTRACT MADE IN CONFORMITY WITH UNIFORM RULES ADOPTED BY COUNTY:

(a) This Contract is also made and entered into pursuant to the provisions of the Uniform Rules adopted by the Board of Supervisors of the County governing the administration of agricultural preserves, including but not confined to the land use restrictions and enumeration and definition of compatible uses therein contained.

(b) It is expressly understood and agreed that during the term of this Contract or any renewals thereof the Board of Supervisors of the County may add to those agricultural and compatible uses specified in the Resolution or Resolutions prescribing Uniform Rules governing the administration of the agricultural preserve within which the land described in this Contract is located or may otherwise modify said Uniform Rules, provided, however, that the subsequent elimination or reduction in scope of a compatible use which is so enumerated or defined, or the subsequent imposition of any land use restriction which

is not set forth, in said Uniform Rules as of the date of this Contract, shall not be deemed to effect the land described in this Contract unless and except with the written consent of the Owner.

(c) The Uniform Rules which are applicable to the agricultural preserve in which the land herein described is situated are incorporated herein by reference, including those Uniform Rules as are in effect at the date of this Contract and, subject to the limitations aforementioned in this Article, those amendments or additions thereto which may be subsequently adopted from time to time.

5. EXCLUSION OF USES OTHER THAN AGRICULTURAL AND COMPATIBLE USES:

(a) During the term of this Contract or any renewals thereof the herein described land shall not be used for any purpose other than agricultural uses and those uses compatible with agricultural uses.

(b) As used in this Contract, the following terms shall have these respective meanings:

(1) "Agricultural uses" shall mean the use of land for the purpose of producing an agricultural commodity for commercial purposes.

(2) "Agricultural commodity" shall mean any and all plant and animal products produced in this state for commercial purposes.

(3) "Compatible uses" shall mean those uses enumerated in the Uniform Rules, or as determined by the Land Conservation Act.

(4) "Uniform Rules" shall mean the Uniform Rules adopted by the Board of Supervisors of the County governing the administration of agricultural preserves, as more fully described in Article 3 hereinabove.

6. LIMITATION ON STRUCTURES:

During the term of this Contract or any renewals thereof no structure shall be erected upon said land except such structures as may be directly related to agricultural uses and those uses compatible with agricultural uses.

7. EFFECT ON PLANNING AND ZONING POWERS:

It is mutually understood and agreed that neither the provisions of this Contract nor of any Uniform Rule adopted by the Board of Supervisors of the County shall in any manner effect, limit or supersede the planning and zoning powers of the County.

8. CONTRACT RUNS WITH LAND; EFFECT OF DIVISION OF LAND:

(a) All provisions of this Contract shall run with the land described herein.

(b) This Contract shall be binding upon, and inure to the benefit of, all successors in interest of the owner.

(c) Whenever land under this Contract is divided, the Owner of any parcel of such divided land may exercise, independent of any other Owner of any other portion of such divided land, any of the rights of the Owner in the original Contract, including the right to give notice of nonrenewal and to petition for cancellation. The effect of any such action by the Owner of a parcel created by such division of land under this Contract shall not be imputed to the Owners of the remaining parcels and shall have no effect on the Contract as it applies to the remaining parcels of the divided land.

9. ANNEXATION TO CITY:

In event of annexation by a city of any land under this Contract, such city shall succeed to all rights, duties and powers of the County under this Contract, except as otherwise provided in the Land Conservation Act.

10. OWNER TO FURNISH INFORMATION:

(a) Owner agrees to furnish the County with such information as the County shall require in order to enable it to determine the continuing eligibility of the land herein described with respect to the terms of the Act, the provisions of this Contract, and under the Uniform Rules relating to the preserve in which said land is situated, from time to time when requested by the County.

(b) Owner agrees that a copy of this Contract may be recorded by the County, and agrees to properly acknowledge all signatures required of Owner herein for such purpose.

11. WAIVER OF PAYMENTS:

Owner hereby waives any obligation of County to make any payments to Owner under this Contract and Owner shall not receive any payment from County in consideration of the obligations imposed hereunder, it being recognized and agreed that the consideration for the execution of the within Contract is the substantial public benefit to be derived therefrom and the advantage which will accrue to Owner as a result of the effect on the method of determining the assessed value of land described herein and any reduction therein due to the imposition of the limitations on its use contained in this Contract.

12. CANCELLATION:

This Contract may only be cancelled in accordance with the provisions of Sections 51280-51285 of the Act.

13. EFFECT OF REMOVAL OF LAND FROM AGRICULTURAL PRESERVE:

It is agreed that removal of any land under this Contract from an agricultural preserve shall be equivalent of notice of non-renewal by the County, for the purposes of Section 426 of the Revenue and Taxation Code, as now in effect or as it may from time to time be amended, and applicable provisions of the Land Conservation Act.

14. EFFECT OF EMINENT DOMAIN OR OTHER ACQUISITION OF LAND:

(a) When any action in eminent domain for the condemnation of the fee title of the entire parcel of land herein described is filed, or when such land is acquired in lieu of eminent domain for a public improvement by a public agency or person or whenever there is any such action or acquisition by the federal government or any person, instrumentality or agency acting under authority or power of the federal government, this Contract shall be deemed null and void as to the land actually being condemned or so acquired as of the date the action is filed, and upon the termination of such a proceeding, this Contract shall be null and void for all land actually taken or acquired.

(b) When such an action to condemn or acquire less than all the entire parcel land herein described is commenced, this Contract shall be deemed null and void as to the land actually so condemned or acquired.

(c) The land actually taken by the means aforementioned in this Article shall be removed from this Contract. Under no circumstances shall land be removed from this Contract that is not actually taken by the means aforementioned, except as otherwise provided in the Land Conservation Act, as now in effect or as it may from time to time be amended.

15. INCORPORATION OF PROVISIONS OF ACT BY REFERENCE; SUBSEQUENT AMENDMENTS:

(a) The provisions of the Land Conservation Act, including any amendments enacted on or before the date of this Contract, are incorporated herein and made a part of this Contract by reference, and all of the provisions of this Contract shall be subordinate thereto and construed harmoniously therewith.

(b) Any provision contained in any amendments to the Land Conservation Act enacted from time to time subsequent to the date of this Contract and which is procedural or remedial in effect shall also be deemed incorporated herein and made a part of this Contract by reference.

(c) Any provision contained in any amendments to the Land Conservation Act enacted from time to time subsequent to the date of this Contract which has the effect of altering a substantive right or obligation of the Contract shall not be deemed incorporated herein, unless with the mutual consent of the parties hereto or unless otherwise provided in this Contract. Such substantive right or obligation shall include, but is not limited to, the following: increasing or decreasing the term of the Contract; eliminating or altering the right to or grounds for nonrenewal or cancellation of the Contract; or eliminating, adding, or modifying any land use restriction or compatible use of land.

(d) Any provision of any amendments to the Land Conservation Act enacted from time to time subsequent to the date of this Contract which is incorporated by reference herein as provided in this Article shall be substituted in place of any corresponding provision of this Contract and all other provisions of this Contract shall be construed harmoniously therewith.

(e) In event any sections of the Land Conservation Act referred to herein are renumbered, any references to sections herein shall be deemed renumbered accordingly.

16. AMENDMENT BY MUTUAL AGREEMENT:

This Contract may be amended at any time and from time to time by mutual agreement in writing of the parties hereto endorsed hereon or attached hereto, subject to any express provisions to the contrary contained in this Contract or in the Land Conservation Act.

17. NOTICES, MANNER OF GIVING:

(a) Notices to be given to Owner pursuant to this Contract, or as may otherwise be required by law in connection with the administration of this Contract, may be sent by first-class United States Mail addressed to Owner at the address shown below Owner's signature hereinbelow, and the Owner expressly waives any other method of giving notice to him.

(b) Notices to be given to County pursuant to this Contract may be sent by first-class United States Mail addressed to Board of Supervisors, County of Kern, Kern County Courts and Administration Building, 1415 Truxtun Avenue, Bakersfield, California.

(c) Such notices may also be given by one party to the other by personal service.

(d) By the means mentioned in this Article a party may give to the other notice of a new address, after which notices to be given to such party shall be sent by the means indicated in this Article to such party at such new address.

IN WITNESS WHEREOF, the parties hereto have executed the within Contract the day and year first above written.

COUNTY OF KERN

ATTEST:

Vera K. Gibson, County Clerk and ex-Officio Clerk of the Board of Supervisors

By

Deputy

By Chairman, Board of Supervisors

OWNER

Jose Erratubere
Emilie Erratubere

Address: _____

ACKNOWLEDGMENTSCounty of Kern

STATE OF CALIFORNIA)
COUNTY OF KERN) ss

On this 27th day of February, in the year 1970,
before me, A. R. Ralston, Deputy Clerk, Board of
Supervisors of the County of Kern, personally appeared
John Hale, known to me to be the Chairman of the Board
of Supervisors of the County of Kern, and known to me to be the person
who executed the within instrument on behalf of said County, and ac-
knowledgeed to me that such County executed the same.

WITNESS my hand and Official Seal of the Kern County Board of
Supervisors.

VERA K. GIBSON
Clerk, Board of Supervisors

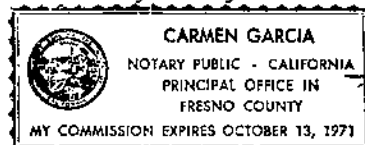
By A. R. Ralston
Deputy Clerk

Owner(s)

STATE OF CALIFORNIA)
COUNTY OF KERN) ss

On this 18th day of February, in the year 1970,
before me, the undersigned, a Notary Public in and for the State of
California, with principal office in the County of Kern, duly com-
missioned and sworn, personally appeared JOSE ERROTABERE and
EMILIE ERROTABERE, husband and wife known to me
to be the persons described in, whose names, are subscribed to and
who executed the within instrument, and acknowledged that they
executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my
official seal the day and year in this Certificate first above written.



Carmen Garcia
Notary Public in and for the
State of California.

EXHIBIT "A"

DESCRIPTION OF LAND SUBJECT TO CONTRACT,
AND IDENTIFICATION OF PRESERVE

The land herein described is situated in Preserve No. 5 the location of

which is shown by map adopted by the Board of Supervisors of Kern County by Resolution No.

69-575 on 9-8-69.

The real property which is subject to the foregoing Contract is in the County of Kern,

State of California, is approximately 3,026 acres, bears Assessor's Parcel Number(s)

as listed below, and is more particularly

described as follows:

Assessor's Parcel No. 44-020-31: The North One-half less 2 acres on the Northwest corner deeded to school and less the Northeast one-quarter of the Northeast one-quarter of the Northeast one-quarter of Section 9, Township 25 South, Range 20 East, M.D.B. & M., containing 308 acres, more or less.

Assessor's Parcel No. 43-210-01: Section 3, less the West 208.71 feet of the East -139.61 feet of the South 208.71 feet of the Southwest one-quarter, Township 25 South, Range 19 East, M.D.B. & M., containing 638 acres, more or less.

Assessor's Parcel No. 43-210-17: The Northeast one-quarter and the West one-half of Section 11, Township 25 South, Range 19 East, M.D.B. & M., containing 480 acres, more or less.

Assessor's Parcel No. 43-250-02: The Northeast one-quarter of Section 15, Township 25 South, Range 19 East, M.D.B. & M., containing 160 acres, more or less.

Assessor's Parcel No. 43-250-11: The Northeast one-quarter of Section 14, Township 25 South, Range 19 East, M.D.B. & M., containing 160 acres, more or less.

Assessor's Parcel No. 43-250-12: Section 13, Township 25 South, Range 19 East, M.D.B. & M., containing 640 acres, more or less.

Assessor's Parcel No. 43-250-15: The North one-half of Section 23, Township 25 South, Range 19 East, M.D.B. & M., containing 320 acres, more or less.

Assessor's Parcel No. 43-260-11-01: The Southwest one-quarter of the Southwest one-quarter of Section 16, Township 25 South, Range 19 East, M.D.B. & M., containing 40 acres, more or less.

~~Assessor's Parcel No. 43-260-12-04: The Southwest one-quarter of the Southwest one-quarter of Section 16, Township 25 South, Range 19 East, M.D.B. & M., containing 40 acres, more or less.~~

~~Assessor's Parcel No. 43-260-13-04: The Northwest one-quarter of the Southwest one-quarter of Section 16, Township 25 South, Range 19 East, M.D.B. & M., containing 40 acres, more or less.~~

Assessor's Parcel No. 43-260-14-05: The Northeast one-quarter of the Southwest one-quarter of Section 16, Township 25 South, Range 19 East, M.D.B. & M., containing 40 acres, more or less.

Assessor's Parcel No. 43-370-31: The Southwest one-quarter of Section 31, Township 25 South, Range 19 East, M.D.B. & M., containing 160 acres, more or less.

Assessor's Parcel No. 44-020-30: The Northeast one-quarter of the Northeast one-quarter of Section 9, Township 25 South, Range 20 East, M.D.B. & M., containing 40 acres, more or less.

FILED

BOOK
PAGE

FEB 27 1 23 PM 1970

VENA T. GIBSON, CLERK
COUNTY CLERK
COUNTY OF OKLAHOMA

[Handwritten signature]

This Page Intentionally Left Blank

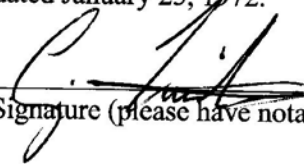
Attachment F: Petition for Cancellation of a Land Use Contract

**PETITION FOR CANCELLATION
OF A LAND USE CONTRACT
OR LAND USE AGREEMENT**

CALIFORNIA LAND CONSERVATION ACT

Date: 8/5/20

I, William & Doris Land & Energy Co. LLC, owner of the property described below, petition the Kern County Board of Supervisors for cancellation of all or a portion of an Agricultural Preserve Land Use Contract or Land Use Agreement, pursuant to Chapter 7, Article 5, Sections 51280 through 51286 of the Government Code, State of California, and pursuant to Kern County Board of Supervisors Resolution No. 72-69, dated January 25, 1972.


Signature (please have notarized)

35244 Oil City Road
Mailing Address
Coalinga, CA 93210

Name of Previous Property Owner (if known)

DESCRIPTION OF PROPERTY INCLUDED IN THE CANCELLATION REQUEST:

Assessor's Parcel Number(s):
043-210-17

LEGAL DESCRIPTION (include plot plan or map of the area):

A certain portion of the West Half and the Northeast Quarter of Section 11, Township 25 South,
Range 19 East, Mount Diablo Base and Meridian, in the unincorporated area of the County
of Kern, State of California, as per the Official Plat of the Survey of the said land, returned to
the General Land Office by the Surveyor General.

REASONS FOR WHICH THE CANCELLATION IS REQUESTED (refer to Section 51282, Government Code, State of California, as set forth on Page 2):

1) The cancellation is in the public interest (advancing State's clean energy goals)

INDEMNIFICATION AGREEMENT:

In consideration by the County of Kern of a permit for a land use approval project located at
2.5 miles NW of intersection of King Road and Twisselman Road

County will promptly notify Applicant and property owner (if different than Applicant) of any such claim, action, or proceeding, falling under this condition within thirty days of actually receiving such claim. County, in its sole discretion, shall be allowed to choose the attorney or outside law firm to defend County at the sole cost and expense of the Applicant and/or property owner, jointly and severally, and County is not obligated to use any law firm or attorney chosen by another entity or party.

Applicant/Contact:

SF Azalea, LLC

Print Name

(If the applicant is not an individual, the corporation name goes under "Print Name", authorized signature below it, and complete below.)

Signature

By: Cary Vandenberg

Print Name

Date

Title: Authorized Signatory

IMPORTANT NOTE:

Original signatures of the applicant are required on this form for this application to be considered complete for processing.

NOTE: Return this Petition and a filing fee of \$990 (which is nonrefundable) to:

KERN COUNTY PLANNING AND NATURAL RESOURCES DEPARTMENT
2700 "M" STREET, SUITE 100
BAKERSFIELD, CA 93301

Section 51282, Government Code, State of California

Petition for Cancellation of Contract; Grounds

- (a) The landowner may petition the Board of Supervisors for cancellation of any Contract as to all or any part of the subject land. The Board may grant tentative approval for cancellation of a Contract only if it makes one of the following findings:
 - (1) That the cancellation is consistent with the purposes of Chapter 7; or
 - (2) That cancellation is in the public interest.
- (b) For the purposes of paragraph (1) of subdivision (a), cancellation of a Contract shall be consistent with the purposes of Chapter 7 only if the Board makes all of the following findings:
 - (1) That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245.
 - (2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.
 - (3) That cancellation is for an alternative use which is consistent with the applicable provisions of the County General Plan.
 - (4) That cancellation will not result in discontinuous patterns of urban development.
 - (5) That there is no proximate non-Contracted land which is both available and suitable for the use to which it is proposed the Contracted land be put, or, that development of the Contracted land would provide more contiguous patterns of urban development than development of proximate non Contracted land.
- (c) For purposes of paragraph (2) of subdivision (a), cancellation of a Contract shall be in the public interest only if the Board makes the following findings:
 - (1) That other public concerns substantially outweigh the objectives of Chapter 7; and
 - (2) That there is no proximate non-Contracted land which is both available and suitable for the use to which it is proposed the Contracted land be put, or, that development of the Contracted land would provide more contiguous patterns of urban development than development of proximate non-Contracted land.
- (d) For purposes of subdivision (a), the uneconomic character of the existing agricultural use shall not by itself be sufficient reason for cancellation of the Contract. The uneconomic character of the existing use may be considered only if there is no other reasonable or comparable agricultural use to which the land may be put.
- (e) The landowner's petition shall be accompanied by a proposal for a specified alternative use of the land. The proposal for the alternative use shall list those governmental agencies known by the landowner to have permit authority related to the proposed alternative use, and the provisions and requirements of Section 51283.4 shall be fully applicable thereto. The level of specificity required in a proposal for a specified alternative use shall be determined by the Board as that necessary to permit them to make the findings required.
- (f) In approving a cancellation pursuant to this section, the Board shall not be required to make any findings other than or in addition to those expressly set forth in this section and, where applicable, in Section 21081 of the Public Resources Code.

PROVIDE A STATEMENT INDICATING WHY THE PROPOSED CANCELLATION COMPLIES WITH THE ABOVE SECTION OF THE GOVERNMENT CODE:

The proposed cancellation is in the public interest as it would help further the State's progress toward achieving its goal for increased renewable energy and reduced greenhouse emission. The proposed project would generate renewable energy for the State while also providing jobs to local residents.

CALIFORNIA ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Fresno

On August 5, 2020 before me, Christy Maepel, Notary Public

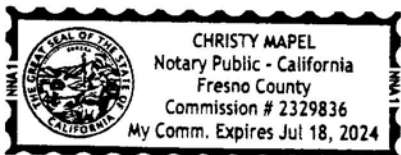
Date

Here Insert Name and Title of the Officer

personally appeared Craig Finster

Name(s) of Signer(s)

who 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.



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.

Place Notary Seal and/or Stamp Above

Signature

Christy Maepel

Signature of Notary Public

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____

☐ Corporate Officer – Title(s): _____

☐ Partner – ☐ Limited ☐ General

☐ Individual ☐ Attorney in Fact

☐ Trustee ☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

Signer's Name: _____

☐ Corporate Officer – Title(s): _____

☐ Partner – ☐ Limited ☐ General

☐ Individual ☐ Attorney in Fact

☐ Trustee ☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)

) ss.

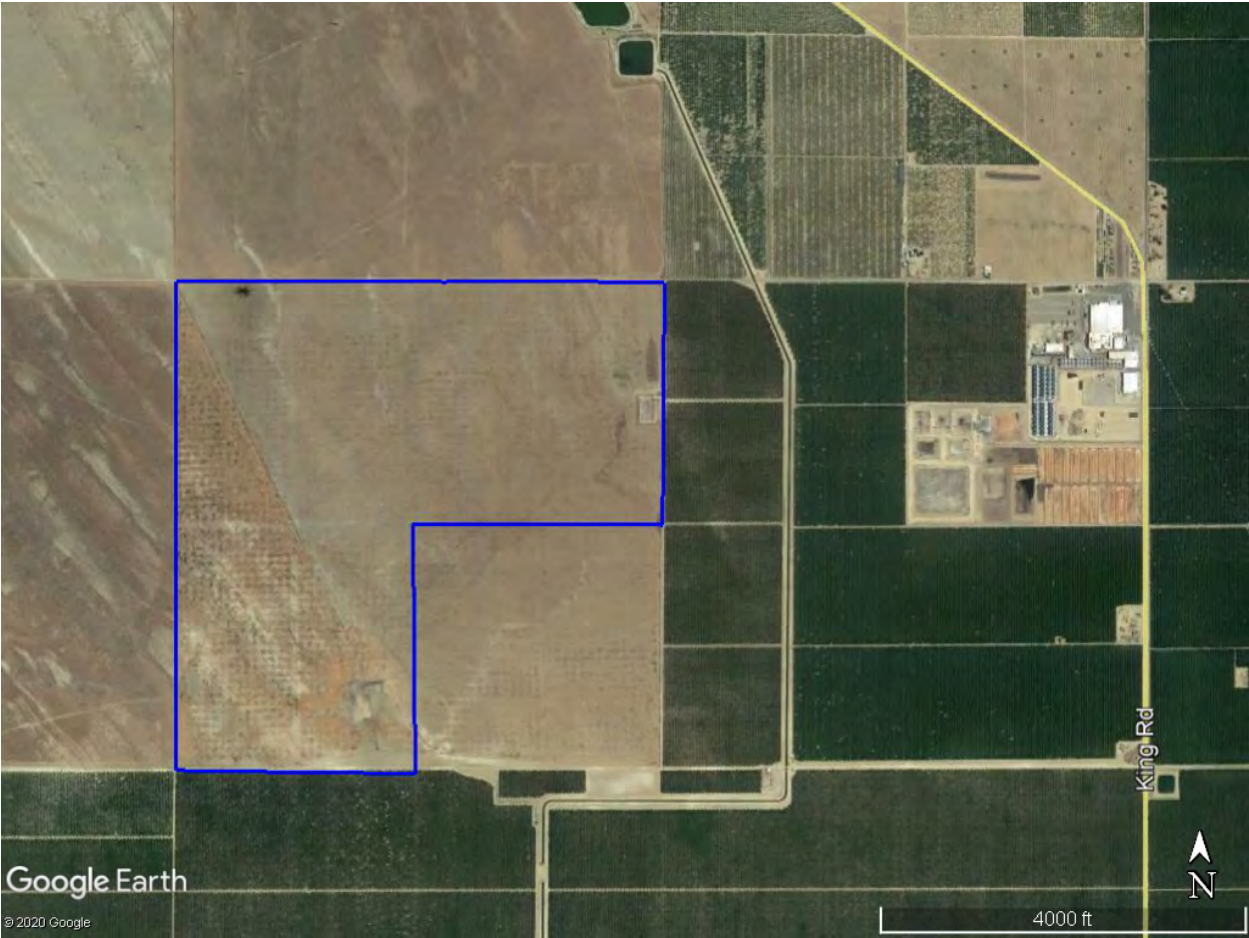
COUNTY OF KERN)

On this ____ day of ____, 20____, before me, _____,
Notary Public, personally appeared _____, who
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/~~the~~ir 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.

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.

Signature of Notary Public



This Page Intentionally Left Blank

Attachment G: Soil Profiles for the Azalea Solar Energy Project Site

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

109ki and 144 - **DELGADO SANDY LOAM, 5 TO 30 % SLOPES:** The Delgado series are shallow, somewhat excessively drained soils on hills, foothills and uplands. These soils formed in material weathered from hard sandstones and shales. Slope is 5 to 75 percent. Elevation is 450 to 2,120 feet.

Somewhat excessively drained; medium to very high runoff; moderately rapid permeability. This soil is used for livestock grazing during the late winter and spring. Natural vegetation is annual grasses, forbs and species of saltbush (*Atriplex*).

- **A--0** to 2 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; neutral (pH 7.0); abrupt smooth boundary. (1 to 6 inches thick)
- **C--2** to 10 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.0); abrupt wavy boundary. (5 to 14 inches thick)
- **R--10** to 14 inches; pink (5YR 7/3) hard laminar lime coatings, 1 to 2 mm thick, underlain by pale yellow (2.5Y 8/2) relatively unweathered feldspathic calcareous sandstone that does not slake in water, has cracks at 4 to 8 inch intervals. Cracks are free of soil. No roots in cracks.

115 - **BITTERWATER SANDY LOAM, 9 TO 15 % SLOPES:** The Bitterwater series consists of deep, well drained soils formed in material weathered from sandstone. Bitterwater soils are on foothills and have slopes of 9 to 75 percent. They occur at elevations of 600 to 2,000 feet.

Well drained; medium to very rapid runoff; moderately rapid permeability. Used for spring grazing of sheep and cattle. Oil wells are a common feature on this soil. Natural vegetation consists of red brome, fescues, filaree, allscale, and saltbush (*Atriplex* spp.).

- **A11--0** to 10 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; common very fine tubular and many very fine interstitial pores; 5 percent pebbles, 2 to 10 mm in diameter; strongly effervescent with disseminated lime; moderately alkaline (pH 8.0); clear smooth boundary. (8 to 12 inches thick)
- **A12--10** to 23 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial and few very fine tubular pores; 5 percent pebbles, 2 to 10 mm in diameter; strongly effervescent with disseminated lime; moderately alkaline (pH 8.0); clear smooth boundary. (10 to 16 inches thick)
- **C1--23** to 41 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak very coarse subangular blocky structure; slightly hard; very friable; nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 10 percent pebbles, 2 to 10 mm in diameter; violently effervescent, lime disseminated and segregated in common, fine filaments; moderately alkaline (pH 8.0); clear wavy boundary. (5 to 20 inches thick)
- **C2--41** to 60 inches; very pale brown (10YR 7/4) sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 10 percent pebbles, 2 to 10 mm in diameter; violently effervescent with lime disseminated and in common, fine filaments; moderately alkaline (pH 8.0); clear wavy boundary. (10 to 65 inches thick)
- **C3r--60** to 65 inches; soft, weathered soft sandstone.

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

125 - **GRANOSO LOAMY SAND, 0 TO 2 % SLOPES:** The Granoso series consists of very deep, somewhat excessively drained soils that formed in alluvium derived from rocks of mixed mineralogy. The Granoso soils are on alluvial fans and flood plains. Slope is 0 to 5 percent. The average annual precipitation is about 152 millimeters (6 inches) and the mean annual temperature is about 18 degrees C. (64 degrees F.). The Granoso soils have slopes of 0 to 5 percent and are on alluvial fans and flood plains at elevations of 85 to 360 meters (280 to 1,175 feet).

Somewhat excessively drained; negligible to low runoff; high saturated hydraulic conductivity. Granoso soils with sandy loam surface textures have moderately rapid over rapid permeability. Flooding is none to rare. Used primarily for irrigated crops such as cotton, alfalfa, dry beans, onions, carrots, lettuce, and wheat. Some areas are used for homesites and pasture. Native vegetation is dominantly annual grasses and forbs.

- **Ap**--0 to 25 centimeters (0 to 10 inches); brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; moderate very coarse subangular blocky structure parting to moderate coarse subangular blocky; soft, friable, nonsticky and nonplastic; common very fine roots; few very fine and fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary. (8 to 41 centimeters [3 to 16 inches] thick.)
- **C1**--25 to 51 centimeters (10 to 20 inches); brown (10YR 5/3) loamy sand, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few very fine tubular and few very fine interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.0); clear smooth boundary. (15 to 64 centimeters [6 to 25 inches] thick.)
- **C2**--51 to 91 centimeters (20 to 36 inches); pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial and few very fine tubular pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.4); clear wavy boundary. (10 to 114 centimeters [4 to 45 inches] thick.)
- **C3**--91 to 157 centimeters (36 to 62 inches); very pale brown (10YR 7/3) sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.4).
- **TYPE LOCATION:** Kern County, California, Southwest Part; in map unit 120, Granoso loamy sand, 0 to 2 percent slopes; about 11 kilometers (0.7 miles) east of Weed Patch Highway and 152 meters (500 feet) south of Panama Road, near Lamont, California; about 174 meters (570 feet) south and 537 meters (1,760 feet) west of the northeast corner of section 6, T. 31 S., R. 29 E.; Mount Diablo Base and Meridian; latitude 35 degrees 15 minutes 56 seconds north and longitude 118 degrees 54 minutes 08 seconds west; USGS Lamont, California, Quadrangle, NAD83.

129 - **CAROLLO-TWISSELMAN SALINE ALKALI ASSOCIATION, 2 TO 15 % SLOPES:** The Carollo series consists of moderately deep, well drained soils that formed undulating to hilly uplands with slopes of 5 to 20 percent. The soils formed in material weathered from fine grained fractured shales. Elevations are 300 to 700 feet. Carollo clay loam, on a slope of 7 percent under sparse cover of shrubs and annual grasses at 390 feet elevation.

Well drained; rapid runoff; very slow permeability. This soil is used for cattle and sheep grazing during the late winter and spring season. Natural vegetation is all scale saltbush (*Atriplex polycarpa*), filaree (*Erodium*), and foxtail barley (*Hordeum jubatum*).

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

- **Az**--0 to 2 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable, slightly sticky and plastic; many very fine roots; common very fine tubular and common very fine interstitial pores; common fine gypsum crystals; neutral (pH 6.8); EC 18 mmhos, SAR 28; abrupt smooth boundary. (2 to 4 inches thick)
- **Btyz1**--2 to 6 inches; yellowish brown (10YR 5/4) clay, brown (10YR 4/3) moist; strong medium columnar structure parting to strong coarse subangular blocky; very hard, firm, sticky and very plastic; many very fine roots; common very fine tubular and common very fine interstitial pores; few moderately thick clay films in pores and on peds; common fine gypsum crystals; mildly alkaline (pH 7.4); EC 38 mmhos; SAR 44; abrupt wavy boundary. (3 to 5 inches thick)
- **Btyz2**--6 to 11 inches; yellowish brown (10YR 5/4) clay, brown (10YR 4/3) moist; strong coarse subangular blocky structure; extremely hard, firm, sticky and very plastic; few very fine roots, few very fine tubular and common very fine interstitial pores; few moderately thick clay films in pores and on peds; many fine gypsum crystals, mildly alkaline (pH 7.4); EC 40 mmhos; SAR 46; abrupt smooth boundary. (4 to 11 inches thick)
- **Btyz3**--11 to 19 inches; brown (10YR 5/4) clay, brown (10YR 4/3) moist; weak medium subangular blocky structure; extremely hard, firm, sticky and very plastic; few very fine interstitial pores; many thick clay films on peds; common fine gypsum crystals; a 1/2 inch layer of clear, nearly pure gypsum overlies the C horizon; EC 40 mmhos; SAR 46; neutral (pH 7.3); abrupt wavy boundary. (6 to 9 inches thick)
- **Cyz**--19 to 32 inches; mixed olive gray (5Y 5/2) and very dark gray (N 3/0) clay loam, olive gray (5Y 4/2) and very dark gray (N 3/0) moist; common fine prominent yellowish brown (10YR 5/8) dry and moist mottles; massive; slightly hard, very friable, sticky and plastic; common very fine interstitial pores; common fine gypsum crystals; neutral (pH 7.0); EC 45; SAR 50; abrupt wavy boundary. (5 to 16 inches thick)
- **Cr**--32 inches; mixed light olive gray (5Y 6/2) and very dark gray (N 3/0) highly fractured shale, olive gray (5Y 4/2) and very dark gray (N 3/0) moist. Common fine prominent brownish yellow (10YR 6/8) mottles, yellowish brown (10YR 5/8) moist; hard, firm shale slakes in water.

213 - **PANOCHÉ CLAY LOAM, 5 TO 9 % SLOPES:** The Panoche series consists of very deep, well drained soils on alluvial fans and flood plains. These soils formed in loamy calcareous alluvium from sedimentary rock. Slope is 0 to 15 percent. They occur at elevations of 185 to 1,800 feet in an arid mesothermal climate having warm summers and cool moist winters.

Well drained; negligible to medium runoff; moderate permeability. Used for irrigated crops such as alfalfa, almonds, barley, cotton, sugar beets and sorghum. Dryland areas are used as range following seasonal rains. A few areas are used for dryland grain but are seldom successful.

- **Ap**--0 to 7 inches; light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine interstitial and many very fine tubular pores; moderately alkaline (pH 8.0); abrupt smooth boundary. (0 to 10 inches thick)
- **Bw**--7 to 24 inches; grayish brown (2.5Y 5/2) loam, dark grayish brown (2.5Y 4/2) moist; weak very coarse prismatic structure parting to moderate coarse subangular blocky; hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine interstitial and many very fine tubular pores; slightly effervescent, disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary. (6 to 18 inches thick)
- **Bk**--24 to 60 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

and many fine tubular pores; slightly effervescent, carbonates disseminated, strongly effervescent, carbonates segregated as few fine irregularly shaped threads; moderately alkaline (pH 8.0).

166 - KECKSROAD SILTY CLAY LOAM, 5 TO 15 % SLOPES: The Kecksroad series consists of moderately deep, well drained soils that formed in material weathered from shale and other sedimentary rocks. Kecksroad soils are on low, undulating, rounded hills to steeply sloping uplands with slopes of 5 to 50 percent. Kecksroad soils are on with slopes ranging from 5 to 50 percent. Elevations are 450 to 1,400 feet.

Well drained; medium or rapid runoff; slow permeability. This soil is used for spring grazing by cattle or sheep. Vegetation is annual grasses and forbs and is within the San Joaquin saltbush vegetation type of the Kuchler map.

- **A11**--0 to 2 inches; light yellowish brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic and moderate medium subangular blocky structure; very hard, friable, sticky and very plastic; many very fine roots; many very fine tubular and interstitial and few very fine vesicular pores; strongly effervescent (2 percent calcium carbonate), disseminated lime; moderately alkaline (pH 8.0); clear smooth boundary. (1 to 3 inches thick)
- **A12**--2 to 11 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse prismatic and weak medium subangular blocky structure; hard, friable, sticky and very plastic; many very fine roots; few fine and many very fine tubular pores; few pressure faces; strongly effervescent (3 percent calcium carbonate), disseminated lime; moderately alkaline (pH 8.2); gradual smooth boundary. (6 to 10 inches thick)
- **B21t**--11 to 26 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; hard, friable, sticky and plastic; common very fine roots; few fine tubular and common very fine interstitial and tubular pores; few thin clay films in pores; violently effervescent (5 percent calcium carbonate), lime disseminated and segregated in few fine irregularly shaped soft masses; moderately alkaline (pH 8.2); gradual smooth boundary. (9 to 16 inches thick)
- **B22tca**--26 to 36 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; hard, very friable, sticky and very plastic; few very fine roots; common very fine tubular and few very fine interstitial pores; common thin clay films in pores and on peds; 10 percent pebbles; violently effervescent (7 percent calcium carbonate), lime disseminated and segregated in common fine irregularly shaped soft masses; moderately alkaline (pH 8.2); clear wavy boundary. (4 to 14 inches thick)
- **Cr**--36 to 40 inches; white (5Y 8/1) and light olive gray (5Y 6/2) moist; slightly hard weathered shale fragments; firm when moist; 50 to 20 mm in size and angular or subangular in shape; shale fragments are noncalcareous but lime coated; fragments are in approximately normal orientation with some soil in vertical cracks.

174 and 175 - KIMBERLINA SANDY LOAM, 0 TO 5 % SLOPES: The Kimberlina series consists of very deep, well drained soils on flood plains and recent alluvial fans. These soils formed in mixed alluvium derived dominantly from igneous and/or sedimentary rock sources. Slope is 0 to 9 percent. Elevation is 125 to 2,250 feet in the San Joaquin Valley.

Well drained; negligible to medium runoff; moderately rapid and moderate permeability, however saline-sodic phases and soils with sandy clay loam substratums have moderately slow permeability. Used for growing irrigated field, forage, and row crops. Some areas used for livestock grazing. When not irrigated, vegetation is annual grasses, forbs, and *Atriplex* spp. in the San Joaquin Valley.

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

- **Ap**--0 to 9 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and nonplastic; many very fine roots; many very fine tubular and interstitial pores; moderately alkaline (pH 8.0); clear smooth boundary. (1 to 18 inches thick)
- **C1**--9 to 31 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine roots; many very fine tubular and interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.2); clear smooth boundary. (20 to 22 inches thick)
- **C2**--31 to 45 inches; pale brown (10YR 6/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular and interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.4); abrupt wavy boundary. (13 to 19 inches thick)
- **2C3**--45 to 71 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular and few very fine interstitial pores; strongly effervescent, carbonates segregated as few fine irregularly shaped threads; moderately alkaline (pH 8.4).

235 and 236 - **TWISSELMAN CLAY, 0 TO 5 % SLOPES:** The Twisselman series consists of deep, well drained soils that formed in fine textured alluvium derived primarily from sedimentary rock sources. Twisselman soils are on alluvial fans and basin rims and have slopes of 0 to 5 percent. Elevations are 200 to 1,000 feet.

Well drained; medium or slow runoff; slow permeability; very slow in saline-alkali phases. With irrigation, Twisselman soils are used for alfalfa, almonds, barley, cotton, wine grapes, sugar beets, olives, pistachios, and wheat. Areas with overblown sandy loam or fine sandy loam are used for growing carrots. In areas that are not developed, the land is used for spring grazing by sheep. Native vegetation is annual grasses, forbs, and desert saltbush (*Atriplex* spp.).

- **Ap**--0 to 5 inches; light brownish gray (10YR 6/2) clay, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, firm, very sticky and plastic; many very fine roots; few very fine interstitial and common very fine tubular pores; strongly effervescent, disseminated lime; moderately alkaline (pH 8.2); abrupt smooth boundary. (4 to 8 inches thick)
- **A12**--5 to 14 inches; pale brown (10YR 6/3) clay, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine interstitial and common very fine tubular pores; strongly effervescent, disseminated lime; moderately alkaline (pH 8.2); clear smooth boundary. (4 to 10 inches thick)
- **C1**--14 to 27 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; strongly effervescent, lime in few irregular fine sized filaments or threads; moderately alkaline (pH 8.2); clear smooth boundary. (10 to 13 inches thick)
- **C2**--27 to 51 inches; very pale brown (10YR 7/3) clay, brown (10YR 5/3) moist; moderate medium platy structure; hard, firm, sticky and plastic; few very fine roots; common very fine interstitial and tubular pores; strongly effervescent, disseminated lime; moderately alkaline (pH 8.2); clear smooth boundary. (8 to 25 inches thick)
- **C3**--51 to 63 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, firm, very sticky and plastic; few very fine roots; common very fine interstitial and few very fine tubular pores; strongly effervescent, segregated lime in few irregular fine sized filaments or threads; moderately alkaline (pH 8.2).

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

253 - YRIBARREN CLAY LOAM, 2 TO 5 % SLOPES: The Yribarren series consists of deep, well drained soils on alluvial fans. These soils formed in alluvial deposits weathered mostly from sedimentary rocks. Slope is 0 to 5 percent. Elevation is 300 to 1,200 feet. Yribarren clay loam, on a gently sloping area of two percent slope under red brome, filaree, annual bluegrass, and *Atriplex* spp., at 495 feet elevation. Well-drained; low to medium runoff; permeability is very slow.

This soil is used for irrigated cropland to produce almonds, barley, wheat, cotton, onions, sugar beets, watermelons, pistachios, and wine grapes. In uncultivated areas, this soil is used for livestock grazing to provide spring grazing for sheep and cattle. Native vegetation consists of annual grasses, forbs and desert saltbush (*Atriplex* spp.).

- **A--**0 to 7 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate coarse angular blocky structure parting to medium platy; slightly hard, friable, moderately sticky and moderately plastic; many very fine roots; few fine and common very fine tubular pores; violently effervescent, carbonates disseminated; moderately alkaline (pH 8.0); abrupt smooth boundary. (2 to 8 inches thick)
- **Bt--**7 to 15 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, very sticky and very plastic; many very fine roots; common fine and many very fine tubular pores; common thin clay films in pores and on faces of peds; violently effervescent, carbonates disseminated; moderately alkaline (pH 8.0); clear wavy boundary. (4 to 8 inches thick)
- **Btk--**15 to 19 inches; light yellowish brown (10YR 6/4) silty clay, brown (10YR 4/3) moist; strong medium prismatic structure parting to moderate medium subangular blocky; hard, friable, very sticky and very plastic; few very fine roots; few fine and common very fine tubular pores; many thin clay films in pores and on faces of peds; violently effervescent, carbonates disseminated and segregated as many fine irregular seams; segregated gypsum crystals as many fine irregular seams and soft masses; moderately alkaline (pH 8.0); clear wavy boundary. (4 to 22 inches thick)
- **C1--**19 to 22 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots, many very fine interstitial pores; violently effervescent, carbonates disseminated; segregated gypsum crystals as few fine irregular seams; moderately alkaline (pH 8.0); abrupt wavy boundary. (3 to 13 inches thick)
- **2C2--**22 to 49 inches; very pale brown (10YR 7/3) silty clay, brown (10YR 4/3) moist; massive; slightly hard, very friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; violently effervescent, carbonates disseminated; segregated gypsum crystals as few fine irregular seams; moderately alkaline (pH 8.0); clear wavy boundary. (20 to 27 inches thick)
- **2C3--**49 to 60 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; massive; hard friable, very sticky and moderately plastic; few very fine roots; few very fine tubular pores; violently effervescent, carbonates disseminated and segregated as few fine irregular seams; moderately alkaline. (pH 8.0).

Table 1: Agricultural Potential of Soils per USDA Land Capability Classification System

Source of USDA Classification: NRCS. Soil Survey Kern County, California, Northwestern Part, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> accessed December 10, 2020.

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

Soil Type	USDA Soil Capability Subclass	Soil Description – see below for full soil profiles
109ki - Delgado sandy loam, 5 to 15 % slopes	IVe-1 (15), nonirrigated	Somewhat excessively drained; medium to very high runoff; moderately rapid permeability. This soil is used for livestock grazing during the late winter and spring. Natural vegetation is annual grasses, forbs and species of saltbush (<i>Atriplex</i>).
115 - Bitterwater sandy loam, 9 to 15 % slopes	VIIe-1 (15), nonirrigated	Well drained; medium to very rapid runoff; moderately rapid permeability. Used for spring grazing of sheet and cattle. Oil wells are a common feature on this soil. Natural vegetation consists of red brome, fescues, filaree, allscale, and saltbush (<i>Atriplex</i> spp.).
125 - Granoso loamy sand, 0 to 2 % slopes	IIIs-4 irrigated; VIIs nonirrigated	Somewhat excessively drained; negligible to low runoff; high saturated hydraulic conductivity. Granoso soils with sandy loam surface textures have moderately rapid over rapid permeability. Flooding is none to rare. Used primarily for irrigated crops such as cotton, alfalfa, dry beans, onions, carrots, lettuce, and wheat. Some areas are used for homesites and pasture. Native vegetation is dominantly annual grasses and forbs.
129 - Carollo-Twisselman saline alkali association, 2 to 15 % slopes	VIIe (15-17), nonirrigated	Well drained; rapid runoff; very slow permeability. This soil is used for cattle and sheep grazing during the late winter and spring season. Natural vegetation is all scale saltbush (<i>Atriplex polycarpa</i>), filaree (<i>Erodium</i>), and foxtail barley (<i>Hordeum jubatum</i>).

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

144 - Delgado sandy loam, 5 to 30 % slopes	VIIe (15), nonirrigated	Somewhat excessively drained; medium to very high runoff; moderately rapid permeability. This soil is used for livestock grazing during the late winter and spring. Natural vegetation is annual grasses, forbs and species of saltbush (<i>Atriplex</i>).
166 - Kecksroad silty clay loam, 5 to 15 % slopes	VIIe (15), nonirrigated	Well drained; medium or rapid runoff; slow permeability. This soil is used for spring grazing by cattle or sheep. Vegetation is annual grasses and forbs and is within the San Joaquin saltbush vegetation type of the Kuchler map.
174 - Kimberlina fine sandy loam, 0 to 2 % slopes	I (17), irrigated; VIIc nonirrigated	Well drained; negligible to medium runoff; moderately rapid and moderate permeability, however saline-sodic phases and soils with sandy clay loam substratums have moderately slow permeability. Used for growing irrigated field, forage, and row crops. Some areas used for livestock grazing. When not irrigated, vegetation is annual grasses, forbs, and <i>Atriplex</i> spp. in the San Joaquin Valley.
175 - Kimberlina sandy loam, 2 to 5 % slopes	Ile-1 (17) irrigated; VIIe nonirrigated	Well drained; negligible to medium runoff; moderately rapid and moderate permeability, however saline-sodic phases and soils with sandy clay loam substratums have moderately slow permeability. Used for growing irrigated field, forage, and row crops. Some areas used for livestock grazing. When not irrigated, vegetation is annual grasses, forbs, and <i>Atriplex</i> spp. in the San Joaquin Valley.
213 - Panoche clay loam, 5 to 9 % slopes	IIle-1 (17) irrigated; VIIe nonirrigated	Well drained; negligible to medium runoff; moderate permeability. Used for irrigated crops such as alfalfa, almonds, barley, cotton, sugar beets and sorghum. Dryland areas are used as range following seasonal rains. A few areas are used for dryland grain but are seldom successful.
235 - Twisselman clay, 0 to 2 % slopes	IIs-5 (17) irrigated; VIIs nonirrigated	Well drained; medium or slow runoff; slow permeability; very slow in saline-alkali phases. With irrigation, Twisselman soils are used for alfalfa, almonds, barley, cotton, wine grapes, sugar beets, olives, pistachios, and wheat. Areas with overblown sandy loam or fine sandy loam are used for growing carrots. In areas that are not developed, the land is used for spring grazing by sheep. Native vegetation is annual grasses, forbs, and desert saltbush (<i>Atriplex</i> spp.).
236 - Twisselman clay, 2 to 5 % slopes	Ile-1 (17) irrigated; VIIe nonirrigated	Well drained; medium or slow runoff; slow permeability; very slow in saline-alkali phases. With irrigation, Twisselman soils are used for alfalfa, almonds, barley, cotton, wine grapes, sugar beets, olives, pistachios, and wheat. Areas with overblown sandy loam or fine sandy loam are used for growing carrots. In areas that are not developed, the land is used for spring grazing by sheep. Native vegetation is annual grasses, forbs, and desert saltbush (<i>Atriplex</i> spp.).

Attachment G – Soil Profiles for the Azalea Solar Facility Project Site

253 - Yribarren clay loam, 2 to 5 % slopes	IIIe-1 (17) irrigated; VIIe nonirrigated	This soil is used for irrigated cropland to produce almonds, barley, wheat, cotton, onions, sugar beets, watermelons, pistachios, and wine grapes. In uncultivated areas, this soil is used for livestock grazing to provide spring grazing for sheep and cattle. Native vegetation consists of annual grasses, forbs and desert saltbush (<i>Atriplex</i> spp.).
--	---	--

Appendix C

Air Quality and Greenhouse Gas Emissions Study

Azalea Solar Project

Air Quality and Greenhouse Gas Emissions Study

043-210-17

043-210-18

043-210-28

043-220-01

048-350-017

048-350-020

Lost Hills, California 93249

Prepared for:

SF Azalea, LLC

50 California Street, Suite 820

San Francisco, California 94111

July 2021



S2S Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583
www.s2serm.com

Contents

Acronyms and Abbreviations	iii
1. Introduction	1-1
1.1 Summary	1-1
1.2 Methodology.....	1-1
2. Regulatory Setting	2-1
2.1 Federal	2-1
2.1.1 Air Quality.....	2-1
2.1.2 Greenhouse Gases	2-3
2.2 State	2-4
2.2.1 Air Quality.....	2-4
2.2.2 Asbestos	2-4
2.2.3 Greenhouse Gases	2-4
2.3 Regional	2-5
2.3.1 Air Quality and Climate Change Plans.....	2-5
2.3.2 Asbestos	2-6
3. Environmental Setting	3-1
3.1 Air Quality.....	3-1
3.2 Asbestos	3-2
3.3 Greenhouse Gases	3-2
4. Best Management Practices	4-1
5. Environmental Analysis	5-1
5.1 Significance Criteria	5-1
5.2 CEQA Checklist Questions	5-2
6. References	6-1

Appendices

A	CEQA Initial Study Checklist
B	Emissions Calculations

Tables

1. Ambient Air Quality Standards	2-1
2. Federal and California Air Quality Attainment Status for Kern County, San Joaquin Valley, CA.....	2-3
3. Summary of Ambient Air Monitoring Data in the Project Area ^a	3-1
4. Kern County 2005 GHG Emissions Inventory.....	3-2

Acronyms and Abbreviations

AB	Assembly Bill
ACM	asbestos-containing materials
APCD	Air Pollution Control District
ATCM	Airborne Toxic Control Measures
BMP	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
DPM	diesel particulate matter
EPA	Environmental Protection Agency
FR	Federal Register
GHG	greenhouse gas
HAP	Hazardous Air Pollutant
LOS	Level of Service
NAAQS	National Ambient Air Quality Standards
NOA	naturally-occurring asbestos
OEHHA	Office of Environmental Health Hazard Assessment
PFCs	perfluorocarbons
PSD	Prevention of Significant Deterioration
PV	photovoltaic
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SF6	sulfur hexafluoride

SIL	Significant Impact Level
SIP	State Implementation Plan
SJCOG	San Joaquin Council of Governments
SJVAPCD	San Joaquin Valley Air Pollution Control District
UTM	Universal Transverse Mercator
WRAP	Western Regional Air Partnership
VMT	Vehicle Miles Travelled
VRP	visibility-reducing particles

1. Introduction

1.1 Summary

The Azalea Solar Farm Facility (project) is a photovoltaic (PV) solar generating facility that will provide up to 60 megawatts (MW) of clean, renewable energy. The proposed project consists of a utility-scale solar farm on approximately 640 acres, across two parcels, which will include: solar panels, security fencing, and energy storage battery systems. The project study area also includes an additional two parcels for the proposed gen-tie lines and two parcels for an access road. Located in the unincorporated northwest area of Kern County, the project site is approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, and directly south of the Kern County/Kings County line. The project site is situated on agricultural lands, and the surrounding area is largely dominated by agricultural uses and undeveloped lands.

The clean, renewable energy generated by the project will help California's utilities meet the renewable portfolio standard per Senate Bill (SB) 100. Signed into law in September 2018, SB 100 requires California utilities to procure higher percentages of renewable energy sold to retail customers than previously. The new targets are for 50 percent renewable resources by December 31, 2026, 60 percent by December 31, 2030, and 100 percent from eligible renewable energy resources and zero- carbon resources by 2045.

The project will also include energy battery storage to help the California Independent System Operator manage the intermittent nature of solar generation by storing excess energy during times of peak generation for release during times of peak demand. Construction of this project is expected to include grading, trenching to accommodate underground electric work, and installation of foundation piers, PV racking, modules, and electrical equipment. Construction is expected to last up to 12 months, beginning in 2022.

This report describes existing conditions, potential project-related impacts, and best management practices (BMPs) for air quality and climate change issues in the project area. Federal, state, and regional regulations are discussed, followed by BMPs and an evaluation of impacts, organized by each of the significance criteria identified. With the implementation of BMPs and Mitigation Measures (Appendix A) the project would result in less-than-significant air quality impacts, including less-than-significant greenhouse gas (GHG) impacts.

1.2 Methodology

The California Environmental Quality Act (CEQA) checklist questions were used to evaluate the impacts of the project. Impacts were also quantitatively assessed using the following:

- Construction equipment horsepower, load factors, and emission factors from the *California Emissions Estimator Model (CalEEMod)* model, version 2016.3.2, and the *CalEEMod User's Guide* (BREEZE Software, A Division of Trinity Consultants [BREEZE], 2017)
- Vehicle emission factors, as incorporated from *EMFAC2014* into the *CalEEMod* model, version 2016.3.2.
- Fugitive dust emission factors for grading, bulldozing, truck loading/dumping, and paved road travel from the *CalEEMod* model, which incorporates portions of *AP-42* (U.S. Environmental Protection Agency [EPA], 2006 and 2011).
- Fugitive dust control efficiencies from the South Coast Air Quality Management District's (SCAQMD)

CEQA Air Quality Analysis Handbook (SCAQMD, 2007) and the Western Regional Air Partnership's (WRAP) *Fugitive Dust Handbook* (WRAP, 2006)

Appendix B contains the air quality construction and operation emission calculations.

2. Regulatory Setting

2.1 Federal

2.1.1 Air Quality

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following seven pollutants, termed criteria pollutants: ozone, nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM₁₀), particulate matter with aerodynamic diameter less than or equal to 2.5 microns (PM_{2.5}), and airborne lead. The NAAQS represent levels established to avoid specific adverse health and welfare effects associated with each pollutant with a margin of safety. Similarly, the California Air Resources Board (CARB) has established California Ambient Air Quality Standards (CAAQS) for the seven pollutants listed above and for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Unique meteorological conditions in California and differences of opinion between medical panels established by the CARB and EPA, respectively, have caused considerable divergence between state and federal standards currently in effect in California. In general, the CAAQS are more stringent than the corresponding NAAQS. The standards currently in effect in California are shown in Table 1.

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS ^a	NAAQS ^b	
			Primary ^c	Secondary ^d
Ozone ^e	1-hour	0.09 ppm	--	--
	8-hour	0.070 ppm	0.070 ppm	0.070 ppm
PM ₁₀	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual Arithmetic Mean	20 µg/m ³	--	--
PM _{2.5}	24-hour	--	35 µg/m ³	35 µg/m ³
	Annual Arithmetic Mean	12 µg/m ³	12 µg/m ³ ^f	15 µg/m ³
CO	1-hour	20 ppm	35 ppm	--
	8-hour	9.0 ppm	9 ppm	--
NO ₂	1-hour	0.18 ppm	100 ppb ^g	--
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.053 ppm
SO ₂	1-hour	0.25 ppm	0.075 ppm ^h	--
	3-hour	--	--	0.5 ppm
	24-hour	0.04 ppm	--	--
	Annual Arithmetic Mean	--	--	--
Lead ⁱ	30-day Average	1.5 µg/m ³	--	--
	Calendar Quarter	--	1.5 µg/m ³	1.5 µg/m ³
	Rolling 3-month Average	--	0.15 µg/m ³	0.15 µg/m ³
Visibility-reducing Particles	8-hour	j	--	--
Sulfates	24-hour	25 µg/m ³	--	--
Hydrogen Sulfide	1-hour	0.03 ppm	--	--

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS ^a	NAAQS ^b	
			Primary ^c	Secondary ^d
Vinyl Chloride ⁱ	24-hour	0.01 ppm	--	--

Notes:

-- = No standard has been adopted for this averaging time

µg/m³ = micrograms per cubic meter

ppm = parts per million (by volume)

^a CAAQS for ozone, CO, SO₂ (1- and 24-hour), NO₂, PM₁₀, PM_{2.5}, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

^b NAAQS (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

^c Primary standards: the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

^d Secondary standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

^e The national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm on October 1, 2015.

^f The EPA finalized an update to its annual NAAQS for PM_{2.5} on December 14, 2012.

^g To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.

^h To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.

ⁱ CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

^j Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: CARB, 2016

The EPA has designated counties and air sheds in California as either in "attainment", "unclassified", or "nonattainment" for each NAAQS. A region that is meeting the air quality standard for a given pollutant is designated as being in "attainment" for that pollutant. If the region is not meeting the air quality standard, then the region is designated as being in "nonattainment" for that pollutant. If sufficient data do not exist for the area to be designated "attainment" or "non-attainment", then the region is designated as being "unclassified". If a region is designated as nonattainment for a NAAQS, the Clean Air Act (CAA) requires the state to develop a State Implementation Plan (SIP) to demonstrate how the standard would be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The federal attainment status for the project area, located in Kern County, is listed in Table 2.

Table 2. Federal and California Air Quality Attainment Status for Kern County, San Joaquin Valley, CA

Pollutant	Averaging Period	California Status	Federal Status
Ozone	1-hour 8-hour	Nonattainment/Severe Nonattainment	-- Nonattainment/Extreme
PM ₁₀	24-hour Annual Arithmetic Mean	Nonattainment Nonattainment	Attainment --
PM _{2.5}	24-hour Annual Arithmetic Mean	-- Nonattainment	Nonattainment Nonattainment
CO	1-hour 8-hour	Attainment Attainment	Attainment Attainment
NO ₂	1-hour Annual Arithmetic Mean	Attainment Attainment	Attainment Attainment
SO ₂	1-hour 3-hour 24-hour	Attainment -- Attainment	Unclassified Attainment
Lead	30-day Average Calendar Quarter Rolling 3-month Average	Attainment -- --	-- No Designation/Classification
Visibility-reducing Particles	8-hour	Unclassified	--
Sulfates	24-hour	Attainment	--
Hydrogen Sulfide	1-hour	Unclassified	--
Vinyl Chloride	24-hour	Attainment	--

Notes:

-- = No standard has been adopted for this averaging time

Sources: San Joaquin Valley Air Pollution Control District website (<http://www.valleyair.org/aqinfo/attainment.htm>)

2.1.2 Greenhouse Gases.

On October 30, 2009, the EPA published the Mandatory Reporting Rule (codified in 40 Code of Federal Regulations [CFR] Part 98), that requires mandatory reporting of GHG emissions from large sources and suppliers in the U.S. (EPA, 2017b). In general, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, facilities that inject carbon dioxide (CO₂) underground, users of electrical transmission and distribution equipment, and facilities that emit 25,000 metric tons or more per year of carbon dioxide equivalent (CO₂e) emissions are required to submit annual reports to the EPA. The project does not include large stationary sources, supply operations, electrical transmission and distribution equipment containing more than 17,820 pounds of sulfur hexafluoride (SF₆) and perfluorocarbons (PFCs), or other covered processes; therefore, GHG mandatory reporting would not apply to the project.

On December 7, 2009, the EPA Administrator signed two findings regarding GHGs. The first finds that the current and projected concentrations of the six key well-mixed GHGs in the atmosphere (CO₂, methane

[CH₄], nitrous oxide [N₂O], hydrofluorocarbons [HFCs], PFCs, and SF₆) threaten the public health and welfare of current and future generations. The second finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare (EPA, 2017a).

On June 3, 2010, the EPA promulgated the final GHG Tailoring Rule (75 Federal Register [FR] 31514). The GHG Tailoring Rule established clear applicability thresholds for stationary source emitters of GHGs under Prevention of Significant Deterioration (PSD) and Title V regulations. In general, any new stationary source with GHG emissions of 100,000 tons CO₂e per year or greater became subject to both PSD review and the Title V program. On June 23, 2014, the U.S. Supreme Court issued a decision prohibiting the EPA from considering GHG emissions when determining PSD review and Title V program applicability (*Utility Air regulatory Group v. EPA*, No. 12-1146). Per the Supreme Court decision, the EPA may continue to require GHG emission limitations in PSD and Title V permits, if PSD review and the Title V program is triggered by emissions of criteria pollutants (EPA, 2017c). Because no stationary sources of this magnitude are associated with the project, PSD and Title V regulations would not apply to the project.

2.2 State

2.2.1 Air Quality

CARB oversees California's air quality policies. The California CAA was approved in 1988 and amended in 1992 and established the CAAQS. These standards, summarized in Table 1, are generally more stringent and include more pollutants than the NAAQS. Similar to the EPA, CARB designates counties in California as being in "attainment" or "nonattainment" for CAAQS. The state attainment status for Kern County is listed in Table 2.

CARB has the primary responsibility for producing the SIP for nonattainment pollutants. However, CARB relies on and oversees the efforts of local air districts to adopt and implement air quality regulations and plans, including CARB-suggested control measures and additional emission reduction strategies for sources under their jurisdiction. CARB consolidates statewide implementation plan requirements for mobile sources and consumer products with locally adopted district plans, and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by CARB, as well as attainment plans adopted by the air districts and approved by CARB.

2.2.2 Asbestos

The Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations was signed into State law on July 22, 2002 (17 California Code of Regulations 93105; CARB, 2017a), and became effective for the San Joaquin Valley Air Pollution Control District (SJVAPCD) on March 21, 2002 under Rule 4002 (SJVAPCD, 2004). The purpose of this regulation is to reduce public exposure to naturally occurring asbestos (NOA) from construction and mining activities that emit dust which may contain NOA. The ATCM requires regulated operations engaged in road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas where NOA is likely to be found, to employ BMP dust mitigation measures in order to control dust emissions and reduce potential exposure to nearby receptors.

2.2.3 Greenhouse Gases

The framework for regulating GHG emissions in California falls under the implementation requirements of the Global Warming Solutions Act of 2006 (referred to as Assembly Bill [AB] 32), which was signed into law by the California State Legislature in 2006. AB 32 requires CARB to design and implement emission

limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 431 million metric tons CO₂e; CO₂ emissions account for approximately 90 percent of this value (CARB, 2017c).

In December 2007, CARB adopted the first regulation pursuant to AB 32, which requires mandatory reporting of GHG emissions from large emitting facilities, suppliers, and electricity providers. This regulation was significantly revised to better align with EPA's Mandatory Reporting Rule; the revised regulation became effective January 1, 2013. The current regulation, which includes additional minor revisions to accommodate the Cap-and-Trade Program, became effective January 1, 2015 (CARB, 2017f). CARB adopted the California Cap-and-Trade Program on October 20, 2011. Under the California Cap-and-Trade Program, covered entities have had an obligation to secure GHG allowances and/or offsets since 2013; fuel suppliers have had an obligation to secure GHG allowances and/or offsets since 2015 (CARB, 2017e). Despite these recent changes to CARB's mandatory reporting regulations, the project will not be subject to CARB's GHG emissions reporting obligations under this regulation.

Under AB 32, CARB, as the principal state agency in charge of regulating sources of GHG emissions in California, has been tasked with adopting regulations for the reduction of GHG emissions. The effects of this proposed project are evaluated based not upon the quantity of GHG emissions, but rather on whether the project implements reduction strategies identified in AB 32. If so, it could reasonably follow that the project would not result in a significant contribution to the cumulative impact of global climate change.

2.3 Regional

The project is located in Kern County within the San Joaquin Valley Area Air Basin, which is under the jurisdiction of the SJVAPCD. SJVAPCD is the agency charged with preparing, adopting, and implementing emission control measures and standards for mobile, stationary, and area sources of air pollution in the San Joaquin Valley Area Air Basin.

2.3.1 Air Quality Plans

SJVAPCD works in cooperation with the San Joaquin Council of Governments (SJCOG) to develop air quality plans. SJVAPCD prepares ozone attainment demonstrations for the federal ozone standard and clean air plans for the California ozone standard. The *2016 Ozone Plan for 2008 8-Hour Ozone Standard* is SJVAPCD's contribution to the SIP for demonstrating attainment of the federal 8-hour ozone standard (SJVAPCD, 2016).

SJVAPCD adopted the *2007 PM₁₀ Maintenance Plan and Request for Redesignation* on September 20, 2007 (SJVAPCD, 2007). Even though EPA has revoked the annual PM₁₀ standard effective December 18, 2006 (71 FR 61144), the *2007 Maintenance Plan and Request for Redesignation* addresses both of the annual and 24-hour PM₁₀ standards, since both standards were included in the Amended 2003 PM₁₀ Plan that EPA approved into the SIP.

SJVAPCD adopted the 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards on November 15, 2018. This plan addresses the EPA federal 1997 annual PM_{2.5} standard of 15 micrograms per cubic meter (µg/m³) and 24-hour PM_{2.5} standard of 65 µg/m³; the 2006 24-hour PM_{2.5} standard of 35 µg/m³; and the 2012 annual PM_{2.5} standard of 12 µg/m³.

2.3.2 Asbestos

In addition to the state Asbestos ATCM, SJVAPCD Rule 4002 adopts the National Emission Standards for Hazardous Air Pollutants, an EPA regulation on asbestos. It covers several activities, including demolition and renovation projects. Asbestos-containing material (ACM) is defined as any building material containing greater than 1 percent commercial asbestos by weight, area, or count, and includes both friable and Category I or Category II non-friable ACM. If material known or suspected to contain asbestos is encountered, removal, handling, labeling, transport, and disposal of the material would be conducted in accordance with Rule 4002 procedures. Since no buildings are present at the location, demolition activities are not expected to occur during project construction that would encounter ACM; therefore, the requirements of Rule 4002 would not apply to this project.

3. Environmental Setting

The Azalea Solar project area is located in the unincorporated northwest area of Kern County approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, and directly south of the Kern County/Kings County line, within the San Joaquin Valley. The climate of northwestern Kern County is predominantly affected by the San Joaquin Valley, which is considered to be a Mediterranean climate area. Mediterranean climate zones are characterized by sparse rainfall, which occurs mainly in winter, and hot and dry summers (SJVAPCD, 2015).

Winds in northwest Kern County typically blow from the northwest. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the Valley (SJVAPCD, 2015). This effect moderates air temperatures in the region, with average minimum winter temperatures ranging from the low 40s Fahrenheit (°F) to the mid-40s °F and average maximum summer temperatures ranging from the low 90s °F to 100°F (Western Regional Climate Center [WRCC], 2019). Wind speeds are moderate in this region, with annual average wind speeds of approximately 6 miles per hour (Weather Underground, 2017).

The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the Valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500-3,000 feet). Winter-time high pressure events can often last many weeks with surface temperatures often lowering into the 30s °F. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet (SJVAPCD, 2015).

3.1 Air Quality

The primary pollutants of concern in the project area are ozone, PM₁₀, and PM_{2.5} because the San Joaquin Valley is designated nonattainment for these pollutants by EPA and/or CARB. Ten ambient air monitoring stations operate in Kern County. Air quality data statistics from the Golden State Highway ambient air monitoring station were used as representative of the project area's environmental setting for PM₁₀ and PM_{2.5}, and the Shafter ambient air monitoring station for Ozone due to their proximity of the monitoring stations to the project (about 66 and 46 miles away, respectively). Table 3 summarizes the maximum ambient air monitoring data for the most recent 3-year period.

Table 3. Summary of Ambient Air Monitoring Data in the Project Area^a

Pollutant	Averaging Time	2017	2018	2019
Ozone (ppm)	1-hour	0.094	0.098	0.087
	8-hour	0.082	0.090	0.077
PM ₁₀ (µg/m³)	24-hour	158.2	155.3	652.2
	Annual Arithmetic Mean	48.3	53.0	55.6
PM _{2.5} (µg/m³)	24-hour	74.3	99.1	66.1
	Annual Arithmetic Mean	16.1	18.0	12.3

Notes:

^a Data from the Bakersfield-Golden State Highway (2820 M St, Bakersfield, CA 93301) and Shafter (1001 W 10th St, Shafter, CA 93292) = 76 : 7 – monitoring stations located in Kern County, California. Air quality data statistics obtained from CARB's iADAM database, accessed June 29, 2021.

Monitored concentrations of ozone exceeded the state 8-hour standard between 15 and 35 days per year during the 2017 through 2019 period. Monitored concentrations of ozone exceeded the state 1-hour standard between 0 and 4 days per year during the 2017 through 2019 period. Monitored concentrations of PM₁₀ exceeded the state 24-hour standard between an estimated 130 and 163 days per year during 2017 through 2019 period. Monitored concentrations of PM_{2.5} exceeded the federal 24-hour standard between an estimated 12 and 34 days per year during the 2017 through 2019 period.

3.2 Asbestos

A review of available geological maps indicates that project construction is unlikely to encounter ultramafic igneous rocks, which are the typical source of NOA. In the project vicinity, geological maps indicate that all soils and rock consist of Quaternary- to Jurassic-age alluvium and sedimentary rocks, although small unmapped basaltic (non-ultramafic, non-asbestos containing) volcanic rock units may be present (U.S. Geological Survey, 2011).

3.3 Greenhouse Gases

SJVAPCD prepared the GHG emissions inventory for Kern County, which includes direct and indirect GHG emissions due to human activities, to support San Joaquin Valley's climate protection activities. Table 4 presents the 2005 countywide GHG emissions inventory for Kern County, which is the most recently available inventory.

Table 4. Kern County 2005 GHG Emissions Inventory

End-use Sector	Percent of Total Emissions	CO ₂ e Emissions (million metric tons/year)
Fossil Fuels Industry	40	10.9
Residential Industrial/Commercial	5	1.3
Electricity/Cogeneration	22	6.0
Industrial Processes	7	1.9
Transportation	17	4.6
Agriculture/Farming	7	2.0
Other Sources	2	0.3
Total	100	27.0

Source: SJVAPCD, 2012

4. Best Management Practices

CEQA requires the consideration of regional, state, and federal plans, policies, and regulations when evaluating potential project impacts and developing avoidance and minimization measures. BMPs were identified to address state and regional plans, policies, and requirements and are considered part of the project.

The following BMPs will be implemented to help minimize the project's air emissions:

- Water trucks will be present and in use at the construction site. All portions of the site subject to blowing dust will be watered as necessary to ensure proper control of blowing dust for the duration of the project, but no less than twice daily.
- All public streets and medians soiled or littered due to this construction activity will be cleaned and swept as needed during the work week, or as otherwise directed by Kern County's Department of Public Works.
- All trucks hauling soil, sand, and other loose materials will be covered with tarpaulins or other effective covers.
- The construction contractor will be solely responsible for dust control measures and for obtaining all required permits and approvals.
- Unpaved roads will be treated with a soil stabilizer, as applicable, and vehicle speeds will be limited to 15 miles per hour onsite.

5. Environmental Analysis

The following section addresses the screening thresholds set forth in Appendix G of the CEQA Guidelines to evaluate air quality and climate change impacts. With incorporation of the above BMPs into the project design, and implementation of Mitigation Measures identified in Appendix A, potential impacts from project construction will be less than significant. Operation-related impacts are not expected to be associated with this project as there is no stationary combustion equipment proposed for installation and no measurable changes in traffic associated with the project site. However, operation-related impacts were estimated as the emissions associated with intermittent operation and maintenance personnel.

5.1 Significance Criteria

The SJVAPCD adopted thresholds of significance in the *2015 Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI; SJVAPCD, 2015). Section 8.4.2 of the GAMAQI provides that project-related impacts on air quality may be significant when on-site emission increases from construction activities or operational activities exceed the 100 pounds per day screening level of any criteria pollutant after implementation of all enforceable mitigation measures. Under such circumstances, the SJVAPCD recommends that an ambient air quality analysis be performed to determine if emission increases from a project will cause or contribute to a violation of the ambient air quality standards.

For criteria pollutants, the annual significance thresholds for SJVAPCD are as follows (SJVAPCD, 2015):

Construction or Operation Emissions	VOC	CO	NOx	SO ₂	PM ₁₀	PM _{2.5}
SJVAPCD Thresholds (tons/yr)	10	100	10	27	15	15
Notes: NOx = oxides of nitrogen tons/yr = tons per year VOC = volatile organic compounds Consistent with SJVAPCD Rules, the VOC threshold for SJVAPCD is based on the threshold for reactive organic gases (ROG). The SO ₂ threshold for SJVAPCD is based on the threshold for oxides of sulfur (SO _x), which are SO ₂ precursors.						

The Kern County Planning Department has developed guidelines and thresholds of significance in the *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County, 2006). The Guidelines indicate that, for projects located in SJVAPCD, these significance thresholds should be specified.

The *SJVAPCD GAMAQI* provides thresholds for analysis of health risk impacts from project operation, both permitted and non-permitted sources combined. The following are the significance thresholds for toxic air contaminants:

- Carcinogens: Maximally exposed individual risk equals or exceeds 10 in one million
- Non-Carcinogens, Acute: Hazard Index equals or exceeds 1 for the maximally exposed individual
- Non-Carcinogens, Chronic: Hazard Index equals or exceeds 1 for the maximally exposed individual

With respect to GHGs, CARB developed statewide interim thresholds of significance in 2008. For industrial projects, CARB proposed a quantitative threshold of 7,000 metric tons of CO_{2e} per year (CARB, 2008). Additionally, the SJVAPCD incorporates best performance standards to determine a less than significant individual and cumulative impact on global climate change and does not require project specific quantification of GHG emissions (SJVAPCD, 2009). Emissions from the project will be compared with the proposed CARB threshold, since it is more stringent.

5.2 CEQA Checklist Questions

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the potential significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines (2019), the “Environmental Checklist Form”. The Environmental Checklist Form is a screening tool used to determine whether an effect may be significant.

A draft California Environmental Quality Act Initial Study Checklist for Air Quality and Greenhouse Gas Emissions has been included in Appendix A.

6. References

BREEZE Software, A Division of Trinity Consultants (BREEZE). 2017. *California Emissions Estimator Model (CalEEMod) User's Guide*. November.

California Air Resources Board (CARB). 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. October.

California Air Resources Board (CARB). 2018. *EMFAC2017 Software*. March.

California Air Resources Board (CARB). 2016. *Ambient Air Quality Standards*. May.

California Air Resources Board (CARB). 2019a. "2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations." Accessed June 21, 2021. Online: <https://www.arb.ca.gov/toxics/atcm/asb2atcm.htm>.

California Air Resources Board (CARB). 2019b. "Area Designations Maps / State and National." Accessed June 20, 2021. Online: <https://www.arb.ca.gov/desig/adm/adm.htm>.

California Air Resources Board (CARB). 2019c. "California 1990 Greenhouse Gas Emissions Level and 2020 Limit." Accessed June 19, 2021. Online: <https://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>.

California Air Resources Board (CARB). 2019d. "California State Implementation Plans." Accessed June 19, 2021. Online: <https://www.arb.ca.gov/planning/sip/sip.htm>.

California Air Resources Board (CARB). 2019e. "Cap-and-Trade Program." Accessed June 20, 2021. Online: <https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

California Air Resources Board (CARB). 2019f. "Mandatory Greenhouse Gas Reporting Regulation." Accessed June 20, 2021. Online: <https://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-regulation.htm>.

California Air Resources Board (CARB). 2019g. "Top 4 Summary: Select Pollutant, Years, & Area." Accessed June 19, 2021. Online: <https://www.arb.ca.gov/adam/topfour/topfour1.php>.

Countess Environmental. 2006. "WRAP Fugitive Dust Handbook." Accessed June 30, 2020

Kern County Planning Department (Kern County). 2006. *Guidelines for Preparing an Air Quality Assessment For Use in Environmental Impact Reports*. December.

Kern Council of Governments (KCOG). 2018. *2018 Regional Transportation Plan and Sustainable Communities Strategy*. August.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. February.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2004. *Rule 4002, National Emission Standards for Hazardous Air Pollutants*. May. Online: <https://www.valleyair.org/rules/currnrules/r4002.pdf>.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2007. *2007 PM₁₀ Maintenance Plan and Request for Redesignation*. September. Online:

https://www.valleyair.org/Air_Quality_Plans/docs/Maintenance%20Plan10-25-07.pdf.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2009. *Final Staff Report; Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act*. December. Online:

<https://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2012. *Kern County Communitywide Greenhouse Gas Emission Inventory*. May. Online:

https://www.kerncog.org/wp-content/uploads/2011/09/kc_ghg_final_report_052012.pdf.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. *Guidance for Assessing and Mitigating Air Quality Impacts*. March. Online: http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2016. *2016 Ozone Plan for 2008 8-hour Ozone Standard*. June. Online: http://valleyair.org/Air_Quality_Plans/Ozone-Plan-2016.htm.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2017. *Rule 9510; Indirect Source Review*. December. Online: <https://www.valleyair.org/rules/currentrules/r9510-a.pdf>.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2018. *APR 1906 Framework for Performing Health Risk Assessments*. July. Online: http://www.valleyair.org/policies_per/Policies/APR-1906-7-1-18.pdf.

Surf to Snow (S2S). 2021. *Azalea Solar Project Traffic Study*, June.

South Coast Air Quality Management District (SCAQMD). 2007. *CEQA Air Quality Analysis Handbook*. April.

U.S. Environmental Protection Agency (EPA). 2006. *AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors*. Chapter 13.2.2, Unpaved Roads. November.

U.S. Environmental Protection Agency (EPA). 2011. *AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors*. Chapter 13.2.1, Paved Roads. January.

U.S. Environmental Protection Agency (EPA). 2017a. "Climate Change: Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act." Accessed March 6, 2017. Online: <https://www.epa.gov/climatechange/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a>.

U.S. Environmental Protection Agency (EPA). 2017b. "Greenhouse Gas Reporting Program (GHGRP): Resources by Subpart for GHG Reporting." Accessed March 6, 2017. Online: <https://www.epa.gov/ghgreporting/resources-subpart-ghg-reporting>.

U.S. Environmental Protection Agency (EPA). 2017c. "New Source Review (NSR) Permitting: Clean Air Act Permitting for Greenhouse Gases." Accessed March 6, 2017. Online: <https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases>.

Air Quality and Greenhouse Gas Emissions

U.S. Geological Survey. 2011. *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*.

Western Regional Air Partnership (WRAP). 2006. *WRAP Fugitive Dust Handbook*. Online: https://www.wrapair.org/forums/dej/f/fdh/content/FDHandbook_Rev_06.pdf.

Appendix A

CEQA Initial Study Checklist

CEQA Initial Study Checklist

Air Quality and Greenhouse Gas

The following information is provided to support a CEQA Initial Study for the Azalea Solar Project, based on information assessed in the Air Quality and Greenhouse Gas Emissions Study. This has been prepared solely for the purpose of informing the user and should not be construed as a formal CEQA initial Study. Accordingly, Discussion provided is only to provide guidance, and should not be relied upon without further assessment. An independent evaluation is recommended based on the planned Azalea Solar Project.

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>

PROJECT IMPACTS

IMPACT IIIA: The Project Would Conflict with or Obstruct Implementation of an Applicable Air Quality Plan.

SJVAPCD adopted its indirect source review program, Rule 9510, on December 15, 2005, to fulfill its PM10 and ozone plan commitments (SJVAPCD, 2017). The purpose of Rule 9510 is to reduce indirect sources of oxides of nitrogen (NOx) and PM10 emissions from new development projects. An indirect source is defined as “any facility, building, structure, or installation, or combination thereof, which attracts or generates mobile source activity that results in emissions of...” NOx and PM10. Rule 9510 requires mitigation equal to half of the emissions after build-out for 10 years. The end result is that projects must reduce their operational NOx emissions by 33 percent and their operational PM10 emissions by 50 percent over a 10-year period. The project will incorporate BMPs to mitigate fugitive dust, including applying dust suppressant material, which yields 84 percent PM10 control; limiting vehicle speeds to 15 miles per hour, which yields 57 percent PM10 control; and watering exposed areas during construction, which yields 10 to 74 percent PM10 control (Countess 2006).

The NOx and PM10 exhaust emissions from construction equipment with a horsepower rating greater than fifty (50) horsepower will be reduced by 15 and 45 percent, respectively, by using newer, lower polluting construction equipment and cleaner fuels.

Operational emissions will be limited to minimal mobile sources performing operation and maintenance activities at the facility. Operational mobile sources will also utilize cleaner fuels and newer, lower emitting panel washing and

landscaping equipment to reduce NOx emissions by 33.3 percent from the project's operational baseline over ten years. Operational PM10 emissions will be reduced by using soil stabilizers and ground cover to reduce PM10 emissions by 50 percent from the project's operational baseline over ten years.

Because the project does not include any stationary sources, the stationary control measures identified in the SJVAPCD's 2016 Ozone Plan and Kern County's 2017 Ozone Attainment Plan are not applicable.

Similarly, the project's construction emissions from heavy-duty, off-road equipment will not exceed the SJVAPCD's significance thresholds. The mobile source control measures pertaining to heavy-duty, off-road equipment identified in the SJVAPCD's 2016 Ozone Plan are also not applicable. Therefore, the project's construction activities would neither conflict with nor obstruct implementation of the applicable air quality plans and no impacts would occur.

According to the State of California Employment Development Department, industry employment in Kern County is projected to reach 391,800 by 2024, an increase of 16.1% since 2015. Total non-farm employment is projected to grow by more than 41,200 jobs by 2024. The project construction workforce would be temporary, requiring approximately 12 months of employment, and is expected to come from the existing construction labor pool in Kern County. The project is anticipated to have on-site personnel consisting of plant operators and maintenance technicians starting in 2022. The additional jobs required for the project would be well within the annual growth projection presented in the Kern Council of Government's (KGOs) 2018 Regional Transportation Plan and Sustainable Communities Strategy. Therefore, the project would be consistent with the KCOG's 2018 Regional Transportation Plan and Sustainable Communities Strategy and have a less-than-significant impact.

Traffic analysis zones (TAZs) are basic spatial units of analysis facilitating the ability of transportation planners to forecast changes in commuting patterns, trip volumes, and modes of travel, and to develop plans to meet the changing demands for transportation facilities and capacities. There will be no measurable changes in traffic associated with the project site. The project area is considered generally rural and agricultural. The nearest town is approximately 17 miles away. There are no intersections or roadways identified as Level of Service (LOS) E or worse associated with the project. Additionally, there will be no signalization or channelization added to an intersection, as part of this project. Therefore, the project will have a less-than-significant impact on the Kern County TAZ.

Summary

Emissions associated with implementation of the project would generate both temporary (construction) and long-term (operational) emissions; however, the amount of emissions generated would not exceed any established SJVAPCD thresholds; are not anticipated to conflict with SJVAPCD's applicable ozone, PM10, and PM2.5 plans; and are considered less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance

Impacts would be less than significant for the solar facility and no mitigation is required for the project.

IMPACT IIIB: Will the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?

SJVAPCD's CEQA Guidelines indicate that a violation of SJVAPCD's construction or operational thresholds of significance would result in a project-level and cumulative impact. In addition, SJVAPCD has determined that compliance with the dust control requirements of SJVAPCD Regulation VIII is sufficient to mitigate cumulative fugitive dust impacts to a less- than-significant level (SJVAPCD 2002). As indicated in Tables 1, 2, and 3, construction and operational emissions are not expected to exceed SJVAPCD's significance thresholds of 10 tons per year ROG or NOx and 15 tons per year PM10 or PM2.5 with implementation of Mitigation Measures MM III-1 through MM III-5. Consequently, a cumulatively considerable net increase of any nonattainment criteria pollutant is not anticipated after implementation of Mitigation Measures MM III-1 through MM III-5, and this impact is considered less than significant after mitigation.

Construction

Construction of the project would result in short-term emissions of ROG, NOx, CO, SOx, PM10, and PM2.5. Emissions

from construction would result from fuel combustion and exhaust from construction equipment as well as vehicle traffic, grading, and the use of toxic materials (e.g., paints and lubricants). Emissions estimates are based on assumptions provided in the air quality impact analysis for the project (Appendix B).

Table 1 presents the project's total project-related emissions from construction. As shown in Table 1, project construction would not exceed the SJVAPCD thresholds of significance adopted by Kern County.

Table 1. Estimated Emissions from Project Construction						
Activity	Emissions (tons per year)					
	ROG	NOX	CO	SOX	PM10 *	PM2.5 *
1.45	0.48	9.40	12.19	0.03	1.89	1.06
SJVAPCD and Kern County significance thresholds	10	10	NA	NA	15	15
<i>Exceed threshold?</i>	<i>No</i>	<i>No</i>	<i>--</i>	<i>--</i>	<i>No</i>	<i>No</i>
* Unmitigated PM10 and PM2.5 emissions includes watering. Source: Appendix B						

Operation

Operation of the project would result in a positive cumulative benefit related to air quality because it would introduce a nonfossil-fuel-based energy source, which would have the indirect effect of displacing emissions otherwise occurring at natural gas and coal-fired power plants. This effect would offset the project's contribution to the region's emissions during operation.

Once the project is operational, emissions would be limited to vehicle exhaust and re-entrained road dust associated with maintenance activities, including water truck trips for panel cleaning and periodic material deliveries, as well as employee vehicle trips. Table 2 presents estimated annual operational emissions. As shown in Table 2, project operations would not exceed the SJVAPCD thresholds of significance adopted by Kern County.

Table 2. Estimated Maximum Annual Unmitigated Operational (Long-term) Emissions						
Unmitigated Activity	Emissions (tons per year)					
	ROG	NOX	CO	SOX	PM10	PM2.5
Onsite Emissions	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Offsite Emissions	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fugitive Dust Emissions	-	-	-	-	<0.01	<0.01
<i>Total Annual Emissions</i>	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SJVAPCD significance thresholds	10	10	NA	NA	15	15
<i>Exceed threshold?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
Source: Appendix B.						
Note: Emissions do not consider reductions associated with ISR implementation.						

Implementation of Mitigation Measures MM III-1 through MM III-5 would ensure that all reasonably available and feasible air quality control measures would be implemented. Therefore, neither construction nor operation, nor maintenance of the project would violate an air quality standard or contribute substantially to an existing or projected air quality standard. In summary, construction, operation, and decommissioning of the project would have

a less-than-significant impact with respect to violating air quality standards or contributing substantially to an existing or projected air quality violation.

Mitigation Measures

Implement Mitigation Measures MM III-1 through MM III-5.

MM III-1: The project shall continuously comply with the following: The project proponent and/or its contractor(s) shall implement the following measures during construction of the project:

1. All equipment shall be maintained as recommended by manufacturer manuals.
2. Equipment shall be shut down when not in use for extended periods of time.
3. Construction equipment shall operate no longer than 8 cumulative hours per day.
4. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline-powered equipment.
5. Diesel powered equipment should utilize low-emission diesel products
6. Where feasible, retrofit engines with NOx reducing equipment/technology
7. Use of late model engines for reduction of NOx
8. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order.

MM III-2: Prepare and Implement a Dust Control Plan to Comply with SJVAPCD Regulation VIII Requirements to Control Construction Emissions of PM₁₀

To control the generation of construction-related PM₁₀ and PM_{2.5} fugitive dust emissions, construction contractors shall prepare and submit for approval a dust control plan to SJVAPCD at least 30 days prior to any earthmoving or construction activities. Potential measures that might be included in the dust control plan could include, but are not limited to:

1. Pre-activity.
 - a. Pre-water the work site and phase work to reduce the amount of disturbed surface area at any one time.
2. Active operations.
 - a. Apply water to dry areas during leveling, grading, trenching, and earthmoving activities.
 - b. Construct and maintain wind barriers and apply water or dust suppressants to the disturbed surface areas.
3. Inactive operations, including after work hours, weekends, and holidays.
4. Apply water or dust suppressants on disturbed surface areas to form a visible crust, and vehicle access will be restricted to maintain the visible crust.
5. Temporary stabilization of areas that remain unused for seven or more days.
 - a. Restrict vehicular access and apply and maintain water or dust suppressants on all un-vegetated areas.
 - b. Establish vegetation on all previously disturbed areas.
 - c. Apply gravel and maintain at all previously disturbed areas.
 - d. Pave previously disturbed areas.
6. Unpaved Access and haul roads, traffic and equipment storage areas.
 - a. Apply water or dust suppressants to unpaved haul and access roads.
 - b. Post a speed limit of not more than 15 miles per hour, using signs at each entrance and again every 500 feet.
 - c. Water or dust suppressants shall be applied to vehicle traffic and equipment storage areas.
7. Wind events.
 - a. Water application equipment shall apply water to control fugitive dust during wind events, unless unsafe to do so.
 - b. Outdoor construction activities that disturb the soil shall cease whenever visible dust emissions

cannot be effectively controlled.

8. Outdoor handling of bulk materials.
 - a. Water or dust suppressants shall be applied when handling bulk materials.
 - b. Wind barriers with less than 50% porosity shall be installed and maintained, and water or dust suppressants shall be applied.
9. Outdoor storage of bulk materials.
 - a. Water or dust suppressants shall be applied to storage piles.
 - b. Storage piles shall be covered with tarps, plastic, or other suitable material and anchored in such a manner that prevents the cover from being removed by wind action.
 - c. Wind barriers with less than 50% porosity shall be installed and maintained around the storage piles, and water or dust suppressants shall be applied.
 - d. A three-sided structure with less than 50% porosity that is at least as high as the storage piles shall be used.
10. Onsite transporting of bulk materials.
 - a. Vehicle speed shall be limited on the work site.
 - b. All haul trucks shall be loaded such that the freeboard is not less than 6 inches when transported across any paved public access road.
 - c. A sufficient amount of water shall be applied to the top of the load to limit visible dust emissions.
 - d. Haul trucks shall be covered with a tarp or other suitable cover.
11. Offsite transporting of bulk materials.
 - a. The following practices shall be performed:
 - i. The interior of emptied truck cargo compartments shall be cleaned or covered before leaving the site.
 - ii. Spillage or loss of bulk materials from holes or other openings in the cargo compartment's floor, sides, and tailgates shall be prevented.
12. Outdoor transport using a chute or conveyor.
 - a. No open chutes or conveyors shall be used.
 - b. Chutes or conveyors shall be fully enclosed.
 - c. Water spray equipment shall be used to sufficiently wet the materials.
 - d. Transported materials shall be washed or screened to remove fine particulate matter (PM₁₀ or smaller).

MM III-3: Implement Measures to Comply with SJVAPCD Indirect Source Rule 9510.

Prior to the issuance of building and grading permits, the project proponent shall provide the Kern County Planning and Community Development Department with proof that an Indirect Source Review application has been approved by the San Joaquin Valley Air Pollution Control District. The project proponent shall enter into a developer agreement with SJVAPCD and conduct an air impact assessment as required by SJVAPCD Rule 9510. Offsite emission reduction fees shall be calculated, as dictated by Rule 9510, to reduce construction-related NOX emissions by 20% and PM10 emissions by 45%.

MM III-4: Prior to the issuance of grading or building permits, the project proponent shall submit documentation to demonstrate how the following grading measures will be implemented during construction activities:

1. A minimum of 15 days prior to commencement of construction activities, the project proponent shall provide a copy of the construction and grading schedule to the public through direct mailing to all parcels within 1,000 feet of the project site. The notices shall include the construction schedule and a telephone number where complaints can be registered. Signs legible at a distance of 50 feet shall also be posted at the construction site through construction activities and will include the same details as the notices.
2. The project proponent shall establish a "Construction Coordinator." The construction coordinator shall

be responsible for the following:

- a. Responding to any local complaints about construction activities. The construction coordinator shall determine the cause of the construction complaint and shall be required to implement reasonable measures such that the complaint is resolved;
- b. Ensuring all appropriate construction notices have been made available to the public and all appropriate construction signs have been installed; and
- c. Providing to the Kern County Planning and Community Development Department a weekly log of all construction-related complaints (i.e., blowing dust, inability to access parcels, etc...) during project construction activities and the measures that were undertaken to address those concerns.

MM III-5: Prior to the issuance of grading or building permits, the project proponent shall submit a comprehensive Phased Grading Plan for review and approval by the Kern County Planning and Community Development Department. The Phased Grading Plan shall include the following:

1. Identify a comprehensive grading schedule for the entire project site.
2. Minimize all grading activities to those areas necessary for project access and installation of solar panels and other associated infrastructure associated with the solar facility. Construction of solar panels shall commence on areas that have undergone initial grading within 20 calendar days.
3. Identify, in addition to those measures required by the San Joaquin Valley Air Pollution Control District, all measures being undertaken during construction activities and operational activities to ensure dust being blown off site is minimized. Measure may include, but are not limited to:
 - a. Increased use of water and or use of dust suppressant;
 - b. Pre-seeding and/or use of wood chips as permitted by the Eastern Kern Air Pollution Control District; and
 - c. Construction of dust screening around the project site.

Level of Significance

Impacts would be less than significant for the solar facility following mitigation.

IMPACT IIIC: Will the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as people that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s) (SJVAPCD, 2015). One residential sensitive receptor is located 0.67 miles east of the project site. There are no non-residential sensitive receptors within 14 miles of the project; the closest non-residential sensitive receptor is more than 17 miles southeast of the project, in the community of Lost Hills.

Toxic Air Contaminants. Construction activities are anticipated to involve the operation of diesel-powered equipment. In 1998, CARB identified diesel exhaust as a TAC. SJVAPCD does not consider construction-equipment-diesel- related cancer risks to be an issue because of the short-term nature of construction activities (Siong pers. comm.). Cancer health risks associated with exposure to diesel exhaust typically are associated with chronic exposure, in which a 70-year exposure period often is assumed. Although elevated cancer rates can result from exposure periods of less than 70 years, acute exposure (i.e., exposure periods of 2 to 3 years) to diesel exhaust typically are not anticipated to result in an increased health risk because acute exposure typically does not result in the exposure concentrations necessary to result in a health risk.

Activities associated with construction and decommissioning would each take place over approximately 12 months. Health impacts associated with exposure to diesel exhaust from project construction are not anticipated to be significant because construction activities are expected to last well below the 70-year exposure period used in health risk assessments. Additionally, there are no sensitive receptors in the project area. Therefore, construction of the project is not anticipated to result in an elevated cancer risk to exposed persons.

Valley Fever. Although not a direct air pollutant, valley fever (coccidioidomycosis) fungal spores can cause infections to develop through inhalation of airborne fungal spores contained in windblown dust, and are recognized to be

endemic in the San Joaquin Valley due to the dry, alkaline soil conditions. Commercial agricultural fields that are frequently tilled are located in the vicinity of the project sites, so baseline windblown dust concentrations are likely elevated. In order to prevent exacerbating the existing windblown dust issues in the project area, all construction activity for the project would be conducted under a rigorous Dust Control Plan prepared in accordance with SJVAPCD Regulation VIII (Mitigation Measure MM 4.3-3). Adherence to the Dust Control Plan would prevent the project from substantially increasing windblown dust concentrations compared to background levels. Therefore, this impact would be less than significant.

Naturally Occurring Asbestos. Ultramafic, serpentinite rock is bedrock that contains naturally occurring asbestos. Constant, regular exposure to high levels of asbestos may cause cancer in humans, including lung cancer and mesothelioma, a rare cancer that attacks the lining of the lungs, stomach, and heart. Surveys conducted by the California Department of Conservation indicate the closest known bedrock formations containing ultramafic rock are in the mountainous areas of eastern Tulare County, so it is unlikely that the surface soils in the project area contain naturally occurring asbestos (California Department of Conservation 2000). Therefore, the project would not be subject to CARB's "Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations" (California Air Resources Board 2008). Regardless, all construction activity for the project would be conducted under a rigorous Dust Control Plan prepared in accordance with SJVAPCD Regulation VIII (Mitigation Measure MM III-1). Adherence to Mitigation Measures MM III-1 and MM III-2 would prevent the project from inadvertently causing elevated concentrations of ambient asbestos at sensitive receptors. Therefore, this impact would be less than significant.

Carbon Monoxide Hotspots. Elevated levels of CO concentrations are typically found in areas with significant traffic congestion. CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. SJVAPCD requires localized CO concentrations associated with traffic congestion be analyzed to ensure that monitored concentrations remain below CAAQS and NAAQS, and that sensitive receptors are not exposed to elevated localized concentrations near roadways that may not show up at monitoring stations. SJVAPCD has developed a set of preliminary screening criteria that can be used to determine with fair certainty that the effect a project has on any given intersection would not cause a potential CO hotspot. A project can be said to have no potential to create a CO violation or create a localized "hotspot" if either of the following conditions are not met: level of service (LOS) on one or more streets or intersections would be reduced to LOS E or F; or the project would substantially worsen an already LOS F street or intersection within the project vicinity. According to the traffic impact analysis (S2S 2021), all intersections and roadway segments within the vicinity of the project would operate at LOS A during the existing plus project condition. Therefore, the project would not generate CO hotspots. This impact would be less than significant.

Nearby Class 1 Areas. Class 1 Federal lands include areas such as national parks, national wilderness areas, and national monuments. These areas are granted special air quality protections under Section 162(a) of the Federal CAA. Nearby Class 1 areas within 100 kilometers include the San Rafael Wilderness and R-2508 Airspace Complex. Project emissions are expected to be far below Prevention of Significant Deterioration threshold levels established by EPA. Therefore, impacts on nearby Class 1 areas are not expected. Adherence to Mitigation Measures MM III-1 through MM III-5 would prevent the project from impacting nearby Class 1 areas. This impact would be less than significant.

Mitigation Measures

MM III-3: Prior to the issuance of grading or building permits, the project proponent shall provide evidence to the Kern County Planning and Community Development Department that the project operator and/or construction manager will provide a "Valley Fever Training Session" to all construction personnel regarding Valley Fever.

Additionally, prior to the commencement of ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Community Development Department that the training session(s) was held. This evidence may take the form of a sign-up sheet of all personnel who attended the session and the specific date/time when the session was conducted. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction.

The "Valley Fever Training Session" shall include the following:

1. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.
2. Distribution of a written flier or brochure that includes educational information regarding the health

- effects of exposure to criteria pollutant emissions and Valley Fever.
3. Training on methods that may help prevent Valley Fever infection.
4. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not mandatory during work, the equipment shall be readily available and shall be provided to employees for use during work, if requested by an employee. The development shall comply with any requirements of the San Joaquin Valley Air Pollution Control District.

Level of Significance

Impacts would be less than significant for the solar facility following mitigation.

IMPACT IIID: Will the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The project would not include facilities that are expected to be a source of odors as defined by SJVAPCD. The project may cause temporary odors resulting from diesel exhaust during construction equipment operation and truck activity, as well as from truck deliveries during long-term operations. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off site by resulting in confirmed odor complaints. Therefore, operation of the project is not likely to generate odors or expose receptors to offensive odors. This impact would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance

Impacts would be less than significant for the solar facility and no mitigation is required for the project.

Impact VIIIA: Will the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Directly emitted GHG emissions during construction would result in a less-than-significant, short-term impact to climate change. As summarized in Table 4, as detailed in Appendix B, the GHG emissions from the construction phase of the project would be well below CARB's proposed threshold of 7,000 metric tons of CO₂e per year. Therefore, GHG impacts from construction of the project would be less than significant.

Table 4. GHG Construction Emissions

Construction Period	CO ₂	CO ₂ e ^a
Project Emissions (metric tons/year) ^b	4,748	4,764
CARB Threshold of Significance (metric tons/year) ^c	--	7,000
Exceeds CARB Threshold of Significance (Y/N)	--	N

Notes:

-- = No threshold of significance exists for this pollutant

^a Only CO₂ emission factors were available for all types of construction equipment used for this project. Emissions of CH₄ and N₂O from combustion sources are expected to be much lower than emissions of CO₂, contributing in the range of 2 to 4 percent of the total CO₂e emissions (CARB, 2017f). Therefore, the CO₂ emissions were conservatively increased by 5 percent to calculate CO₂e emissions, accounting for the potential CH₄ and N₂O emissions associated with construction activities.

^b It was assumed that all construction equipment and vehicles could operate simultaneously on any given day during the project.

^c The CARB Threshold of Significance was taken as the statewide interim threshold of significance for GHGs (CARB, 2008).

Project-related activities would contribute to the generation of GHG emissions during construction and indirectly contribute to the reduction of GHG emissions during operation by providing low-GHG electricity to California customers, displacing higher GHG emitting resources. The applicable GHGs that have been quantitatively estimated for this project include CO₂, CH₄, and N₂O. SF₆ is a gas that is used as insulation in electric power transmission and distribution equipment. However, emissions of this gas would occur at very low rates due to its low usage and its minimal leak rate when contained by electric power equipment. While the project would generate GHG emissions during construction and a very small amount of GHG emissions during operations, it should be noted that the solar energy provided by the project is a much cleaner source of energy than traditional sources used for the generation of electricity, such as the burning of coal, fuel oil, or natural gas. Solar energy production creates no CO₂ emissions. This clean energy source is considered a best performance standard for electricity generation. Projects implementing BPS for GHG would be determined to have a less than significant impact.

Mitigation Measures

Implement Mitigation Measures MM III-1 through MM III-5.

Level of Significance after Mitigation

Impacts would be less than significant for the solar facility following mitigation.

Impact VIII B: Will the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions, and would by design assist in achieving the state's goals of reducing GHG emissions. The project would be consistent with and promote AB 32, SB 100, and other statewide renewable energy goals by decreasing reliance on fossil fuels for power supply and promoting the use of renewable energy within the state's electricity sector. Therefore, there are no conflicts with GHG plans, policies, or regulations, and thus there would be no impact.

SB 350 established California's 2030 GHG reduction target of 40 percent below 1990 levels. To achieve this goal, SB 350 sets ambitious 2030 targets for energy efficiency and renewable electricity, among other actions aimed at reducing GHG emissions across the energy and transportation sectors. The project involves the construction and operation and maintenance of a solar facility that would produce a new renewable source of energy in Kern County. Therefore, the project would directly support California's Renewable Portfolio Standard goal under SB 100 of increasing the percentage of electricity procured from renewable sources to 60 percent by 2030 and a target of 100 percent from eligible renewable energy resources and zero-carbon resources by 2045.

Mitigation Measures

No Mitigation Required.

Level of Significance

No impact anticipated.

Appendix B

Emissions Calculations and CalEEMod Results

TABLE A-1

Construction Summary - Annual Criteria Pollutant Emissions*Azalea Solar*

Project Construction	Maximum Annual Emissions (tons/yr) ^a						
	ROG	CO	NO _x	SO _x	DPM PM ₁₀	Total PM ₁₀ ^u	PM _{2.5} ^u
Construction Year 2022 ^a	0.14	1.11	1.14	0.00	0.05	0.18	0.14
Maximum Annual Emissions (tons/yr)	0.14	1.11	1.14	0.00	0.05	0.18	0.14
SJVAPCD Significance Threshold (tons/yr) ^c	10	100	10	27	N/A	15	15
Exceeds Threshold (Y/N)?	N	N	N	N	N	N	N

Construction Phases	Emissions by Phase (tons/phase) ^d							2022 Duration (Days)
PV Array Construction								
Demolition	0.012	0.108	0.128	0.000	0.005	0.011	0.006	7
Site Prep/Survey/Grading/Fencing/Staging	0.034	0.229	0.313	0.001	0.012	0.057	0.082	60
PV Array Mechanical Installation	0.033	0.280	0.222	0.001	0.010	0.038	0.017	180
PV Array Electrical Installation	0.021	0.190	0.167	0.001	0.007	0.030	0.013	100
Substation and Transmission Line Installation	0.020	0.172	0.168	0.001	0.006	0.029	0.012	120
Battery Storage Installation	0.015	0.135	0.138	0.000	0.005	0.019	0.009	90
Construction Project Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	350
2022 Construction Total	0.14	1.11	1.14	0.00	0.05	0.18	0.14	350

Notes:

N/A = Not Available (i.e., no significance threshold exists)

^a Emissions were calculated using the CalEEMod Model, version 2016.3.2. Calculation details are provided in the attached CalEEMod output file. Maximum annual emissions for the project are assumed to occur over a single calendar year and are compared to the SJVAPCD Significance Thresholds.

^b Total PM₁₀ and PM_{2.5} emissions represent both exhaust and fugitive dust emissions.

^c Significance thresholds for SJVAPCD are from *2015 Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.

^d Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

TABLE A-2

Construction Summary - Annual Criteria Pollutant Emissions with Mitigation*Azalea Solar*

Project Construction	Mitigated Maximum Annual Emissions (tons/yr) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀ ^u	Total PM ₁₀ ^u	PM _{2.5} ^u
Construction Year 2022 - Mitigated ^c	1.45	12.19	9.40	0.03	0.46	1.89	1.06
Maximum Annual Emissions (tons/yr)	1.45	12.19	9.40	0.03	0.46	1.89	1.06
SJVAPCD Significance Threshold (tons/yr) ^d	10	100	10	27	N/A	15	15
Exceeds Threshold (Y/N)?	N	N	N	N	N	N	N

Construction Phases	Mitigated Emissions by Phase (tons/phase) °							2022 Duration (Days)
PV Array Construction								
Demolition	0.012	0.108	0.109	0.000	0.005	0.011	0.006	7
Site Prep/Survey/Grading/Fencing/Staging	0.145	0.964	1.123	0.003	0.051	0.239	0.345	60
PV Array Mechanical Installation	0.676	5.732	3.865	0.014	0.212	0.775	0.348	180
PV Array Electrical Installation	0.252	2.231	1.670	0.007	0.080	0.350	0.147	100
Substation and Transmission Line Installation	0.312	2.696	2.235	0.009	0.094	0.453	0.184	120
Battery Storage Installation	0.051	0.458	0.398	0.001	0.017	0.064	0.029	90
Construction Project Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	350
2022 Construction Total	1.45	12.19	9.40	0.03	0.46	1.89	1.06	350

Notes:

N/A = Not Available (i.e., no significance threshold exists)

^a Emissions were calculated using the CalEEMod Model, version 2016.3.2. Calculation details are provided in the attached CalEEMod output file. Maximum annual emissions for the project are assumed to occur over a single calendar year and are compared to SJVAPCD Significance Thresholds.

^b Total PM₁₀ and PM_{2.5} emissions represent both exhaust and fugitive dust emissions.

^c Construction off-road mitigation measures include 1) Dust suppressant material which yields 84% PM10 control efficiency and 2) limiting vehicle speed to 15 mph 44% PM10 control efficiency, per WRAP Fugitive Dust Handbook, Sept 2006. Applying water to the roadways twice daily will yield 55% fugitive dust control, per the CalEEMod mitigation measures defaults. Off-road Mitigation Measures also include use of engine controls, late model engines and low emission diesel products for 15% NOx reduction, per CARB "Strategies for Reducing Emissions from Off-Road Construction Equipment," January 2021.

^d Significance thresholds for SJVAPCD are from 2015 *Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.

^e Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

TABLE A-3A

Construction Summary - Maximum Daily Criteria Pollutant Emissions*Azalea Solar*

2022 Seasonal Construction (Max Day)	Maximum Daily Emissions (lb/day) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀ ^u	PM _{2.5} ^u
Summer Season Construction	21.29	183.51	159.29	0.52	6.64	92.10	28.20
Winter Season Construction	21.59	172.42	161.28	0.49	6.64	92.10	28.20
Maximum Daily Emissions (lb/day)	21.59	183.51	161.28	0.52	6.64	92.10	28.20

2022 Seasonal Construction - Mitigated (Max Day)	Mitigated Maximum Daily Emissions (lb/day) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀ ^u	PM _{2.5} ^u
Summer Season Construction	21.29	183.51	159.29	0.52	6.64	12.68	28.20
Winter Season Construction	21.59	172.42	161.28	0.49	6.64	12.68	28.20
Maximum Daily Emissions (lb/day)	21.59	183.51	161.28	0.52	6.64	12.68	28.20

TABLE A-3B

Construction Summary - Average Daily Criteria Pollutant Emissions*Azalea Solar*

Average Daily Construction Emissions - Mitigated	Mitigated Average Daily Emissions (lb/day) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀	PM _{2.5}
Project Emissions							
Construction Year 2022	11.43	95.29	89	0.27	3.66	15.07	9.34
Maximum Daily Emissions (lb/day)	11.43	95.29	89	0.27	3.66	15.07	9.34
SJVAPCD Screening Level (lb/day)^d	100	100	100	100	100	100	100
Exceeds Screening Level (Y/N)?	N	N	N	N	N	N	N

Notes:

^a Emissions were calculated using the CalEEMod Model, version 2016.3.2. Calculation details are provided in the attached CalEEMod output file. Maximum Daily Emissions taken as the maximum emissions from either the summer or winter season.

^b Total PM₁₀ and PM_{2.5} emissions represent both exhaust and fugitive dust emissions.

^c Average daily emissions based on the total tons per year for each pollutant, divided by the total number of days, per SJVAPCD Ambient Air Quality Analysis - Project Daily Emissions. <http://www.valleyair.org/transportation/CEQA%20Rules/Ambient-Air-Quality-Analysis-Project-Daily-Emissions-Assessment.pdf>

^d Impacts are considered insignificant when on-site emission increases from construction activities or operational activities do not exceed the 100 pounds per day screening level of any criteria pollutant after implementation of all enforceable mitigation measures. Page 93 of Guidance for Assessing and Mitigating Air Quality Impacts, dated March 19, 2015.

TABLE A-4

Construction Summary - Annual GHG Emissions*Azalea Solar*

Project Construction	Maximum Annual Emissions (MT/yr) ^a			
	CO ₂	CH ₄	CO ₂ e	
Construction Year 2022	4747.90	0.65	4764.13	
Maximum Annual Emissions (MT/yr)	4747.90	0.65	4764.13	
SJVAPCD Significance Threshold ^b	N/A	N/A	Implement BPS ^c	
Construction Phase	Emissions by Phase (MT/phase)			2020 Duration (Days)
PV Array Construction				
Demolition	30.14	0.01	30.27	7
Site Prep/Survey/Grading/Fencing/Staging	644.70	0.11	647.36	60
PV Array Mechanical Installation	1,765.79	0.24	1,771.91	180
PV Array Electrical Installation	792.11	0.09	794.47	100
Substation and Transmission Line Installation	962.39	0.13	965.64	120
Battery Storage Installation	552.76	0.07	554.47	90
Construction Project Management	0.00	0.00	0.00	350
2020 Construction Total	4747.90	0.65	4764.13	350

Notes:

N/A = Not Available (i.e., no significance threshold exists)

^a GHG emissions are evaluated on an annual basis, using the CalEEMod model. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

^b Significance thresholds for SJVAPCD are from *2015 Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.

^c Best performance standards (BPS) are mitigation methods for greenhouse gases. Since solar panels will offset the electricity generation (MWh) from fossil fuel fired electricity generation, solar panels are considered best performance standards for electricity generation.

TABLE A-5

Construction Summary - Annual GHG Emissions with Mitigation*Azalea Solar*

Project Construction	Mitigated Maximum Annual Emissions (MT/yr) ^{a,e}			
	CO ₂	CH ₄	CO ₂ e	
Construction Year 2022	4747.90	0.65	4764.13	
Maximum Annual Emissions (MT/yr)	4747.90	0.65	4764.13	
SJVAPCD Significance Threshold ^b	N/A	N/A	Implement BPS ^d	
Kern County APCD Significance Threshold (MT/yr) ^c	N/A	N/A	25,000	
Construction Phase	Mitigated Emissions by Phase (MT/phase)			2022 Duration (Days)
<i>PV Array Construction</i>				
Demolition	30.14	0.01	30.27	7
Site Prep/Survey/Grading/Fencing/Staging	644.70	0.11	647.36	60
PV Array Mechanical Installation	1,765.79	0.24	1,771.91	180
PV Array Electrical Installation	792.11	0.09	794.47	100
Substation and Transmission Line Installation	962.39	0.13	965.64	120
Battery Storage Installation	552.76	0.07	554.47	90
Construction Project Management	0.00	0.00	0.00	350
2022 Construction Total	4747.90	0.65	4764.13	350

Notes:

N/A = Not Available (i.e., no significance threshold exists)

^a GHG emissions are evaluated on an annual basis, using the CalEEMod model. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

^b Significance thresholds for SJVAPCD are from *2015 Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.

^d Best performance standards (BPS) are mitigation methods for greenhouse gases. Since solar panels will offset the electricity generation (MWh) from fossil fuel fired electricity generation, solar panels are considered best performance standards for electricity generation.

^e Construction off-road mitigation measures include 1) Dust suppressant material which yields 84% PM10 control efficiency and 2) limiting vehicle speed to 15 mph 44% PM10 control efficiency, per WRAP Fugitive Dust Handbook, Sept 2006. Watering exposed areas twice daily will yield 55% fugitive dust control, per the CalEEMod mitigation measures defaults. Off-road Mitigation Measures also include use of engine controls, late model engines and low emission diesel products for 15% NOx reduction, per CARB "Strategies for Reducing Emissions from Off-Road Construction Equipment," January 2021. These provide minimal GHG reduction.

TABLE A-6

Preliminary Construction Schedule ^a*Azalea Solar Project*

Construction Phase	Duration (Days) ^b	2020											
		1	2	3	4	5	6	7	8	9	10	11	12
Demolition	7												
Site Prep/Survey/Grading/Fencing/Staging	60												
PV Array Mechanical Installation	180												
PV Array Electrical Installation	100												
Substation and Transmission Line Installation	120												
Battery Storage Installation	90												
Construction Project Management	350												

Notes:

^a This schedule depicts the periods during which construction activities could occur. It is expected that construction activities will actually occur intermittently within the identified periods, over a 5-day work week. The final project construction schedule can only be determined when issued a full Notice to Proceed, all applicant-proposed measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and are ready for installation, and Azalea Solar's contractors have mobilized and are ready to initiate

^b Duration days provided by SF Azalea, LLC. Schedule is assumed to be in 2022.

TABLE A-7

Equipment per Phase

Azalea Solar Project

Equipment / Vehicle List ^a	Horsepower	Load Factor	Quantity	Number of Days Used	Hours per Day
Demolition					
Offroad Forklift	110	0.20	1	10	10
Backhoe/Loader	97	0.35	1	10	10
15 Yard Dump Truck	550	0.15	1	10	10
Site Prep/Survey/Grading/Fencing/Staging Area Preparation					
Excavator	159	0.38	1	20	10
Dozer	247	0.40	1	30	10
Grader/Maintainer	187	0.41	3	30	10
15 Yard Dump Truck	550	0.15	2	35	10
Scraper	367	0.48	2	25	10
T655 Trencher	250	0.60	1	20	10
Backhoe/Loader	97	0.37	2	30	10
Offroad Forklift	110	0.20	2	30	10
Flatbed Truck	220	0.15	1	35	10
Pickup Truck	105	0.10	2	35	10
6-Passenger Crew Cart	22	0.10	2	35	10
PV Array Mechanical Installation					
PD10 Pile Driving Machine	49	0.75	5	130	10
Flatbed Truck	220	0.15	3	150	10
6-Passenger Crew Cart	22	0.10	20	150	10
Pickup Truck	105	0.10	6	150	10
Offroad Forklift	110	0.30	4	150	10
Skid Steer Loader	97	0.40	4	130	10
PV Array Electrical Installation					
Bobcat S450 Skid Steer Loader	49	0.30	2	80	10
Excavator	159	0.30	2	80	10
Backhoe/Loader	97	0.37	2	80	10
RT120 Trenching Machine	121	0.40	3	70	10
Flatbed Truck	220	0.15	2	90	10
Skytrak 8042 Offroad Forklift	110	0.20	2	90	10
Compactor Equipment	5	0.15	4	70	10
6-Passenger Crew Cart	22	0.10	6	90	10
Pickup Truck	105	0.10	3	90	10
Substation and Transmission Line Installation					
Bobcat S450 Skid Steer Loader	49	0.30	1	120	10
Excavator	159	0.30	1	120	10
Backhoe/Loader	97	0.37	1	120	10
RT120 Trenching Machine	121	0.40	1	120	10
Flatbed Truck	220	0.15	1	120	10
Skytrak 8042 Offroad Forklift	110	0.20	1	120	10
Compactor Equipment	5	0.10	1	120	10
6 Passenger Crew Cart	22	0.10	2	120	10
Pickup Truck	105	0.10	2	120	10
40T Offsite Crane	450	0.60	2	15	10
Battery Storage Installation					
Bobcat S450 Skid Steer Loader	49	0.30	1	40	10
Excavator	159	0.30	1	10	10
Backhoe/Loader	97	0.37	1	10	10
RT120 Trenching Machine	121	0.40	1	10	10
Flatbed Truck	220	0.15	1	40	10
Skytrak 8042 Offroad Forklift	110	0.20	1	35	10
Compactor Equipment	5	0.10	1	10	10
6 Passenger Crew Cart	22	0.10	1	40	10
Pickup Truck	105	0.10	1	40	10
40T Offsite Crane	450	0.60	1	2	10
Construction Project Management					

Notes:

^a Equipment for each phase, including horsepower, load factor, quantity, and duration, was provided by Azalea Solar.

TABLE A-8

Operation Summary - Annual Emissions*Azalea Solar Project*

Operational Sources ^a	Maximum Annual Emissions (tons/yr) ^b						Maximum Annual Emissions (MT/yr) ^b			
	ROG	CO	NOx	SOx	(DPM) Exhaust PM ₁₀	Exhaust PM _{2.5}	CO ₂	CH ₄	SF ₆	CO _{2e}
Emergency Generator - Diesel (300 – 600 HP)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes:

^a Equipment for operation and maintenance, as well as duration, was provided by Azalea Solar. Sources include equipment exhaust emissions. Worker trip emissions associated with operation and maintenance are assumed to be negligible and incorporated into the off-road mobile source emissions, conservatively estimated at 10 hours per day.

^b Emissions were calculated using the CalEEMod model.

^c Per the RFI, 5/3/19, Two SF6 devices will be used, 270-pounds each, with a 0.5% leak rate. SF6 has a GW potential of 23,900, per SJVAPCD CCAP-Nov2008.

^d Pickup truck emissions updated per the EMFAC 2017 (v1.0.2) Web Database factors.

Operational Sources	Maximum Daily Emissions (lb/day) ^e					
	ROG	CO	NOx	SOx	(DPM) Exhaust PM ₁₀	Exhaust PM _{2.5}
Emergency Generator - Diesel (300 – 600 HP)	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.000	0.000	0.000	0.000

Notes:

^e Daily emissions were calculated using the CalEEMod model, reported at the maximum for the winter season.

^e Pickup truck emissions updated per the EMFAC 2017 (v1.0.2) Web Database factors.

Operations Personnel ^f	Number	Work Days	Hours per Day	Hours per Year	Miles per Day	Miles per Year
Foreman	1	240	10	2,400	60	14,400
Journeyman	1	240	10	2,400	60	14,400
Apprentice	1	120	10	1,200	60	7,200
Laborer	5	60	10	3,000	300	18,000
				9,000	480	54,000

^f Per SF Azalea, LLC.

TABLE A-9

Vehicle Emission Factors*Azalea Solar Project*

Vehicle	Vehicle Class ^a	Exhaust & Road Emission Factors (g/mile) ^b						
		ROG	CO	NOx	SOx	PM ₁₀	PM _{2.5}	CO ₂
Pickup Truck (Onsite, 15 mph)	Light-Duty Truck	0.099	2.593	0.222	0.006	0.006	0.006	557.771
Dump Truck (Onsite, 15 mph)	Heavy-Duty Diesel	0.469	1.527	8.894	0.023	0.070	0.067	2,453.694
Flat Bed Truck (Onsite, 15 mph)	Heavy-Duty Diesel	0.469	1.527	8.894	0.023	0.070	0.067	2,453.694
Vendor/Haul Trips (Onroad, 45 mph)	Heavy-Duty Diesel	0.097	0.406	3.567	0.012	0.051	0.049	1,308.394
Worker Commutes (Offroad, 45 mph)	Light-Duty Auto/Truck	0.069	1.942	0.149	0.005	0.005	0.005	504.878

Notes:

^a The vehicle classes are represented as follows:

Light-Duty Truck: Assumed to be 50% LDT1 Gas and 50% LDT2 Gas values.

Heavy-Duty Diesel: Assumed to be 100% HHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Breeze Software, 2017).Light-Duty Auto/Truck: 50% LDA Gas, 25% LDT1 Gas, and 25% LDT2 Gas values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Breeze Software, 2017).^b Exhaust Emission Factors in grams per mile (g/mile) from EMFAC2017 for the San Joaquin Valley Air Basin, calendar year 2022.

A speed of 45 miles per hour (mph) was assumed for onroad vehicles, which is consistent with the CalEEMod default. A speed of 15 mph was assumed for onsite (offroad) vehicles.

Azalea Solar - Kern-San Joaquin County, Summer

Azalea Solar

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	640.00	0.00	8

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	3			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction Days provided by owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Azalea Solar - Kern-San Joaquin County, Summer

Grading - Data provided by project owner/operator. Assumed 450 total acres will be graded for the project. Assumed that no material will be imported or exported.

Demolition -

Trips and VMT - Estimates provided by project owner/operator

Vehicle Trips - Trip length estimated from data provided by project owner/operator.

Solid Waste - Estimated operating solid waste generation based on data provided by project owner/operator.

Stationary Sources - Emergency Generators and Fire Pumps -

Land Use Change -

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	25
tblConstructionPhase	NumDays	10,850.00	65.00
tblConstructionPhase	NumDays	10,850.00	86.00
tblConstructionPhase	NumDays	700.00	6.00
tblConstructionPhase	NumDays	10,850.00	129.00
tblConstructionPhase	NumDays	420.00	41.00
tblConstructionPhase	PhaseEndDate	12/10/2077	10/30/2022
tblConstructionPhase	PhaseEndDate	1/15/2072	9/28/2022
tblConstructionPhase	PhaseEndDate	9/6/2024	1/10/2022
tblConstructionPhase	PhaseEndDate	6/14/2030	7/30/2022
tblConstructionPhase	PhaseEndDate	12/28/2074	10/30/2022
tblConstructionPhase	PhaseEndDate	4/17/2026	2/28/2022
tblConstructionPhase	PhaseStartDate	12/29/2074	8/1/2022
tblConstructionPhase	PhaseStartDate	6/15/2030	6/1/2022
tblConstructionPhase	PhaseStartDate	4/18/2026	2/1/2022

Azalea Solar - Kern-San Joaquin County, Summer

tblConstructionPhase	PhaseStartDate	1/16/2072	7/1/2022
tblConstructionPhase	PhaseStartDate	9/7/2024	1/3/2022
tblGrading	AcresOfGrading	143.50	450.00
tblGrading	MeanVehicleSpeed	7.10	15.00
tblLandUse	LotAcreage	0.00	640.00
tblLandUse	Population	0.00	8.00
tblOffRoadEquipment	HorsePower	65.00	49.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	168.00	220.00
tblOffRoadEquipment	HorsePower	65.00	49.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	65.00	49.00
tblOffRoadEquipment	HorsePower	16.00	550.00
tblOffRoadEquipment	HorsePower	65.00	97.00
tblOffRoadEquipment	HorsePower	78.00	121.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	172.00	247.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	80.00	5.00
tblOffRoadEquipment	HorsePower	168.00	220.00
tblOffRoadEquipment	HorsePower	172.00	49.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	88.00	22.00

Azalea Solar - Kern-San Joaquin County, Summer

tblOffRoadEquipment	HorsePower	88.00	105.00
tblOffRoadEquipment	HorsePower	78.00	121.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	172.00	220.00
tblOffRoadEquipment	HorsePower	16.00	550.00
tblOffRoadEquipment	HorsePower	172.00	220.00
tblOffRoadEquipment	HorsePower	172.00	105.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	78.00	250.00
tblOffRoadEquipment	HorsePower	172.00	105.00
tblOffRoadEquipment	HorsePower	78.00	121.00
tblOffRoadEquipment	HorsePower	172.00	220.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	80.00	5.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	172.00	105.00
tblOffRoadEquipment	HorsePower	231.00	450.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	80.00	5.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	402.00	105.00
tblOffRoadEquipment	HorsePower	231.00	450.00
tblOffRoadEquipment	LoadFactor	0.37	0.30
tblOffRoadEquipment	LoadFactor	0.37	0.38

Azalea Solar - Kern-San Joaquin County, Summer

tblOffRoadEquipment	LoadFactor	0.40	0.73
tblOffRoadEquipment	LoadFactor	0.40	0.15
tblOffRoadEquipment	LoadFactor	0.37	0.30
tblOffRoadEquipment	LoadFactor	0.38	0.30
tblOffRoadEquipment	LoadFactor	0.37	0.30
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.37	0.40
tblOffRoadEquipment	LoadFactor	0.50	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.30
tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.30
tblOffRoadEquipment	LoadFactor	0.42	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.15
tblOffRoadEquipment	LoadFactor	0.40	0.15
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.30
tblOffRoadEquipment	LoadFactor	0.34	0.10
tblOffRoadEquipment	LoadFactor	0.34	0.10
tblOffRoadEquipment	LoadFactor	0.50	0.40
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.15
tblOffRoadEquipment	LoadFactor	0.38	0.15
tblOffRoadEquipment	LoadFactor	0.42	0.15
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10

Azalea Solar - Kern-San Joaquin County, Summer

tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.50	0.60
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.50	0.40
tblOffRoadEquipment	LoadFactor	0.42	0.15
tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.29	0.60
tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.38	0.10
tblOffRoadEquipment	LoadFactor	0.29	0.60
tblOffRoadEquipment	OffRoadEquipmentType	Air Compressors	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Pavers	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Skid Steer Loaders

Azalea Solar - Kern-San Joaquin County, Summer

tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Trenchers
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Paving Equipment	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Generator Sets	Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Generator Sets	Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment

Azalea Solar - Kern-San Joaquin County, Summer

tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	0.00	2.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	300.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00

Azalea Solar - Kern-San Joaquin County, Summer

tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripNumber	2.00	6.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripNumber	23.00	30.00

Azalea Solar - Kern-San Joaquin County, Summer

tblTripsAndVMT	WorkerTripNumber	55.00	250.00
tblTripsAndVMT	WorkerTripNumber	0.00	250.00
tblTripsAndVMT	WorkerTripNumber	0.00	200.00
tblTripsAndVMT	WorkerTripNumber	33.00	200.00
tblTripsAndVMT	WorkerTripNumber	0.00	100.00
tblVehicleTrips	CC_TL	6.60	40.00
tblVehicleTrips	CNW_TL	6.60	40.00
tblVehicleTrips	CW_TL	14.70	60.00

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					
2022	21.2891	159.2889	183.5142	0.5169	85.7157	6.6434	92.0997	22.3086	6.1509	28.2022	0.0000	51,501.8882	51,501.8882	6.7785	0.0000	51,671.3514
Maximum	21.2891	159.2889	183.5142	0.5169	85.7157	6.6434	92.0997	22.3086	6.1509	28.2022	0.0000	51,501.8882	51,501.8882	6.7785	0.0000	51,671.3514

Azalea Solar - Kern-San Joaquin County, Summer

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					
2022	21.2891	159.2889	183.5142	0.5169	85.7157	6.6434	92.0997	22.3086	6.1509	28.2022	0.0000	51,501.8882	51,501.8882	6.7785	0.0000	51,671.3514
Maximum	21.2891	159.2889	183.5142	0.5169	85.7157	6.6434	92.0997	22.3086	6.1509	28.2022	0.0000	51,501.8882	51,501.8882	6.7785	0.0000	51,671.3514

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

Azalea Solar - Kern-San Joaquin County, Summer

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
-------------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Azalea Solar - Kern-San Joaquin 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	Demolition	Demolition	1/3/2022	1/10/2022	5	6	
2	Site Preparation/Grading	Site Preparation	1/3/2022	2/28/2022	5	41	
3	PV Array Mechanical Installation	Building Construction	2/1/2022	7/30/2022	5	129	
4	PV Array Electrical Installation	Building Construction	6/1/2022	9/28/2022	5	86	
5	Substation and Transmission Line Installation	Trenching	7/1/2022	10/30/2022	5	86	
6	Battery Storage Installation	Building Construction	8/1/2022	10/30/2022	5	65	

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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Azalea Solar - Kern-San Joaquin County, Summer

Substation and Transmission Line Installation	Other Construction Equipment	2	8.00	105	0.10
Substation and Transmission Line Installation	Cranes	2	8.00	450	0.60
PV Array Mechanical Installation	Cranes	1	7.00	231	0.29
PV Array Electrical Installation	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
PV Array Mechanical Installation	Forklifts	3	8.00	89	0.20
Battery Storage Installation	Rough Terrain Forklifts	1	8.00	110	0.20
Battery Storage Installation	Rollers	1	8.00	5	0.10
Battery Storage Installation	Other Construction Equipment	1	8.00	22	0.10
Battery Storage Installation	Off-Highway Trucks	1	8.00	105	0.10
Battery Storage Installation	Cranes	1	8.00	450	0.60
PV Array Electrical Installation	Forklifts	3	8.00	89	0.20
Battery Storage Installation	Forklifts	3	8.00	89	0.20
PV Array Mechanical Installation	Generator Sets	1	8.00	84	0.74
PV Array Electrical Installation	Generator Sets	1	8.00	84	0.74
Battery Storage Installation	Generator Sets	1	8.00	84	0.74
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation/Grading	Rubber Tired Dozers	3	8.00	247	0.40
PV Array Mechanical Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV Array Mechanical Installation	Welders	1	8.00	46	0.45
PV Array Electrical Installation	Welders	1	8.00	46	0.45
Battery Storage Installation	Welders	1	8.00	46	0.45
Battery Storage Installation	Skid Steer Loaders	1	8.00	49	0.30
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.38
Demolition	Rough Terrain Forklifts	1	8.00	110	0.73

Azalea Solar - Kern-San Joaquin County, Summer

PV Array Mechanical Installation	Other Material Handling Equipment	3	8.00	220	0.15
PV Array Electrical Installation	Skid Steer Loaders	2	8.00	49	0.30
PV Array Electrical Installation	Excavators	2	8.00	159	0.30
PV Array Electrical Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Substation and Transmission Line Installation	Skid Steer Loaders	1	8.00	49	0.30
Substation and Transmission Line Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Dumpers/Tenders	1	8.00	550	0.40
PV Array Mechanical Installation	Skid Steer Loaders	4	8.00	97	0.40
PV Array Electrical Installation	Trenchers	3	8.00	121	0.40
PV Array Mechanical Installation	Rough Terrain Forklifts	4	8.00	110	0.30
PV Array Electrical Installation	Rough Terrain Forklifts	2	8.00	110	0.20
Substation and Transmission Line Installation	Excavators	1	8.00	159	0.30
Site Preparation/Grading	Other Construction Equipment	1	8.00	247	0.40
Site Preparation/Grading	Excavators	1	8.00	159	0.38
PV Array Electrical Installation	Rollers	4	8.00	5	0.15
PV Array Electrical Installation	Other Material Handling Equipment	2	8.00	220	0.15
PV Array Mechanical Installation	Other Construction Equipment	5	8.00	49	0.75
Battery Storage Installation	Excavators	1	8.00	159	0.30
PV Array Mechanical Installation	Other General Industrial Equipment	20	8.00	22	0.10
Battery Storage Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
PV Array Mechanical Installation	Other General Industrial Equipment	6	8.00	105	0.10
Battery Storage Installation	Trenchers	1	8.00	121	0.40
PV Array Electrical Installation	Other Construction Equipment	6	8.00	22	0.10
Battery Storage Installation	Other Construction Equipment	1	8.00	220	0.15

Azalea Solar - Kern-San Joaquin County, Summer

Site Preparation/Grading	Dumpers/Tenders	2	8.00	550	0.15
Site Preparation/Grading	Graders	3	8.00	187	0.41
Site Preparation/Grading	Other Construction Equipment	1	8.00	220	0.15
Site Preparation/Grading	Other Construction Equipment	2	8.00	105	0.10
Site Preparation/Grading	Other Construction Equipment	2	8.00	22	0.10
Site Preparation/Grading	Rough Terrain Forklifts	2	8.00	110	0.20
Site Preparation/Grading	Scrapers	2	8.00	367	0.48
Site Preparation/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation/Grading	Trenchers	1	8.00	250	0.60
PV Array Electrical Installation	Other Construction Equipment	3	8.00	105	0.10
Substation and Transmission Line Installation	Trenchers	1	8.00	121	0.40
Substation and Transmission Line Installation	Other Construction Equipment	1	8.00	220	0.15
Substation and Transmission Line Installation	Rough Terrain Forklifts	1	8.00	110	0.20
Substation and Transmission Line Installation	Rollers	1	8.00	5	0.10
Substation and Transmission Line Installation	Other Construction Equipment	2	8.00	22	0.10

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
Demolition	9	30.00	15.00	6.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
Site Preparation/Grading	22	250.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
PV Array Mechanical Installation	51	250.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
PV Array Electrical Installation	32	200.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
Substation and Transmission Line Installation	13	200.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT

Azalea Solar - Kern-San Joaquin County, Summer

Battery Storage Installation	15	100.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
------------------------------	----	--------	-------	------	-------	-------	-------	--------	---------	------

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022**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					0.0906	0.0000	0.0906	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	3.0329	30.4120	27.4864	0.0489		1.4389	1.4389		1.3358	1.3358		4,726.1738	4,726.1738	1.3692		4,760.4036
Total	3.0329	30.4120	27.4864	0.0489	0.0906	1.4389	1.5294	0.0137	1.3358	1.3495		4,726.1738	4,726.1738	1.3692		4,760.4036

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0205	0.5682	0.1094	2.5700e-003	0.0657	2.3500e-003	0.0681	0.0180	2.2500e-003	0.0203		269.3607	269.3607	5.2600e-003		269.4922
Vendor	0.2246	5.5066	1.1815	0.0272	0.8331	0.0280	0.8611	0.2396	0.0268	0.2664		2,841.0608	2,841.0608	0.0445		2,842.1720
Worker	0.2690	0.1661	2.1884	7.7800e-003	0.7752	4.6700e-003	0.7799	0.2055	4.3000e-003	0.2098		776.0555	776.0555	0.0166		776.4713
Total	0.5140	6.2409	3.4793	0.0375	1.6740	0.0350	1.7090	0.4632	0.0333	0.4965		3,886.4771	3,886.4771	0.0663		3,888.1355

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					0.0906	0.0000	0.0906	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	3.0329	30.4120	27.4864	0.0489		1.4389	1.4389		1.3358	1.3358	0.0000	4,726.1738	4,726.1738	1.3692		4,760.4036
Total	3.0329	30.4120	27.4864	0.0489	0.0906	1.4389	1.5294	0.0137	1.3358	1.3495	0.0000	4,726.1738	4,726.1738	1.3692		4,760.4036

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0205	0.5682	0.1094	2.5700e-003	0.0657	2.3500e-003	0.0681	0.0180	2.2500e-003	0.0203		269.3607	269.3607	5.2600e-003		269.4922
Vendor	0.2246	5.5066	1.1815	0.0272	0.8331	0.0280	0.8611	0.2396	0.0268	0.2664		2,841.0608	2,841.0608	0.0445		2,842.1720
Worker	0.2690	0.1661	2.1884	7.7800e-003	0.7752	4.6700e-003	0.7799	0.2055	4.3000e-003	0.2098		776.0555	776.0555	0.0166		776.4713
Total	0.5140	6.2409	3.4793	0.0375	1.6740	0.0350	1.7090	0.4632	0.0333	0.4965		3,886.4771	3,886.4771	0.0663		3,888.1355

3.3 Site Preparation/Grading - 2022**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					70.0186	0.0000	70.0186	18.0843	0.0000	18.0843			0.0000			0.0000
Off-Road	7.1713	78.8876	45.0909	0.1062		3.3337	3.3337		3.0670	3.0670		10,287.9157	10,287.9157	3.3273		10,371.0987
Total	7.1713	78.8876	45.0909	0.1062	70.0186	3.3337	73.3524	18.0843	3.0670	21.1514		10,287.9157	10,287.9157	3.3273		10,371.0987

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	2.2412	1.3840	18.2363	0.0648	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		6,467.1290	6,467.1290	0.1386		6,470.5939
Total	2.6155	10.5618	20.2055	0.1101	7.8485	0.0856	7.9341	2.1122	0.0804	2.1926		11,202.2304	11,202.2304	0.2127		11,207.5472

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					70.0186	0.0000	70.0186	18.0843	0.0000	18.0843			0.0000			0.0000
Off-Road	7.1713	78.8876	45.0909	0.1062		3.3337	3.3337		3.0670	3.0670	0.0000	10,287.9157	10,287.9157	3.3273		10,371.0987
Total	7.1713	78.8876	45.0909	0.1062	70.0186	3.3337	73.3524	18.0843	3.0670	21.1514	0.0000	10,287.9157	10,287.9157	3.3273		10,371.0987

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	2.2412	1.3840	18.2363	0.0648	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		6,467.1290	6,467.1290	0.1386		6,470.5939
Total	2.6155	10.5618	20.2055	0.1101	7.8485	0.0856	7.9341	2.1122	0.0804	2.1926		11,202.2304	11,202.2304	0.2127		11,207.5472

3.4 PV Array Mechanical Installation - 2022**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	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657		8,417.6589	8,417.6589	2.5083		8,480.3654
Total	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657		8,417.6589	8,417.6589	2.5083		8,480.3654

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	2.2412	1.3840	18.2363	0.0648	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		6,467.1290	6,467.1290	0.1386		6,470.5939
Total	2.6155	10.5618	20.2055	0.1101	7.8485	0.0856	7.9341	2.1122	0.0804	2.1926		11,202.2304	11,202.2304	0.2127		11,207.5472

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	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657	0.0000	8,417.6588	8,417.6588	2.5083		8,480.3654
Total	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657	0.0000	8,417.6588	8,417.6588	2.5083		8,480.3654

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	2.2412	1.3840	18.2363	0.0648	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		6,467.1290	6,467.1290	0.1386		6,470.5939
Total	2.6155	10.5618	20.2055	0.1101	7.8485	0.0856	7.9341	2.1122	0.0804	2.1926		11,202.2304	11,202.2304	0.2127		11,207.5472

3.5 PV Array Electrical Installation - 2022**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	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449		5,933.3289	5,933.3289	1.7048		5,975.9484
Total	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449		5,933.3289	5,933.3289	1.7048		5,975.9484

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	1.7930	1.1072	14.5891	0.0519	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		5,173.7032	5,173.7032	0.1109		5,176.4751
Total	2.1673	10.2850	16.5582	0.0971	6.5565	0.0778	6.6343	1.7696	0.0733	1.8429		9,908.8046	9,908.8046	0.1850		9,913.4284

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	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449	0.0000	5,933.3289	5,933.3289	1.7048		5,975.9484
Total	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449	0.0000	5,933.3289	5,933.3289	1.7048		5,975.9484

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	1.7930	1.1072	14.5891	0.0519	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		5,173.7032	5,173.7032	0.1109		5,176.4751
Total	2.1673	10.2850	16.5582	0.0971	6.5565	0.0778	6.6343	1.7696	0.0733	1.8429		9,908.8046	9,908.8046	0.1850		9,913.4284

3.6 Substation and Transmission Line Installation - 2022**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	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133		6,131.0609	6,131.0609	1.9829		6,180.6337
Total	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133		6,131.0609	6,131.0609	1.9829		6,180.6337

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	1.7930	1.1072	14.5891	0.0519	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		5,173.7032	5,173.7032	0.1109		5,176.4751
Total	2.1673	10.2850	16.5582	0.0971	6.5565	0.0778	6.6343	1.7696	0.0733	1.8429		9,908.8046	9,908.8046	0.1850		9,913.4284

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	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133	0.0000	6,131.0609	6,131.0609	1.9829		6,180.6337
Total	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133	0.0000	6,131.0609	6,131.0609	1.9829		6,180.6337

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	1.7930	1.1072	14.5891	0.0519	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		5,173.7032	5,173.7032	0.1109		5,176.4751
Total	2.1673	10.2850	16.5582	0.0971	6.5565	0.0778	6.6343	1.7696	0.0733	1.8429		9,908.8046	9,908.8046	0.1850		9,913.4284

3.7 Battery Storage Installation - 2022**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	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924		4,961.6802	4,961.6802	1.3905		4,996.4434
Total	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924		4,961.6802	4,961.6802	1.3905		4,996.4434

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	0.8965	0.5536	7.2945	0.0259	2.5840	0.0156	2.5996	0.6851	0.0143	0.6995		2,586.8516	2,586.8516	0.0554		2,588.2375
Total	1.2708	9.7313	9.2637	0.0712	3.9725	0.0622	4.0347	1.0845	0.0589	1.1434		7,321.9530	7,321.9530	0.1295		7,325.1908

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	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924	0.0000	4,961.6802	4,961.6802	1.3905		4,996.4434
Total	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924	0.0000	4,961.6802	4,961.6802	1.3905		4,996.4434

Azalea Solar - Kern-San Joaquin County, Summer

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	0.0000	0.0000		0.0000
Vendor	0.3743	9.1777	1.9692	0.0453	1.3885	0.0466	1.4351	0.3994	0.0446	0.4439		4,735.1014	4,735.1014	0.0741		4,736.9533
Worker	0.8965	0.5536	7.2945	0.0259	2.5840	0.0156	2.5996	0.6851	0.0143	0.6995		2,586.8516	2,586.8516	0.0554		2,588.2375
Total	1.2708	9.7313	9.2637	0.0712	3.9725	0.0622	4.0347	1.0845	0.0589	1.1434		7,321.9530	7,321.9530	0.1295		7,325.1908

4.0 Operational Detail - Mobile**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					

Azalea Solar - Kern-San Joaquin County, Summer

Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	60.00	40.00	40.00	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	0.483371	0.030380	0.169336	0.116038	0.018013	0.005928	0.019788	0.146278	0.001620	0.001664	0.005839	0.000931	0.000816

Azalea Solar - Kern-San Joaquin County, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Azalea Solar - Kern-San Joaquin 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					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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	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	0.0000	0.0000

Azalea Solar - Kern-San Joaquin County, Summer

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	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	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	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Azalea Solar - Kern-San Joaquin 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			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Azalea Solar - Kern-San Joaquin County, Summer

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			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

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

Azalea Solar - Kern-San Joaquin County, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	0	0	40	300	0.73	Diesel

Boilers

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

User Defined Equipment

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

10.1 Stationary Sources**Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (300 - 600 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

11.0 Vegetation

Azalea Solar - Kern-San Joaquin County, Winter

Azalea Solar

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	640.00	0.00	8

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	3			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction Days provided by owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Off-road Equipment - Data provided by project owner/operator

Azalea Solar - Kern-San Joaquin County, Winter

Grading - Data provided by project owner/operator. Assumed 450 total acres will be graded for the project. Assumed that no material will be imported or exported.

Demolition -

Trips and VMT - Estimates provided by project owner/operator

Vehicle Trips - Trip length estimated from data provided by project owner/operator.

Solid Waste - Estimated operating solid waste generation based on data provided by project owner/operator.

Stationary Sources - Emergency Generators and Fire Pumps -

Land Use Change -

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	25
tblConstructionPhase	NumDays	10,850.00	65.00
tblConstructionPhase	NumDays	10,850.00	86.00
tblConstructionPhase	NumDays	700.00	6.00
tblConstructionPhase	NumDays	10,850.00	129.00
tblConstructionPhase	NumDays	420.00	41.00
tblConstructionPhase	PhaseEndDate	12/10/2077	10/30/2022
tblConstructionPhase	PhaseEndDate	1/15/2072	9/28/2022
tblConstructionPhase	PhaseEndDate	9/6/2024	1/10/2022
tblConstructionPhase	PhaseEndDate	6/14/2030	7/30/2022
tblConstructionPhase	PhaseEndDate	12/28/2074	10/30/2022
tblConstructionPhase	PhaseEndDate	4/17/2026	2/28/2022
tblConstructionPhase	PhaseStartDate	12/29/2074	8/1/2022
tblConstructionPhase	PhaseStartDate	6/15/2030	6/1/2022
tblConstructionPhase	PhaseStartDate	4/18/2026	2/1/2022

Azalea Solar - Kern-San Joaquin County, Winter

tblConstructionPhase	PhaseStartDate	1/16/2072	7/1/2022
tblConstructionPhase	PhaseStartDate	9/7/2024	1/3/2022
tblGrading	AcresOfGrading	143.50	450.00
tblGrading	MeanVehicleSpeed	7.10	15.00
tblLandUse	LotAcreage	0.00	640.00
tblLandUse	Population	0.00	8.00
tblOffRoadEquipment	HorsePower	65.00	49.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	168.00	220.00
tblOffRoadEquipment	HorsePower	65.00	49.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	65.00	49.00
tblOffRoadEquipment	HorsePower	16.00	550.00
tblOffRoadEquipment	HorsePower	65.00	97.00
tblOffRoadEquipment	HorsePower	78.00	121.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	172.00	247.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	80.00	5.00
tblOffRoadEquipment	HorsePower	168.00	220.00
tblOffRoadEquipment	HorsePower	172.00	49.00
tblOffRoadEquipment	HorsePower	158.00	159.00
tblOffRoadEquipment	HorsePower	88.00	22.00

Azalea Solar - Kern-San Joaquin County, Winter

tblOffRoadEquipment	HorsePower	88.00	105.00
tblOffRoadEquipment	HorsePower	78.00	121.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	172.00	220.00
tblOffRoadEquipment	HorsePower	16.00	550.00
tblOffRoadEquipment	HorsePower	172.00	220.00
tblOffRoadEquipment	HorsePower	172.00	105.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	78.00	250.00
tblOffRoadEquipment	HorsePower	172.00	105.00
tblOffRoadEquipment	HorsePower	78.00	121.00
tblOffRoadEquipment	HorsePower	172.00	220.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	80.00	5.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	172.00	105.00
tblOffRoadEquipment	HorsePower	231.00	450.00
tblOffRoadEquipment	HorsePower	100.00	110.00
tblOffRoadEquipment	HorsePower	80.00	5.00
tblOffRoadEquipment	HorsePower	172.00	22.00
tblOffRoadEquipment	HorsePower	402.00	105.00
tblOffRoadEquipment	HorsePower	231.00	450.00
tblOffRoadEquipment	LoadFactor	0.37	0.30
tblOffRoadEquipment	LoadFactor	0.37	0.38

Azalea Solar - Kern-San Joaquin County, Winter

tblOffRoadEquipment	LoadFactor	0.40	0.73
tblOffRoadEquipment	LoadFactor	0.40	0.15
tblOffRoadEquipment	LoadFactor	0.37	0.30
tblOffRoadEquipment	LoadFactor	0.38	0.30
tblOffRoadEquipment	LoadFactor	0.37	0.30
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.37	0.40
tblOffRoadEquipment	LoadFactor	0.50	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.30
tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.30
tblOffRoadEquipment	LoadFactor	0.42	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.15
tblOffRoadEquipment	LoadFactor	0.40	0.15
tblOffRoadEquipment	LoadFactor	0.42	0.75
tblOffRoadEquipment	LoadFactor	0.38	0.30
tblOffRoadEquipment	LoadFactor	0.34	0.10
tblOffRoadEquipment	LoadFactor	0.34	0.10
tblOffRoadEquipment	LoadFactor	0.50	0.40
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.15
tblOffRoadEquipment	LoadFactor	0.38	0.15
tblOffRoadEquipment	LoadFactor	0.42	0.15
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10

Azalea Solar - Kern-San Joaquin County, Winter

tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.50	0.60
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.50	0.40
tblOffRoadEquipment	LoadFactor	0.42	0.15
tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.29	0.60
tblOffRoadEquipment	LoadFactor	0.40	0.20
tblOffRoadEquipment	LoadFactor	0.38	0.10
tblOffRoadEquipment	LoadFactor	0.42	0.10
tblOffRoadEquipment	LoadFactor	0.38	0.10
tblOffRoadEquipment	LoadFactor	0.29	0.60
tblOffRoadEquipment	OffRoadEquipmentType	Air Compressors	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Excavators	Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Pavers	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Skid Steer Loaders

Azalea Solar - Kern-San Joaquin County, Winter

tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Trenchers
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Paving Equipment	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Cranes	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Generator Sets	Other General Industrial Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Generator Sets	Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Welders	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment

Azalea Solar - Kern-San Joaquin County, Winter

tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	0.00	2.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	300.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00

Azalea Solar - Kern-San Joaquin County, Winter

tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripLength	20.00	75.00
tblTripsAndVMT	HaulingTripNumber	2.00	6.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripLength	6.60	60.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	VendorTripNumber	0.00	25.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripLength	16.80	34.00
tblTripsAndVMT	WorkerTripNumber	23.00	30.00

Azalea Solar - Kern-San Joaquin County, Winter

tblTripsAndVMT	WorkerTripNumber	55.00	250.00
tblTripsAndVMT	WorkerTripNumber	0.00	250.00
tblTripsAndVMT	WorkerTripNumber	0.00	200.00
tblTripsAndVMT	WorkerTripNumber	33.00	200.00
tblTripsAndVMT	WorkerTripNumber	0.00	100.00
tblVehicleTrips	CC_TL	6.60	40.00
tblVehicleTrips	CNW_TL	6.60	40.00
tblVehicleTrips	CW_TL	14.70	60.00

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					
2022	21.5901	161.2804	172.4193	0.4939	85.7157	6.6442	92.1001	22.3086	6.1516	28.2027	0.0000	49,209.9505	49,209.9505	6.7362	0.0000	49,378.3552
Maximum	21.5901	161.2804	172.4193	0.4939	85.7157	6.6442	92.1001	22.3086	6.1516	28.2027	0.0000	49,209.9505	49,209.9505	6.7362	0.0000	49,378.3552

Azalea Solar - Kern-San Joaquin County, Winter

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					
2022	21.5901	161.2804	172.4193	0.4939	85.7157	6.6442	92.1001	22.3086	6.1516	28.2027	0.0000	49,209.9505	49,209.9505	6.7362	0.0000	49,378.3551
Maximum	21.5901	161.2804	172.4193	0.4939	85.7157	6.6442	92.1001	22.3086	6.1516	28.2027	0.0000	49,209.9505	49,209.9505	6.7362	0.0000	49,378.3551

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

Azalea Solar - Kern-San Joaquin County, Winter

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
-------------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Azalea Solar - Kern-San Joaquin 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	Demolition	Demolition	1/3/2022	1/10/2022	5	6	
2	Site Preparation/Grading	Site Preparation	1/3/2022	2/28/2022	5	41	
3	PV Array Mechanical Installation	Building Construction	2/1/2022	7/30/2022	5	129	
4	PV Array Electrical Installation	Building Construction	6/1/2022	9/28/2022	5	86	
5	Substation and Transmission Line Installation	Trenching	7/1/2022	10/30/2022	5	86	
6	Battery Storage Installation	Building Construction	8/1/2022	10/30/2022	5	65	

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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Azalea Solar - Kern-San Joaquin County, Winter

Substation and Transmission Line Installation	Other Construction Equipment	2	8.00	105	0.10
Substation and Transmission Line Installation	Cranes	2	8.00	450	0.60
PV Array Mechanical Installation	Cranes	1	7.00	231	0.29
PV Array Electrical Installation	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
PV Array Mechanical Installation	Forklifts	3	8.00	89	0.20
Battery Storage Installation	Rough Terrain Forklifts	1	8.00	110	0.20
Battery Storage Installation	Rollers	1	8.00	5	0.10
Battery Storage Installation	Other Construction Equipment	1	8.00	22	0.10
Battery Storage Installation	Off-Highway Trucks	1	8.00	105	0.10
Battery Storage Installation	Cranes	1	8.00	450	0.60
PV Array Electrical Installation	Forklifts	3	8.00	89	0.20
Battery Storage Installation	Forklifts	3	8.00	89	0.20
PV Array Mechanical Installation	Generator Sets	1	8.00	84	0.74
PV Array Electrical Installation	Generator Sets	1	8.00	84	0.74
Battery Storage Installation	Generator Sets	1	8.00	84	0.74
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation/Grading	Rubber Tired Dozers	3	8.00	247	0.40
PV Array Mechanical Installation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
PV Array Mechanical Installation	Welders	1	8.00	46	0.45
PV Array Electrical Installation	Welders	1	8.00	46	0.45
Battery Storage Installation	Welders	1	8.00	46	0.45
Battery Storage Installation	Skid Steer Loaders	1	8.00	49	0.30
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.38
Demolition	Rough Terrain Forklifts	1	8.00	110	0.73

Azalea Solar - Kern-San Joaquin County, Winter

PV Array Mechanical Installation	Other Material Handling Equipment	3	8.00	220	0.15
PV Array Electrical Installation	Skid Steer Loaders	2	8.00	49	0.30
PV Array Electrical Installation	Excavators	2	8.00	159	0.30
PV Array Electrical Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Substation and Transmission Line Installation	Skid Steer Loaders	1	8.00	49	0.30
Substation and Transmission Line Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Dumpers/Tenders	1	8.00	550	0.40
PV Array Mechanical Installation	Skid Steer Loaders	4	8.00	97	0.40
PV Array Electrical Installation	Trenchers	3	8.00	121	0.40
PV Array Mechanical Installation	Rough Terrain Forklifts	4	8.00	110	0.30
PV Array Electrical Installation	Rough Terrain Forklifts	2	8.00	110	0.20
Substation and Transmission Line Installation	Excavators	1	8.00	159	0.30
Site Preparation/Grading	Other Construction Equipment	1	8.00	247	0.40
Site Preparation/Grading	Excavators	1	8.00	159	0.38
PV Array Electrical Installation	Rollers	4	8.00	5	0.15
PV Array Electrical Installation	Other Material Handling Equipment	2	8.00	220	0.15
PV Array Mechanical Installation	Other Construction Equipment	5	8.00	49	0.75
Battery Storage Installation	Excavators	1	8.00	159	0.30
PV Array Mechanical Installation	Other General Industrial Equipment	20	8.00	22	0.10
Battery Storage Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
PV Array Mechanical Installation	Other General Industrial Equipment	6	8.00	105	0.10
Battery Storage Installation	Trenchers	1	8.00	121	0.40
PV Array Electrical Installation	Other Construction Equipment	6	8.00	22	0.10
Battery Storage Installation	Other Construction Equipment	1	8.00	220	0.15

Azalea Solar - Kern-San Joaquin County, Winter

Site Preparation/Grading	Dumpers/Tenders	2	8.00	550	0.15
Site Preparation/Grading	Graders	3	8.00	187	0.41
Site Preparation/Grading	Other Construction Equipment	1	8.00	220	0.15
Site Preparation/Grading	Other Construction Equipment	2	8.00	105	0.10
Site Preparation/Grading	Other Construction Equipment	2	8.00	22	0.10
Site Preparation/Grading	Rough Terrain Forklifts	2	8.00	110	0.20
Site Preparation/Grading	Scrapers	2	8.00	367	0.48
Site Preparation/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation/Grading	Trenchers	1	8.00	250	0.60
PV Array Electrical Installation	Other Construction Equipment	3	8.00	105	0.10
Substation and Transmission Line Installation	Trenchers	1	8.00	121	0.40
Substation and Transmission Line Installation	Other Construction Equipment	1	8.00	220	0.15
Substation and Transmission Line Installation	Rough Terrain Forklifts	1	8.00	110	0.20
Substation and Transmission Line Installation	Rollers	1	8.00	5	0.10
Substation and Transmission Line Installation	Other Construction Equipment	2	8.00	22	0.10

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
Demolition	9	30.00	15.00	6.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
Site Preparation/Grading	22	250.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
PV Array Mechanical Installation	51	250.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
PV Array Electrical Installation	32	200.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
Substation and Transmission Line Installation	13	200.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT

Azalea Solar - Kern-San Joaquin County, Winter

Battery Storage Installation	15	100.00	25.00	0.00	34.00	60.00	75.00	LD_Mix	HDT_Mix	HHDT
------------------------------	----	--------	-------	------	-------	-------	-------	--------	---------	------

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022**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					0.0906	0.0000	0.0906	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	3.0329	30.4120	27.4864	0.0489		1.4389	1.4389		1.3358	1.3358		4,726.1738	4,726.1738	1.3692		4,760.4036
Total	3.0329	30.4120	27.4864	0.0489	0.0906	1.4389	1.5294	0.0137	1.3358	1.3495		4,726.1738	4,726.1738	1.3692		4,760.4036

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0207	0.5971	0.1136	2.5500e-003	0.0657	2.3700e-003	0.0681	0.0180	2.2700e-003	0.0203		267.3285	267.3285	5.8000e-003		267.4734
Vendor	0.2281	5.8022	1.2207	0.0270	0.8331	0.0281	0.8612	0.2396	0.0269	0.2665		2,825.4158	2,825.4158	0.0485		2,826.6270
Worker	0.2820	0.1898	1.6673	6.7500e-003	0.7752	4.6700e-003	0.7799	0.2055	4.3000e-003	0.2098		673.8841	673.8841	0.0138		674.2280
Total	0.5308	6.5891	3.0015	0.0363	1.6740	0.0352	1.7092	0.4632	0.0335	0.4966		3,766.6284	3,766.6284	0.0680		3,768.3284

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					0.0906	0.0000	0.0906	0.0137	0.0000	0.0137			0.0000			0.0000
Off-Road	3.0329	30.4120	27.4864	0.0489		1.4389	1.4389		1.3358	1.3358	0.0000	4,726.1738	4,726.1738	1.3692		4,760.4036
Total	3.0329	30.4120	27.4864	0.0489	0.0906	1.4389	1.5294	0.0137	1.3358	1.3495	0.0000	4,726.1738	4,726.1738	1.3692		4,760.4036

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0207	0.5971	0.1136	2.5500e-003	0.0657	2.3700e-003	0.0681	0.0180	2.2700e-003	0.0203		267.3285	267.3285	5.8000e-003		267.4734
Vendor	0.2281	5.8022	1.2207	0.0270	0.8331	0.0281	0.8612	0.2396	0.0269	0.2665		2,825.4158	2,825.4158	0.0485		2,826.6270
Worker	0.2820	0.1898	1.6673	6.7500e-003	0.7752	4.6700e-003	0.7799	0.2055	4.3000e-003	0.2098		673.8841	673.8841	0.0138		674.2280
Total	0.5308	6.5891	3.0015	0.0363	1.6740	0.0352	1.7092	0.4632	0.0335	0.4966		3,766.6284	3,766.6284	0.0680		3,768.3284

3.3 Site Preparation/Grading - 2022**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					70.0186	0.0000	70.0186	18.0843	0.0000	18.0843			0.0000			0.0000
Off-Road	7.1713	78.8876	45.0909	0.1062		3.3337	3.3337		3.0670	3.0670		10,287.9157	10,287.9157	3.3273		10,371.0987
Total	7.1713	78.8876	45.0909	0.1062	70.0186	3.3337	73.3524	18.0843	3.0670	21.1514		10,287.9157	10,287.9157	3.3273		10,371.0987

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	2.3503	1.5817	13.8938	0.0563	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		5,615.7010	5,615.7010	0.1146		5,618.5665
Total	2.7304	11.2520	15.9282	0.1013	7.8485	0.0858	7.9343	2.1122	0.0807	2.1928		10,324.7274	10,324.7274	0.1954		10,329.6114

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					70.0186	0.0000	70.0186	18.0843	0.0000	18.0843			0.0000			0.0000
Off-Road	7.1713	78.8876	45.0909	0.1062		3.3337	3.3337		3.0670	3.0670	0.0000	10,287.9157	10,287.9157	3.3273		10,371.0987
Total	7.1713	78.8876	45.0909	0.1062	70.0186	3.3337	73.3524	18.0843	3.0670	21.1514	0.0000	10,287.9157	10,287.9157	3.3273		10,371.0987

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	2.3503	1.5817	13.8938	0.0563	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		5,615.7010	5,615.7010	0.1146		5,618.5665
Total	2.7304	11.2520	15.9282	0.1013	7.8485	0.0858	7.9343	2.1122	0.0807	2.1928		10,324.7274	10,324.7274	0.1954		10,329.6114

3.4 PV Array Mechanical Installation - 2022**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	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657		8,417.6589	8,417.6589	2.5083		8,480.3654
Total	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657		8,417.6589	8,417.6589	2.5083		8,480.3654

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	2.3503	1.5817	13.8938	0.0563	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		5,615.7010	5,615.7010	0.1146		5,618.5665
Total	2.7304	11.2520	15.9282	0.1013	7.8485	0.0858	7.9343	2.1122	0.0807	2.1928		10,324.7274	10,324.7274	0.1954		10,329.6114

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	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657	0.0000	8,417.6588	8,417.6588	2.5083		8,480.3654
Total	6.8256	52.9053	59.7917	0.0874		2.8791	2.8791		2.6657	2.6657	0.0000	8,417.6588	8,417.6588	2.5083		8,480.3654

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	2.3503	1.5817	13.8938	0.0563	6.4600	0.0390	6.4990	1.7128	0.0359	1.7487		5,615.7010	5,615.7010	0.1146		5,618.5665
Total	2.7304	11.2520	15.9282	0.1013	7.8485	0.0858	7.9343	2.1122	0.0807	2.1928		10,324.7274	10,324.7274	0.1954		10,329.6114

3.5 PV Array Electrical Installation - 2022**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	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449		5,933.3289	5,933.3289	1.7048		5,975.9484
Total	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449		5,933.3289	5,933.3289	1.7048		5,975.9484

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	1.8802	1.2654	11.1150	0.0450	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		4,492.5608	4,492.5608	0.0917		4,494.8532
Total	2.2603	10.9356	13.1494	0.0900	6.5565	0.0780	6.6345	1.7696	0.0735	1.8431		9,201.5872	9,201.5872	0.1724		9,205.8981

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	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449	0.0000	5,933.3289	5,933.3289	1.7048		5,975.9484
Total	3.9749	37.5123	37.7161	0.0618		1.8783	1.8783		1.7449	1.7449	0.0000	5,933.3289	5,933.3289	1.7048		5,975.9484

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	1.8802	1.2654	11.1150	0.0450	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		4,492.5608	4,492.5608	0.0917		4,494.8532
Total	2.2603	10.9356	13.1494	0.0900	6.5565	0.0780	6.6345	1.7696	0.0735	1.8431		9,201.5872	9,201.5872	0.1724		9,205.8981

3.6 Substation and Transmission Line Installation - 2022**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	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133		6,131.0609	6,131.0609	1.9829		6,180.6337
Total	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133		6,131.0609	6,131.0609	1.9829		6,180.6337

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	1.8802	1.2654	11.1150	0.0450	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		4,492.5608	4,492.5608	0.0917		4,494.8532
Total	2.2603	10.9356	13.1494	0.0900	6.5565	0.0780	6.6345	1.7696	0.0735	1.8431		9,201.5872	9,201.5872	0.1724		9,205.8981

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	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133	0.0000	6,131.0609	6,131.0609	1.9829		6,180.6337
Total	3.5385	37.7396	32.6845	0.0633		1.6449	1.6449		1.5133	1.5133	0.0000	6,131.0609	6,131.0609	1.9829		6,180.6337

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	1.8802	1.2654	11.1150	0.0450	5.1680	0.0312	5.1992	1.3702	0.0287	1.3989		4,492.5608	4,492.5608	0.0917		4,494.8532
Total	2.2603	10.9356	13.1494	0.0900	6.5565	0.0780	6.6345	1.7696	0.0735	1.8431		9,201.5872	9,201.5872	0.1724		9,205.8981

3.7 Battery Storage Installation - 2022**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	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924		4,961.6802	4,961.6802	1.3905		4,996.4434
Total	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924		4,961.6802	4,961.6802	1.3905		4,996.4434

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	0.9401	0.6327	5.5575	0.0225	2.5840	0.0156	2.5996	0.6851	0.0143	0.6995		2,246.2804	2,246.2804	0.0459		2,247.4266
Total	1.3202	10.3029	7.5919	0.0675	3.9725	0.0624	4.0349	1.0845	0.0592	1.1436		6,955.3068	6,955.3068	0.1266		6,958.4716

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	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924	0.0000	4,961.6802	4,961.6802	1.3905		4,996.4434
Total	3.0449	29.8138	29.4256	0.0518		1.3865	1.3865		1.2924	1.2924	0.0000	4,961.6802	4,961.6802	1.3905		4,996.4434

Azalea Solar - Kern-San Joaquin County, Winter

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	0.0000	0.0000		0.0000
Vendor	0.3801	9.6703	2.0344	0.0450	1.3885	0.0469	1.4354	0.3994	0.0448	0.4442		4,709.0264	4,709.0264	0.0807		4,711.0450
Worker	0.9401	0.6327	5.5575	0.0225	2.5840	0.0156	2.5996	0.6851	0.0143	0.6995		2,246.2804	2,246.2804	0.0459		2,247.4266
Total	1.3202	10.3029	7.5919	0.0675	3.9725	0.0624	4.0349	1.0845	0.0592	1.1436		6,955.3068	6,955.3068	0.1266		6,958.4716

4.0 Operational Detail - Mobile**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					

Azalea Solar - Kern-San Joaquin County, Winter

Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	60.00	40.00	40.00	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	0.483371	0.030380	0.169336	0.116038	0.018013	0.005928	0.019788	0.146278	0.001620	0.001664	0.005839	0.000931	0.000816

Azalea Solar - Kern-San Joaquin County, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Azalea Solar - Kern-San Joaquin 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					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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	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	0.0000	0.0000

Azalea Solar - Kern-San Joaquin County, Winter

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	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	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	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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Azalea Solar - Kern-San Joaquin 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			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Azalea Solar - Kern-San Joaquin County, Winter

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			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

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

Azalea Solar - Kern-San Joaquin County, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	0	0	40	300	0.73	Diesel

Boilers

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

User Defined Equipment

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

10.1 Stationary Sources**Unmitigated/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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (300 - 600 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

11.0 Vegetation

Appendix D

**San Joaquin Valley Air Pollution Control District and
South Coast Air Quality Management District
Sierra Club v. County of Fresno Amicus
Curiae Briefs**

Appendix⁻

San Joaquin Valley Air Pollution Control District and South
Coast Air Quality Management District *Sierra Club v. County
of Fresno* Amicus Curiae Briefs

SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

**SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,**
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED

APR 13 2015

Frank W. McGuire, Clerk
Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

**APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND
REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.**

CATHERINE T. REDMOND (State Bar No. 226957)
261 High Street
Duxbury, Massachusetts 02332
Tel. (339) 236-5720
Catherinetredmond22@gmail.com

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
Annette Ballatore-Williamson, District Counsel (State Bar. No. 192176)
1990 E. Gettysburg Avenue
Fresno, California 93726
Tel. (559) 230-6033
Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

**APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND
REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.**

CATHERINE T. REDMOND (State Bar No. 226957)
261 High Street
Duxbury, Massachusetts 02332
Tel. (339) 236-5720
Catherineredmond22@gmail.com

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
Annette Ballatore-Williamson, District Counsel (State Bar. No. 192176)
1990 E. Gettysburg Avenue
Fresno, California 93726
Tel. (559) 230-6033
Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a “serious nonattainment” area to come into attainment of health-based National Ambient Air Quality Standard (“NAAQS”) for coarse particulate matter (PM₁₀), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of “extreme” nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates “smog” and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to “offset” vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)¹, ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

¹ San Joaquin’s incentive program has been so successful that through 2012, it has awarded over \$ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. See SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) available at <http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf>.

Valley counties and cities that implement the California Environment Quality Act (CEQA).² In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.³ Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.⁴ For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.⁵

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

² See, e.g., SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), available at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

³ Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

⁴ See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

⁵ See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).⁶ The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

⁶ CEQA does not require speculation. See, e.g., *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

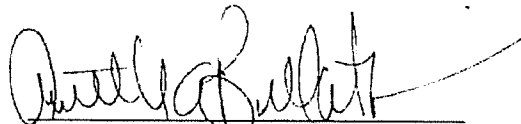
Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
District Counsel
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

**AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND
REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.**

CATHERINE T. REDMOND (State Bar No. 226957)

261 High Street
Duxbury, Massachusetts 02332
Tel. (339) 236-5720
Catherinetredmond22@gmail.com

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

Annette A. Ballatore-Williamson, District Counsel (State Bar. No. 192176)

1990 E. Gettysburg Avenue

Fresno, California 93726

Tel. (559) 230-6033

Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

TABLE OF CONTENTS

APPLICATION.....	1
1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District.....	1
2. How the Proposed Amicus Curiae Brief Will Assist the Court	5
CONCLUSION.....	6
I. INTRODUCTION	1
II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.....	3
A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.....	4
B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants	11
III. CONCLUSION.....	15
CERTIFICATE OF WORD COUNT.....	17

TABLE OF AUTHORITIES

CASES

<i>Bakersfield Citizens for Local Control v. City of Bakersfield</i> (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203	15
<i>Citizens for Responsible Equitable Environmental Development</i> <i>v. City of San Diego</i> , (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521	14
<i>Kings County Farm Bureau v. City of Hanford</i> (1990) 221 Cal.App.3d 692, 717 n. 8.	10
<i>Sierra Club v. City of Orange</i> (2008) 163 Cal.App.4 th 523, 535, 78 Cal.Rptr.3d 1, 13	14
<i>Sierra Club v. City of Orange</i> , 163 Cal.App.4 th at 536.....	15
<i>Sierra Club v. County of Fresno</i> (2014) 172 Cal.Rptr.3d 271, 306.....	12
<i>Sierra Club, supra</i> , 172 Cal.Rptr.3d at 303; AR 4554	8

FEDERAL STATUTES

United States Environmental Protection Agency (“EPA”) Clean Air Act. 42 U.S.C. § 7412	1,2,5,6
42 U.S.C. § 7412.....	1
U.S.C. §§ 7407 – 7411.....	1
U.S.C. §§ 7501 – 7515.....	1
42 U.S.C. § 7411.....	1
42 U.S.C. § 7412(b).....	1,2
42 U.S.C. § 7409(b)(1)	2, 6

CALIFORNIA STATUTES

California Environmental Quality Act (“CEQA”).....	<i>passim</i>
---	---------------

OTHER AUTHORITIES

- United States Environmental Protection Agency,
Ground-level Ozone: Basic Information,
available at: <http://www.epa.gov/airquality/ozonepollution/basic.html>
(visited March 10, 015).....4
- San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*,
Executive Summary p. ES-6, available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).....5
- United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at:
<http://www.epa.gov/airquality/particulatepollution/basic.html>
(visited March 10, 2015).....5
- United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at:
<http://www.epa.gov/air/criteria.html#3> (visited March 10, 2015)6
- San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16,
available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).....6
- Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM_{2.5} Plan*,
Appendix F, pp. F-2 – F-5, available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).....6
- San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at:
<http://www.valleyair.org/rules/currentrules/Rule22010411.pdf>
(visited March 19, 2015).....7
- San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22,
available at:
<http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf> (visited March 30, 2015).....7

San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).....8

San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan, Appendix B pp. B-6, B-9, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).....9

I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District (“Air District”) respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report (“EIR”) for the Friant Ranch development project was inadequate under the California Environmental Quality Act (“CEQA”) because it did not include an analysis of the correlation between the project’s criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court’s holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as “TACs”) regulated by the United States Environmental Protection Agency (“EPA”) and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

///

///

A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.¹ Once formed, ozone can be transported long distances by wind.² Because of the complexity of ozone formation, a specific tonnage amount of NO_x or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NO_x or VOCs can have high levels of ozone concentration simply due to wind transport.³ Conversely, the San Francisco Bay Area has six times more NO_x and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

¹ See United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: <http://www.epa.gov/airquality/ozonepollution/basic.html> (visited March 10, 2015).

² *Id.*

³ *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.⁴

Particulate matter (“PM”) can be divided into two categories: directly emitted PM and secondary PM.⁵ While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.⁶ Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SO_x) and NO_x.⁷ Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NO_x, SO_x and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards (“NAAQS”), which are statutorily required to be set by the United States Environmental Protection

⁴ *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

⁵ United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: <http://www.epa.gov/airquality/particlepollution/basic.html> (visited March 10, 2015).

⁶ *Id.*

⁷ *Id.*

Agency (“EPA”) at levels that are “requisite to protect the public health,” 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.⁸

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.⁹ Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District’s tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NO_x, SO_x and VOCs) and the atmospheric chemistry and meteorology of the Valley.¹⁰ At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

⁸ See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: <http://www.epa.gov/air/criteria.html#3> (visited March 10, 2015).

⁹ *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

¹⁰ *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM_{2.5} Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.¹¹ Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.¹²

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.¹³ The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.¹⁴ This "offset"

¹¹ *Id.*

¹² Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. See San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at:

<http://www.valleyair.org/rules/currentrules/Rule22010411.pdf> (visited March 19, 2015).

¹³ *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at:

<http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQJ%20Jan%202002%20Rev.pdf> (visited March 30, 2015).

¹⁴ *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.¹⁵ In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, “cumulative impacts.”

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

¹⁵ ¹⁵ *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: <http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20August%202000.pdf> (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.¹⁶ Running the photochemical grid model used for predicting ozone attainment with the

¹⁶ *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

///

///

///

B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

[t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)¹⁷ The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)¹⁸ The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

¹⁷ Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

¹⁸ Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.’ [Citation.]” *Sierra Club v. City of Orange*, 163 Cal.App.4th at 536.¹⁹

As discussed above, the City’s comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since “[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action.” *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

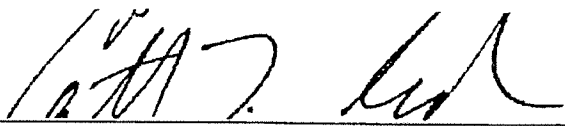
For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal’s decision requiring an analysis correlating the localized human health impacts associated with an individual project’s criteria air pollutant emissions be reversed.

¹⁹ *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or “piecemealed” the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as “the use of a single document for both a project-level and a program-level EIR [is] ‘confusing’,” and “[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,” were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

A handwritten signature in black ink, appearing to read "C. T. Redmond", is written over a horizontal line.

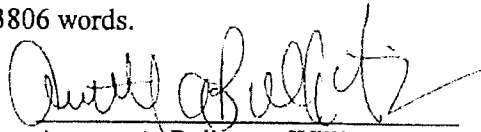
Catherine T. Redmond
Attorney for Proposed Amicus
Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

A handwritten signature in cursive script, appearing to read "Annette A. Ballatore-Williamson", written over a horizontal line.

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a party to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

**APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF
SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN
SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO**

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

- (XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.
- () **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.
- () **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.



Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al

Supreme Court of California Case No.: S219783

Fifth District Court of Appeal Case No.: F066798

Fresno County Superior Court Case No.: 11CECG00726

Sara Hedgpeth-Harris, Esq. LAW OFFICE OF SARA HEDGPETH-HARRIS 2125 Kern Street, Suite 301 Fresno, California 93721 Telephone: (559) 233-0907 Facsimile: (559) 272-6046 Email: sara.hedgpethharris@shh-law.com	Attorney for Plaintiffs and Appellants, Sierra Club, et al
Daniel C. Cederborg, Esq. Bruce B. Johnson, Jr., Esq. OFFICE OF THE FRESNO COUNTY COUNSEL 2220 Tulare Street, Suite 500 Fresno, California 93721 Telephone: (559) 600-3479 Facsimile: (559) 600-3480 Email: bjohnson@co.fresno.ca.us	Attorneys for Defendant and Respondent, County of Fresno
Bryan N. Wagner, Esq. WAGNER & WAGNER 7110 N. Fresno Street, Suite 340 Fresno, California 93720 Telephone: (559) 224-0871 Facsimile: (559) 224-0885 Email: bryan@wagnerandwagner.com	Attorneys for Real Party in Interest/Respondent Friant Ranch, L.P.
Clerk of the Court Superior Court of California County of Fresno 1130 'O' Street Fresno, California 93721 Telephone: (559) 457-1900	
Clerk of the Court Fifth District Court of Appeal 2424 Ventura Street Fresno, California 93721 Telephone: (559) 445-5491	

R. Tyson Sohagim, Esq. THE SOHAGI LAW GROUP 11999 San Vicente Blvd., Suite 150 Los Angeles, California 90049 Telephone: (310) 475-5700 Facsimile: (310) 475-5707 Email: tsohagi@sohagi.com	Attorney for Amici Curiae; League of California Cities, and the California State Association of Counties
Marcia L. Scully, Esq. General Counsel METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA Post Office Box 54153 Los Angeles, California 90054 Telephone: (213) 217-6115	Attorney for Amicus Curiae, The Metropolitan Water District of Southern CA
Amy Minter, Esq. CHATEN-BROWN & CARSTENS LLP 2200 Pacific Coast Highway, Suite 318 Hermosa Beach, California 90254 Telephone: (310) 798-2400 Facsimile: (310) 798-2402 Email: ACM@CBCEarthlaw.com	Attorney for Amici Curiae, Association of Irrigated Residents, Medical Advocates for Healthy Air, and Coalition for Clean Air
Shanda M. Beltran, Esq. General Counsel BUILDING INDUSTRY LEGAL DEFENSE FOUNDATION 17744 Sky Park Cr., Suite 170 Irvine, California 92614 Telephone: (949) 553-9500 Facsimile: (949) 769-8943 Email: sbeltran@biasec.org	Attorney for Amicus Curiae, Building Industry Legal Defense Foundation
Gene Talmadge, President CALIFORNIA ASSOCIATION OF ENVIRONMENTAL PROFESSIONALS 40747 Baranda Court Palm Desert, California 92260 Telephone: (760) 340-4499 Facsimile: (760) 674-2479	Attorney for Amicus Curiae, California Association of Environmental Professionals
Jennifer L. Hernandez, Esq. HOLLAND & KNIGHT LLP 50 California Street, Suite 2800 San Francisco, California 94111	On behalf of Amicus Curiae, CEQA Research Council

Telephone: (415) 743-6927 Facsimile: (415) 743-6910 Email: <u>Jennifer.hernandez@hklaw.com</u>	
--	--

S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
FILED

APR 13 2015

Frank A. MacGregor, Clerk

Deputy

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

**APPLICATION OF THE SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT FOR LEAVE TO FILE
BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY
AND [PROPOSED] BRIEF OF *AMICUS CURIAE***

Kurt R. Wiese, General Counsel (SBN 127251)
*Barbara Baird, Chief Deputy Counsel (SBN 81507)
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765
Telephone: 909-396-2302; Facsimile: 909-396-2961
Email: bbaird@aqmd.gov
Counsel for [Proposed] Amicus Curiae,
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

RECEIVED

APR - 8 2015

CLERK SUPREME COURT

TABLE OF CONTENTS

APPLICATION FOR LEAVE TO FILE <i>amicus curiae</i> brief.....	App-1
HOW THIS BRIEF WILL ASSIST THE COURT	App-1
STATEMENT OF INTEREST OF <i>AMICUS CURIAE</i>	App-3
CERTIFICATION REGARDING AUTHORSHIP & FUNDING	App-4
BRIEF OF AMICUS CURIAE.....	1
SUMMARY OF ARGUMENT	1
ARGUMENT	2
I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.	2
A. Air Quality Regulatory Background	2
B. The SCAQMD's Role Under CEQA.....	6
II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.....	8
III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.....	16
A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document	16
B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.....	23
IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS.....	26
CONCLUSION	29

TABLE OF AUTHORITIES

State Cases

<i>Association of Irrigated Residents v. County of Madera</i> (2003) 107 Cal App.4th 1383	1, 9
<i>Bakersfield Citizens for Local Control v. City of Bakersfield</i> (2004) 124 Cal.App.4th 1184	9, 22
<i>Berkeley Keep Jets Over the Bay v. Board of Port Commissioners</i> (2007) 91 Cal.App.4th 1344.....	21, 28
<i>Center for Biological Diversity v. County of San Bernardino</i> (2010) 185 Cal.App.4th 866.	20
<i>Citizens of Goleta Valley v. Bd. of Supervisors</i> (1990) 52 Cal.3d 553	8-9
<i>County of Amador v. El Dorado County Water Agency</i> (1999) 76 Cal.App.4th 931	23
<i>Crocker National Bank v. City and County of San Francisco</i> (1989) 49 Cal.3d 881	18
<i>Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection</i> (2008) 43 Cal.4th 936.....	21
<i>Fall River Wild Trout Foundation v. County of Shasta</i> , (1999) 70 Cal.App.4th 482	27, 28
<i>Gray v. County of Madera</i> (2008) 167 Cal.App.4th 1099	25
<i>Laurel Heights Improvement Assn. v. Regents of the Univ of Cal. ("Laurel Heights I")</i> (1988) 47 Cal.3d 376.....	1, 8, 19, 20, 21, 22
<i>Natural Res. Def. Council v SCAQMD,</i> Los Angeles Superior Court No. BS110792	12
<i>Neighbors for Smart Rail v. Exposition Metro Line</i> (2013) 57 Cal.4th 439	15, 20

State Cases (cont'd)

<i>Orange County Air Pollution Control District v. Public Util. Com.</i> (1971) 4 Cal.3d 945	27
<i>Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors</i> (2001) 87 Cal.App.4th 99	19
<i>Schenck v. County of Sonoma</i> (2011) 198 Cal.App.4th 949	26, 27
<i>Sierra Club v. County of Fresno</i> (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271	9, 23
<i>Sierra Club v. State Bd. Of Forestry</i> (1994) 7 Cal.4th 1215	28
<i>Uphold Our Heritage v. Town of Woodside</i> (2007) 147 Cal.App.4th 587	20
<i>Vineyard Area Citizens for Responsible Growth, Inc.</i> <i>v. City of Rancho Cordova</i> (2007) 40 Cal.4th 412	1, 17, 19, 24, 25, 26
<i>Western Oil & Gas Assn. v. Monterey Bay Unified APCD</i> (1989) 49 Cal.3d 408	5

California Statutes

Health & Saf. Code § 39666	5
Health & Saf. Code § 40000	3
Health & Saf. Code § 40001	3
Health & Saf. Code § 40410	3
Health & Saf. Code §§ 40460, et seq	4
Health & Saf. Code § 41508	5
Health & Saf. Code §§ 42300, et seq	5
Health & Saf. Code § 44320	5
Health & Saf. Code § 44322	5
Health & Saf. Code § 44360	5
Pub. Resources Code § 20180.3	27
Pub. Resources Code § 21061	19
Pub. Resources Code § 21061.1	16

California Statutes (cont'd)

Pub. Resources Code § 21080.....	6
Pub. Resources Code § 21080.5.....	6
Pub. Resources Code § 21083.1.....	26
Pub. Resources Code § 21100.....	27
Pub. Resources Code § 21104.....	6, 7 26
Pub. Resources Code §§ 21150-21154	7
Pub. Resources Code § 21151.8.....	25
Pub. Resources Code § 21153	6, 7, 26

California Regulations

Cal. Code Regs., tit. 14, §§ 15000, et seq. ("CEQA Guidelines")	
CEQA Guidelines § 15050.....	6
CEQA Guidelines § 15051.....	1, 6
CEQA Guidelines § 15073.....	6
CEQA Guidelines § 15086.....	6
CEQA Guidelines § 15088.5.....	28
CEQA Guidelines § 15096.....	6
CEQA Guidelines § 15126.2.....	25
CEQA Guidelines § 15131.....	26
CEQA Guidelines § 15144.....	19, 24
CEQA Guidelines § 15151.....	9, 18, 19
CEQA Guidelines § 15204.....	1, 9, 21
CEQA Guidelines § 15251.....	6
CEQA Guidelines § 15366.....	7
CEQA Guidelines § 15381.....	6
Cal. Code Regs., tit. 17, § 60104	3

Federal Statutes

42 U.S.C. § 7401; CAA § 101	4
42 U.S.C. § 7408; CAA § 108	3
42 U.S.C. § 7409; CAA § 109	4
42 U.S.C. § 7410; CAA § 110	4, 5
42 U.S.C. § 7412; CAA § 112	5
42 U.S.C. § 7502; CAA § 172	5, 13
42 U.S.C. § 7503; CAA § 173	5, 13
42 U.S.C. § 7511a; CAA § 182.....	13
42 U.S.C. § 7521; CAA § 202	4
42 U.S.C. § 7543; CAA § 209	4
42 U.S.C. § 7547; CAA § 213	4

Rules

SCAQMD Rule 1303	7
SCAQMD Rule 1401	5, 8, 9

Other

Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) (Appendix G, "Environmental Checklist Form."	24
CARB, <i>Health Impacts Analysis: PM Premature Death Relationship</i>	14
CARB, <i>Health Impacts Analysis: PM Mortality Relationship</i>	16
CARB, Resolution 98-35, Aug. 27, 1998	8
SCAQMD, <i>Air Quality Analysis Handbook</i>	13
SCAQMD, <i>Final 2012 AQMP (Feb. 2013)</i>	3, 11
SCAQMD, <i>Final Subsequent Mitigated Negative Declaration for: Warren E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011)</i>	14-15
SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, <i>Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System</i> ,	12
SCAQMD Governing Board Agenda, April 3, 2015, Agenda Item 16, Attachment A	7
SCAQMD, Health Risk Assessment Summary form	10
SCAQMD, <i>Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588)</i>	10
U.S. EPA, Ground Level Ozone	11
U.S. EPA, <i>Guideline on Ozone Monitoring Site Selection</i> (Aug. 1998) EPA-454/R-98-002 § 5.1.2	11
U.S. EPA, <i>Health Effects of Ozone in the General Population</i> , Figure 9,	11
U.S. EPA, National Ambient Air Quality Standards (NAAQS)	4
U.S. EPA, Particulate Matter (PM)	4

**TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE
SUPREME COURT:**

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

- 1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
- 2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review *de novo*.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

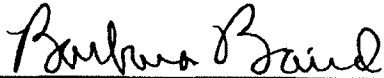
CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: 
Barbara Baird

Attorneys for [proposed] Amicus Curiae
SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT

BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, “[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.” (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 [“*Laurel Heights I*”]) Accordingly, “an agency must use its best efforts to find out and disclose all that it reasonably can.” (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)¹). However, “[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible.” (*Association of Irrigated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project’s pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

¹ The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq.*

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP* (Feb. 2013), <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>; then follow “chapter 7” hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP* (Feb. 2013), <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>; then follow “Executive Summary” hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called “criteria” document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called “criteria pollutants.” EPA must then establish “national ambient air quality standards” at levels “requisite to protect public health”,

allowing “an adequate margin of safety.” (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), <http://www.epa.gov/air/criteria.html> (last updated Oct. 21, 2014).)²

Under the Clean Air Act, EPA sets emission standards for motor vehicles and “nonroad engines” (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as “stationary sources.” The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified “major” stationary sources use technology to achieve the “lowest achievable emission rate,” and to control minor stationary sources as

² Particulate matter (PM) is further divided into two categories: fine particulate or PM_{2.5} (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM₁₀) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), <http://www.epa.gov/airquality/particulatepollution/> (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called “hazardous air pollutants” calling for EPA to establish “maximum achievable control technology” (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as “toxic air contaminants” (TACs) which are subject to two state-required programs. The first program requires “air toxics control measures” for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare “health risk assessments” for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as “significant,” the facility must implement a “risk reduction plan” to bring its risk levels below “significant” levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, <http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv>; then follow “Rule 1401” hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the “lead agency” that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called “responsible” agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to “trustee agencies” and agencies “with jurisdiction by law” including “authority over resources which may be affected by the project.” (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.³

³ The SCAQMD's CEQA program for its rules is a “Certified Regulatory Program” under which it prepares a “functionally equivalent” document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.⁴ SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a “responsible agency” for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, <http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii>; then follow “Rule 1303” hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with “jurisdiction by law” over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

⁴ The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, <http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015>; then follow “16. Lead Agency Projects and Environmental Documents Received by SCAQMD” hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, <http://www.arb.ca.gov/regact/diesltac/diesltac.htm>; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, *supra*, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT’S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1*, *supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must “draw[] a line that divides *sufficient* discussions from those that are *insufficient*.” (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that “[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis.” (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that “the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible.” Case law reflects this: “Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible.” (*Association of Irrigated Residents v. County of Madera, supra*, 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be “feasible”; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a “health risk assessment” before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the “maximally exposed individual” (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588)*, pp. 11-16; (last visited Apr. 1, 2015) <http://www.aqmd.gov/home/library/documents-support-material;> "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, <http://www.aqmd.gov/home/forms> ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants⁵, such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, <http://www.epa.gov/airquality/ozonepollution/> (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, <http://www.epa.gov/ttnamti1/archive/cpreldoc.html> (last visited Apr. 1, 2015).) NO_x and VOC are known as “precursors” of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population*, Figure 9, <http://www.epa.gov/apti/ozonehealth/population.html#levels> (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP* (February 2013), <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>; then follow “Appendix V: Modeling & Attainment Demonstrations” hyperlink,

⁵ See discussion of types of pollutants, *supra*, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts “internal bank” of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.⁶ The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).⁷ (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6) at p. 4.1-35, Table 4.1-29.)

⁶ (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6*, <http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011>; the follow “26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System” (last visited April 1, 2015).)

⁷ The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; <https://www.epa.gov/ttnamti1/archive/cpreldoc.html>; then search “Guideline on Ozone Monitoring Site Selection” click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA “significance” threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook>; then follow “SCAQMD Air Quality Significance Thresholds” hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a “major” stationary source for “extreme” ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA “significance” finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD’s thresholds of significance may determine

that many projects have “significant” air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter (PM_{2.5})⁸, another “criteria” pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of PM_{2.5}. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional PM_{2.5} in the District, up to 2.82 tons/day (5,650 lbs/day of PM_{2.5}, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this PM_{2.5} health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties.⁹ (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

⁸ SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for “PM_{2.5}” or particulate matter less than 2.5 microns in diameter.

⁹ Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), <http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011>; then follow “Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project” hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small PM_{2.5} increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated PM_{2.5} emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the “normal” “existing conditions” CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.¹⁰

¹⁰ Whether a particular study would result in “informational value” is a part of deciding whether it is “feasible.” CEQA defines “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.¹¹ Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, <http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm> (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

¹¹ In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, “a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts.” (*Vineyard Area Citizens v. City of Rancho Cordova*, *supra*, 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency’s action de novo under the “independent judgment” test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby “accord[ing] greater deference to the agency’s substantive factual conclusions.” (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project’s impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR’s analysis is sufficient to meet CEQA’s informational purposes,¹² while Friant Ranch contends that the substantial evidence standard applies to this question.

///

///

///

///

///

///

///

///

///

¹² Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,¹³ containing two levels of inquiry that should be judged by different standards.¹⁴

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

¹³ Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

¹⁴ Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document*." (*Laurel Heights I, supra*, 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra*, 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses “in sufficient detail to enable meaningful participation and criticism by the public. ‘[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.’” (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority, supra*, 57 Cal.4th 439, 448, 457:

whether “existing conditions” baseline would be misleading or uninformative judged by substantial evidence standard.¹⁵)

If the lead agency’s determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA’s information disclosure provisions, since it would be infeasible to provide additional information. This Court’s decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency’s finding that “the precise parameters of future herbicide use could not be predicted.” *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact “substantial”. (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

¹⁵ The substantial evidence standard recognizes that the courts “have neither the resources nor the scientific expertise” to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra*, 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra*, 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.¹⁶

¹⁶ We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra*, 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project." *Bakersfield, supra*, 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra*, 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra*, at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR" (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra*, at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, “Environmental Checklist Form.”¹⁷) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency’s noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts’ proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA’s prohibition on courts interpreting its provisions “in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines.” (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra*, at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project’s significant impacts on human health. However, except in certain particular circumstances,¹⁸ neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law’s requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe “health and safety problems caused by {a project’s} physical changes”].) Accordingly, courts must interpret CEQA as a whole to

¹⁷ Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

¹⁸ E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.¹⁹ Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck*, 198 Cal.App.4th at p. 959 (citations omitted).²⁰

¹⁹ We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131), or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

²⁰ Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta*, (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)²¹

districts should be considered “state agencies” for purposes of the requirement to consult with “trustee agencies” as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere “local agencies” whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id.* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

²¹ In *Schenck*, the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck*, 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district’s published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district’s published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra*, 91 Cal.App.4th 1344, 1369-1371.)

guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra*, 70 Cal.App.4th 482, 492.

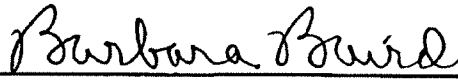
CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is “sufficient as an informational document” is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

DATED: April 3, 2015

Respectfully submitted,

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: 
Barbara Baird

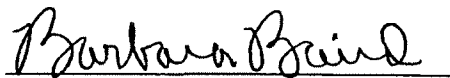
Attorneys for Amicus Curiae
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015

Respectfully submitted,


Barbara Baird

PROOF OF SERVICE

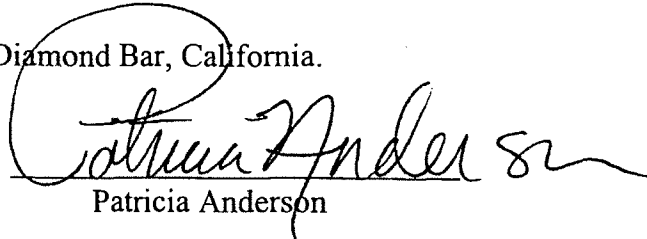
I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND [PROPOSED] BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.


Patricia Anderson

SERVICE LIST

James G. Moose, Tiffany K. Wright,
Laura M. Harris
REMY MOOSE MANLEY, LLP
555 Capitol Mall, Suite 800
Sacramento, CA 95814

Attorneys for Real Party in
Interest and Respondent *Friant
Ranch, L.P.*

Bryan N. Wagner
WAGNER & WAGNER
7110 N. Fresno St, Suite 340
Fresno, CA 93720

Attorney for Real Party in Interest
and Respondent *Friant Ranch,
L.P.*

Sara Hedgpeth-Harris
LAW OFFICE OF SARA
HEDGPETH-HARRIS
5445 E. Lane Avenue
Fresno, CA 93727

Attorney for Plaintiffs and
Appellants *Sierra Club, et al*

Daniel C. Cederborg
Bruce B. Johnson, Jr.
Zachary Stephen Redmond
OFFICE OF THE FRESNO COUNTY
COUNSEL
2220 Tulare Street, Suite 500
Fresno, CA 93721

Attorneys for Respondents
County of Fresno

Clerk of the Court
California Court of Appeal
Fifth Appellate District
2424 Ventura Street
Fresno, CA 93721
(via U.S. Mail & Electronic Transmission)

Clerk of the Court
Superior Court of California
County of Fresno
1130 O Street
Fresno, CA 93721

Appendix E

Biological Resources Technical Report

Biological Resources Technical Report

for

SF Azalea, LLC

Lost Hills, California 93249



Prepared By:

Surf to Snow Environmental Resource Management, Inc. (S2S)
2246 Camino Ramon
San Ramon, CA 94583
Brian Frantz, Chief Operating Officer
Phone: 925-718-6275/ Email: brian.frantz@s2serm.com

Bob Masuoka, S2S Principal Regulatory Specialist
Phone: 415-317-7620/ Email: bob.masuoka@S2serm.com

Date: July 2021(Revised January 2022)

Submitted to:

Christine Lan
50 California Street, Suite 820
San Francisco, CA 94111
christine.lan.0400@idemitsurenrenewables.com

TABLE OF CONTENTS

1	SUMMARY OF FINDINGS	5
2	INTRODUCTION	6
2.1	PROJECT LOCATION AND VICINITY.....	6
2.2	PROJECT ELEMENTS.....	7
2.3	ENVIRONMENTAL SETTING	14
3	REGULATORY FRAMEWORK	15
3.1	FEDERAL REGULATORY SETTING	15
3.1.1	<i>Plants and Wildlife</i>	<i>15</i>
3.1.2	<i>Wetlands/Waters and USACE Wetland Criteria.....</i>	<i>16</i>
3.1.3	<i>Migratory Bird Treaty Act</i>	<i>17</i>
3.1.4	<i>Bald and Golden Eagle Protection Act</i>	<i>18</i>
3.2	STATE REGULATORY SETTING.....	18
3.2.1	<i>Plants and Wildlife</i>	<i>18</i>
3.2.2	<i>Wetlands/Waters.....</i>	<i>19</i>
3.2.3	<i>California Porter-Cologne Water Quality Act</i>	<i>21</i>
3.2.4	<i>California Environmental Quality Act.....</i>	<i>21</i>
3.3	KERN COUNTY GENERAL PLAN.....	22
4	METHODS.....	23
4.1	BIOLOGICAL STUDY AREA.....	23
4.2	LITERATURE AND DATABASE REVIEW.....	24
4.2.1	<i>Potential to Occur</i>	<i>25</i>
4.3	FIELD SURVEYS	25
4.3.1	<i>Rare Plant Surveys</i>	<i>26</i>
4.3.2	<i>Wildlife Surveys.....</i>	<i>26</i>
4.4	PLANT COMMUNITY MAPPING	26
4.5	AQUATIC RESOURCE DELINEATION	27
4.6	SOILS.....	27
5	RESULTS	27
5.1	EXISTING CONDITIONS.....	27
5.1.1	<i>Regional Overview</i>	<i>27</i>
5.1.2	<i>Climate and Weather.....</i>	<i>28</i>
5.2	LITERATURE AND DATABASE REVIEW.....	29
5.2.1	<i>Critical Habitat.....</i>	<i>29</i>
5.2.2	<i>Rare Plants.....</i>	<i>29</i>
5.2.3	<i>Wildlife.....</i>	<i>38</i>
5.2.4	<i>Soils.....</i>	<i>48</i>
5.2.5	<i>NWI.....</i>	<i>52</i>
5.3	FIELD SURVEYS	55
5.3.1	<i>Rare Plant Surveys</i>	<i>55</i>
5.3.2	<i>Habitat Characterization and Plant Communities</i>	<i>58</i>
5.3.3	<i>Common Wildlife Species.....</i>	<i>59</i>
5.3.4	<i>Sensitive Wildlife Species</i>	<i>59</i>
5.3.5	<i>Wildlife Corridors</i>	<i>61</i>
5.3.6	<i>Aquatic Resources.....</i>	<i>61</i>
6	DISCUSSION.....	66

6.1	DIRECT AND INDIRECT IMPACTS OF THE PROPOSED ACTION	67
6.1.1	<i>Plant Communities</i>	67
6.1.2	<i>General Mitigation Measures</i>	68
6.1.3	<i>Mitigation Measures for Impacts to Wildlife</i>	70
6.1.4	<i>Special-status Species</i>	73
6.1.5	<i>Waters of the U.S.</i>	78
6.1.6	<i>Waters of the State</i>	80
7	CEQA CHECKLIST	81
8	REFERENCES	82

LIST OF FIGURES

Figure 1: Vicinity Map	8
Figure 2: Project Footprint Map and Biological Study Area (BSA)	11
Figure 3: Camera Trap Locations Map	13
Figure 4: Critical Habitat Map	31
Figure 5: Special-status Plant Species – CNDDDB	33
Figure 6: Special-status Wildlife Species - CNDDDB	39
Figure 7: Soils Map	49
Figure 8: NWI Map	53
Figure 9: Plant Communities Map	57
Figure 10: Aquatic Resources Map A	63
Figure 11: Aquatic Resources Map B	65

LIST OF TABLES

Table 1: Projected Spatial Requirements – Proposed Azalea Solar Energy Facility	7
Table 2: Acreage of Biological Study Area (BSA)	23
Table 3: Field Surveys Details – 2020-2021	25
Table 4: Special-status Plant Species - CNDDDB Occurrences	35
Table 5: Special-status Wildlife Species - CNDDDB Occurrences	36
Table 6: Summary of Aquatic Resources	61
Table 7: Impact Acreages by Plant Community	67
Table 8: Impact Acreages to Plant Communities by Project Component	68

LIST OF ATTACHMENTS

Attachment A: Plant Species Observed During 2020 and 2021 Surveys
Attachment B: Precipitation Data 2020 and 2021
Attachment C: Representative Photographs

List of Abbreviations and Acronyms

AC	Alternating Current
amsl	above mean sea level
APN	Assessor's Parcel Numbers
BBCS	Bird and Bat Conservation Strategy
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
BRTR	Biological Resources Technical Report
BNLL	Blunt-nosed Leopard Lizard
BSA	Biological Study Area
CAG	California Annual Grassland
CCH	California Consortium of Herbaria
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CMP	Corrugated Metal Pipe
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DC	Direct Current
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FMMP	Farmland Mapping and Monitoring Program
FGC	Fish and Game Code
I-	Interstate
MBTA	Migratory Bird Treaty Act
MW	Megawatt
NWI	National Wetlands Inventory
NWP	Nationwide Permit
NPPA	Native Plant Protection Act
NRCS	National Resources Conservation Service
NWP	Nationwide Permit
NWPR	Navigable Waters Protection Rule
OHWM	Ordinary High-water Mark
O&M	Operations and Maintenance
PCS	Power Conditioning Stations
PG&E	Pacific Gas and Electric
PV	Photovoltaic
RSP	Rangeland/Spray Field
RWQCB	Regional Water Quality Control Board
S2S	Surf to Snow Environmental Resource Management
SJKF	San Joaquin Kit Fox
SR	State Route

SWPPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
US	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDR	Waste Discharge

1 SUMMARY OF FINDINGS

This Biological Resources Technical Report (BTR) presents the methods and results for evaluating the potential for sensitive biological resources to occur within the proposed footprint of the Azalea Solar Energy Project (Proposed Action) located in northwestern Kern County, CA SF Azalea, LCC. requested Surf to Snow Environmental Resource Management, Inc. to conduct analyses of the potential for sensitive biological resources to occur within the Project Footprint, assess potential impacts to sensitive plants and wildlife that could occur as a result of the proposed action, and provide recommendations relative to potential permitting and mitigation based on the biological data obtained.

Literature-based research, reconnaissance surveys, and focused surveys were conducted as part of the evaluation of habitats within the 640-acre Azalea Property (Property), two proposed access routes to the Property, the proposed Gen-tie line (which will extend between the Property and the Pacific Gas and Electric Company Arco Substation, and immediately surrounding habitats. The Proposed Action involves construction of a 60-Megawatt (MW) utility-scale Solar Facility and associated battery storage facility on approximately 266 acres of the 640-acre Property . The Proposed Action also includes two possible access routes through multiple Assessor's Parcel Numbers (APNs) and the proposed Gen-tie lines, which will link the proposed Solar Facility with the PG&E Arco Substation (Substation). The Proposed Action will also involve expansion of the Substation.

The above-described 640-acre Property, the two proposed access routes, the Gen-tie line and associated buffer zones constitute the Biological Study Area (BSA). The total acreage of the BSA was 1069.1 acres including a 250-foot buffer around all lands and roads where the Proposed Action will take place, except for the southern and eastern boundaries (due to safety issues associated with adjacent active orchards). The BSA was evaluated during biological resources surveys conducted in Summer 2020 and Spring 2021 which were timed to identify summer-blooming plants and spring-blooming plants as well as nesting birds and other wildlife species, and to assess the potential for wetlands to occur within the BSA.

No special-status plants or Waters or Wetlands of the United States were detected within the BSA during the surveys. Sensitive wildlife species that were observed during the surveys conducted in September 2020 included American badger (*Taxidea taxus*, California Department of Fish and Wildlife (CDFW) Species of Special Concern), prairie falcon [*Falco mexicanus*, United States Fish and Wildlife Service (USFWS) Bird of Conservation Concern; CDFW State Watch List], loggerhead shrike (*Lanius ludovicianus*, USFWS Bird of Conservation Concern; CDFW Species of Special Concern), and California horned lark (*Eremophila alpestris actia*, CDFW Watch List).

The California Natural Diversity Database contains multiple documented observations of the federal and state-endangered blunt-nosed leopard lizard (BNLL; *Gambelia sila*) along the proposed Gen-tie line alignment, immediately west of the Azalea Property. Therefore, presence of BNLL is assumed.

Signage present at the gate to the Substation confirms the presence of federal and state endangered San Joaquin kit fox (*Vulpes macrotis mutica*), along the northernmost section of the access route. Habitat within the BSA appears to be suitable for foraging SJKF and American badger; active dens were not observed but have the potential to occur within the BSA.

Foraging habitat for raptors including Prairie falcon and Swainson's hawk (*Buteo swainsoni*) is present throughout the BSA. Western burrowing owl (*Athene cunicularia hypugaea*) could also occur within the BSA; abundant burrows of ground squirrels (*Otospermophilus beecheyi*) indicate that potential for burrowing owl nesting habitat within the BSA. Unidentified kangaroo rats (*Dipodomys* spp.) were observed in the southernmost part of the BSA close to a cattle containment area. Based on previous

records within a 5-mile radius, giant kangaroo rat (*Dipodomys ingens*) has the potential to occur within the BSA. Previous records within a 5-mile radius of the BSA indicate that Nelson's Antelope Squirrel (*Ammospermophilus nelsoni*) also has the potential to occur.

2 INTRODUCTION

SF Azalea, LLC proposes to construct, operate, maintain, and decommission the Azalea Solar Energy Project (Proposed Action) located in unincorporated Kern and Kings Counties, California (Figure 1). Surf to Snow Environmental Resource Management (S2S) was contracted by SF Azalea, LLC. to support the Proposed Action by providing biological services focused on preparing an analysis of sensitive biological resources, an assessment of potential impacts, and recommendations for mitigation. The purpose of the Biological Resources Technical Report (BRTR) was to determine whether any special-status plant or wildlife species, associated habitats that could support those species, sensitive habitats and/or wetlands or non-wetland Waters of the United States (US) that are potentially subject to US Army Corps of Engineers' (USACE) jurisdiction, occur within the Biological Study Area (BSA). This BRTR presents results of the biological reviews and surveys conducted by S2S on the BSA, including two proposed access route options, the Gen-tie line, associated facilities, and buffer area, represented by 250 feet on around all lands and roads where the Proposed Action will take place, except for the southern and eastern boundaries. The southern and eastern boundaries border adjacent private properties featuring active orchards where regular maintenance and harvesting activities are conducted using mechanical equipment, which presented safety issues (Figure 2).

This BRTR contains a project description, regulatory overview, comprehensive literature and database reviews, methods, results, conclusions of the surveys, mitigation measures, and a CEQA (California Environmental Quality Act) checklist, and is intended for use as a reference document to assess the potential for sensitive plant and wildlife species and habitats to occur within the Biological Study Area (BSA), and to assist in the evaluation of appropriate measures to protect those resources during and after proposed construction. This work was requested by Kern County to meet their requirements as the lead agency under CEQA and to assist in the planning process to avoid and minimize impacts to biological resources while attaining the objectives of the Proposed Action. Results of this BRTR will be incorporated into the Proposed Action's Environmental Impact Report (EIR).

2.1 PROJECT LOCATION AND VICINITY

The proposed site for the planned 60 Megawatt (MW) Solar Facility (proposed Solar Facility) is located in an unincorporated area of northwest Kern County, immediately south of the boundary line between Kings County and Kern County. The Proposed Action site lies between California State Routes (SR) 33 and I-5, approximately 1 mile east of the location where 25th Avenue continues southeast as King Road (Figure 1). The town of Kettleman City is located approximately 15 miles to the north of the Proposed Action site, along Highway 41. The Proposed Action site can be accessed via Interstate-5 (I-5; from its interchange with Utica Avenue), SR 3, 41, and 46. The proposed Solar Facility is planned for installation across multiple Assessor's Parcel Numbers (APNs) shown in Table 1.

The proposed Solar Facility would occur within approximately 266 acres of the 640-acre Azalea Property, located approximately 2.5 miles northwest of Twisselman and King Roads, approximately 15 miles northwest of the community of Lost Hills, approximately 6 miles west of I-5, and approximately 5 miles east of SR 33 (Figure 1). The proposed Solar Facility would be in Kern County and the access road may cross from Kings County into Kern County depending on which of two options are chosen for access (Figure 2). A dirt road links the Property to the Pacific Gas and Electric Company (PG&E) Arco Substation

(Substation). The California Aqueduct is located approximately 2.25 miles east of the Proposed Action site. The Property consists of agricultural lands, and the surrounding areas include agricultural and undeveloped lands. It is adjacent to an active orchard along its southern and eastern boundaries.

Table 1: Projected Spatial Requirements – Proposed Azalea Solar Energy Facility

PROJECT FOOTPRINT COMPONENT	APNs	ESTIMATED ACREAGE
Battery Storage	043-210-17	5*
Solar Facility	043-210-17 and 043-210-18	266
Fenced Area (surrounding and including Solar Facility)	043-210-17 and 043-210-18	340*
Remaining unused area		295
Total Azalea Property	043-210-17, 043-210-18, 043-220-01	640
Access Road Option 1	043-210-02, 043-210-04, 043-210-06, 043-210-07, 043-210-08, 043-210-09, 043-210-17	4*
Existing Access Road Option 2	048-350-17, 048-350-20, 043-210-02, 043-210-28, 043-210-16, 043-210-19, 043-210-21, 043-210-22 043-210-27	9.8
Total New Access Road acreage (excluding existing)	043-210-02, 043-210-04, 043-210-06, 043-210-07, 043-210-08, 043-210-09, 043-210-17, 048-350-17, 048-350-20, 043-210-02, 043-210-28, 043-210-16, 043-210-19, 043-210-21, 043-210-27	4*
Existing Substation	043-210-17	20
Substation Expansion	043-210-17	0.5*
Gen-Tie Line (parallel to Access Road Option 2 and substation perimeter)	43-210-27, 043-210-28, 043-220-01, 043-210-17, 043-10-27	6*
Total Acreage of Disturbed Areas		650.5
Total Project Footprint Acres Features (9.8-Acre Access Road, 20-Acre Substation)		680.3

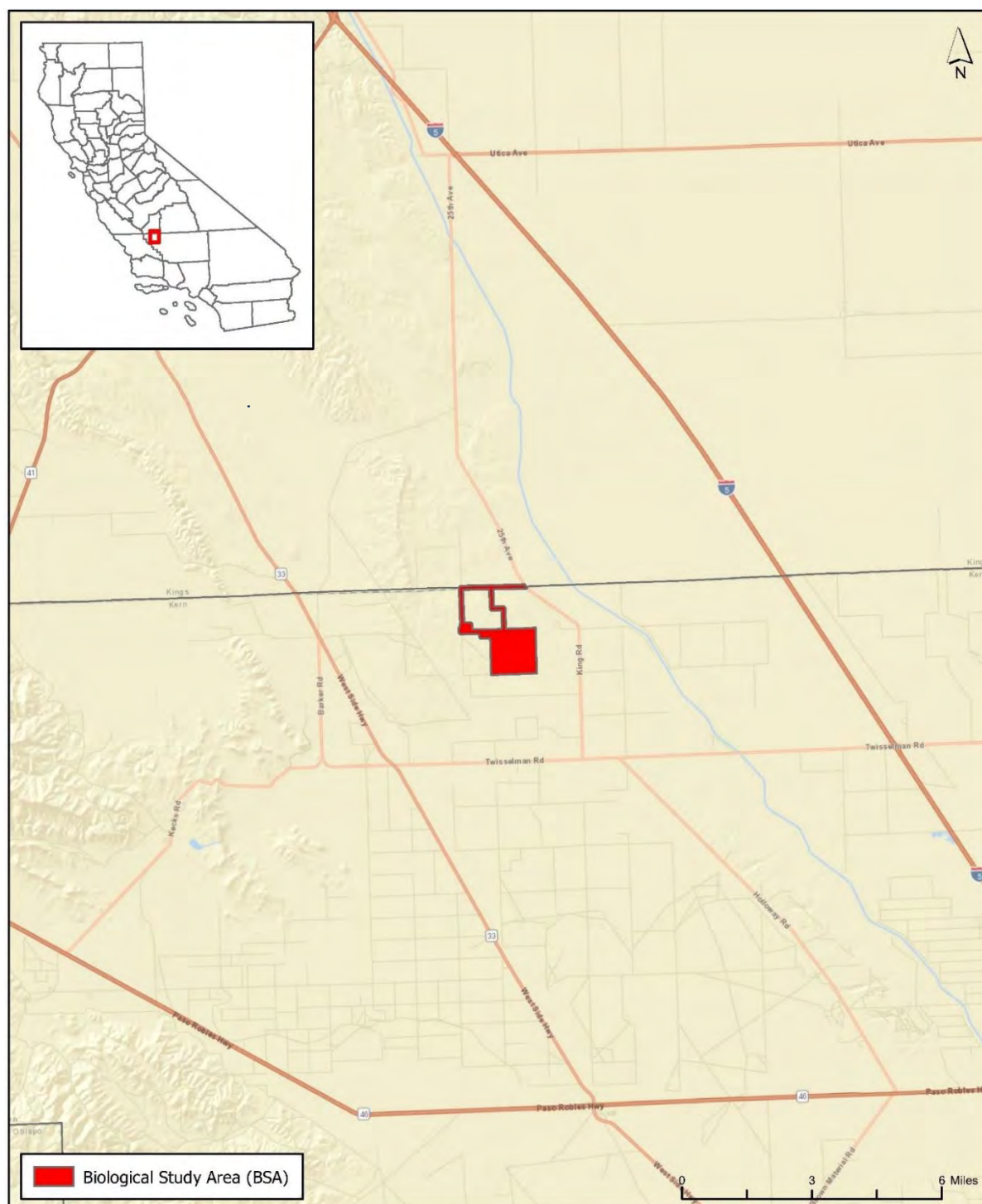
Figure 1 illustrates the Proposed Action site within Kern County in relation to its vicinity, the Kings County Line and nearby roads and highways. Figure 2 is an aerial photograph of the Property and BSA in relation to the PG&E Arco Substation; both are located within the US Geological Survey (USGS) 7.5 Minute Quadrangle Map for Avenal Gap.

2.2 PROJECT ELEMENTS

The Proposed Action involves construction of a 60-MW utility-scale Solar Facility, which would consist of Photovoltaic (PV) modules and trackers, inverters and medium voltage transformers, Direct Current (DC) collection, onsite substation, battery storage, telecommunications, meteorological data collection, lighting signage, access roads, and the gen-tie line. The Proposed Action will entail installation of an array of solar panels within approximately 266 acres extending across the 640-acre Azalea Property, a fenced area of approximately 340 acres set aside for easements and land rights, and the Gen-tie line (Figure 3). The proposed Gen-tie line will link the Solar Facility to the PG&E Substation along an

This Page Intentionally Left Blank

Figure 1: Vicinity Map

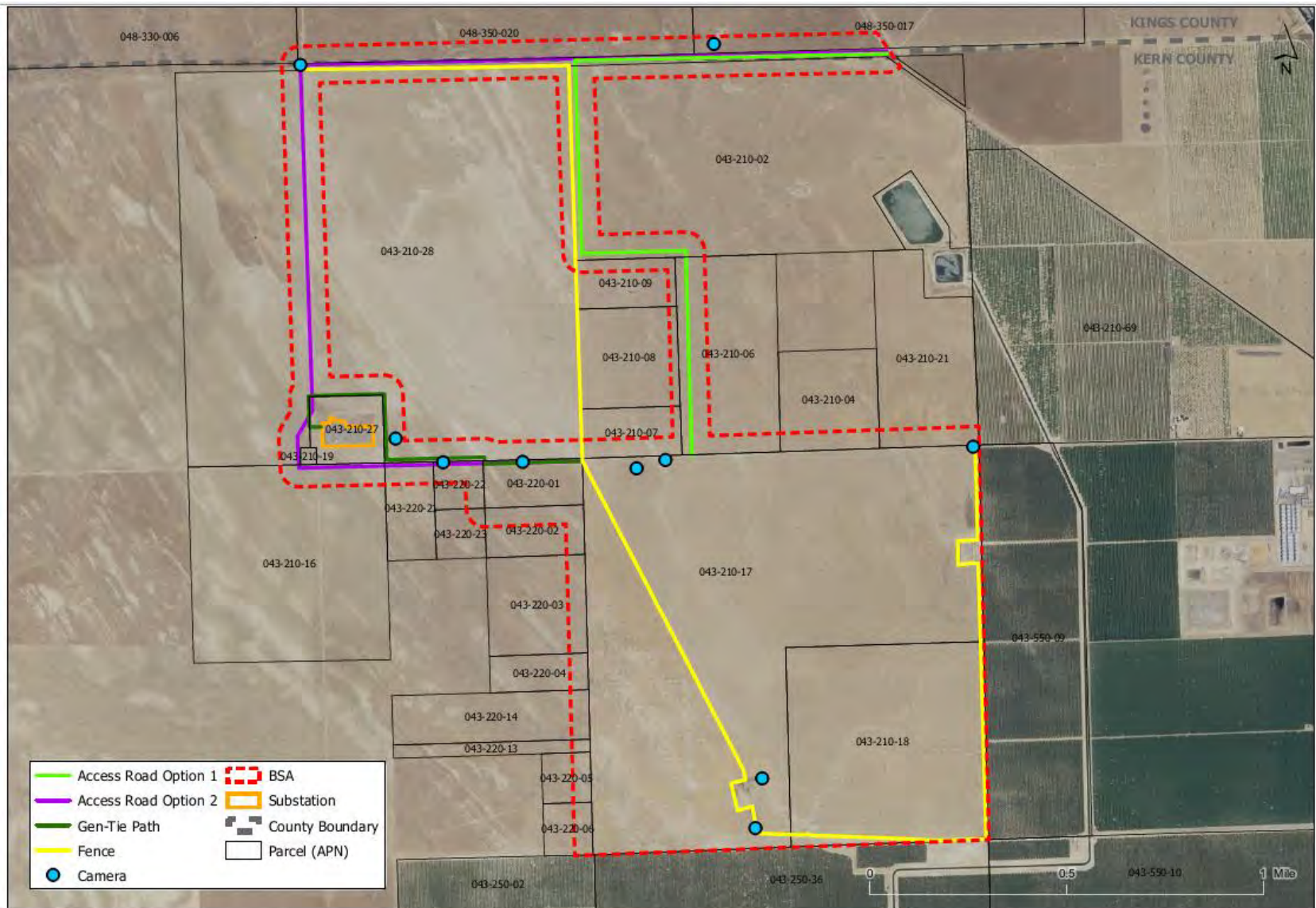


2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 1: Vicinity Map
Azalea Solar Energy Project
Kern County, California

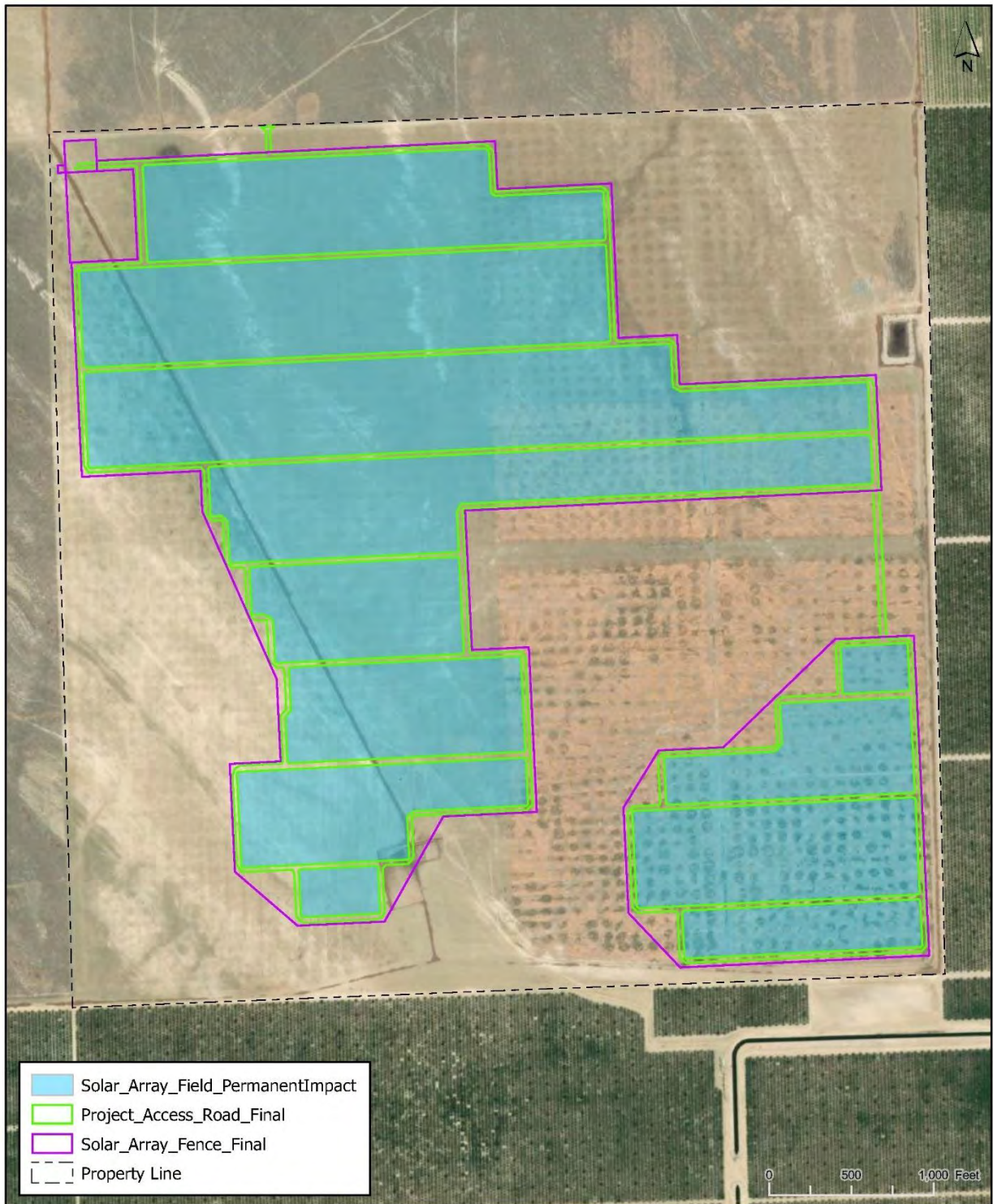
This Page Intentionally Left Blank

Figure 2: Project Footprint Map and Biological Study Area (BSA)



This Page Intentionally Left Blank

Figure 3: Camera Trap Locations Map



**Figure 3: Permanent Impact
Azalea Solar Energy Project
Kern County, California**

alignment leading approximately 3,600 feet through two adjacent Properties located immediately to the west of the Azalea Property where the proposed Solar Facility is located. In addition to construction of the Solar Facility and Gen-tie line, the Proposed Action will involve expansion of the Substation by 0.5 acre. The projected spatial requirements of the Proposed Action components are provided in Table 1.

The proposed Solar Facility would utilize PV modules and trackers. Trackers optimize power production by ensuring proper panel orientation to the sun both daily and seasonally. The tracking systems are supported by metal posts (piles) that are driven into the ground with a pile driving machine. Pile placement begins with a precise surveyed layout, ensuring proper positioning of tracker assembly parts. Affixed to the top of each pile is a pile cap and bearing assembly that supports and allows proper movement of the torque tube assembly. Single-axis tracking systems require a drive system that provides directional force to the torque tube. This can be accomplished with a mechanical drive arm and tube assembly that “pushes and pulls” the torque arm through its range of motion or by a geared assembly that redirects rotational force to the tubes. Both approaches require a small, geared motor mounted on a pile support or pad strong enough to move the system through its daily range of motions.

The panels are typically constructed of blue or black glass. A plastic binding material and frame provides structural rigidity. The PV panels would be self-contained durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed Solar Facility would be certified to comply with industry standard quality testing. Panels would be electrically connected and grounded. The proposed Solar Facility will be designed in accordance with local and state codes and regulations. The final panel selection would be determined at the detailed project-engineering phase per market availability.

Multiple trackers would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site Substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCS would vary with panel output relative to inverter size and desired output from the PCS.

The proposed Solar Facility’s panels would be organized in rows in a uniform grid pattern, with each row separated by approximately 10 to 20 feet (from post to post). Another mechanical feature of the proposed Project’s tracker system includes a cable tray that would provide support and containment of the DC wires used to collect the output of the panels and move output to the PCS. The panel and tracker features allow for a natural light regime between and under the panels, supporting the co-management of solar energy generation, agriculture, and wildlife.

Two options for access routes leading to the Property are proposed: Access Route Option 1, approximately 4 miles in length, and Access Route Option 2, approximately 9.8 miles in length as shown in Figure 2. Access Road Option 2 occurs along the existing asphalt road leading to the substation. Accessor Parcel Numbers associated with the access routes are listed in Table 1 and illustrated in Figure 2. The proposed Gen-tie line, which will link the proposed Solar Facility with the PG&E Arco Substation (Substation), is approximately 6 acres. The 640-acre Azalea Property, the two proposed access route options, the Gen-tie line and associated buffer areas around each constitute the Biological Study Area (BSA).

2.3 ENVIRONMENTAL SETTING

The Proposed Action site lies within the Avenal Gap USGS 7.5-minute topographic quadrangle (USGS 2018), in an unincorporated area of northwestern Kern County, California (Figure 1).

The Proposed Action site is located southeast of California’s southern coastal range, at the edge of the San Joaquin valley floor, characterized by a series of gently sloping hills east of Kettleman Hills. Being positioned at the southeastern extent of the southern coastal range, precipitation is limited. There are no perennial streams or riparian corridors in the BSA. Gentle rolling hills range in elevation

from approximately 383 to 528 feet to above sea level. Lands within the BSA slope towards the south and east.

Plant communities within the BSA are influenced by disturbance from anthropogenic sources. Soil types, topography, and lack of precipitation contribute to plant composition. The gently rolling slopes lack significant channelization or perennial water sources. Soils in the BSA are all well drained and contain several gypsum outcrops where vegetation is scarce. There are no trees or woody shrubs in the BSA. The Property is adjacent to active orchards along its southern and eastern boundaries and is fenced along those boundaries.

The region is characterized by a history of farming, ranching, and oil exploration. The proposed Solar Facility and gen-tie route are classified in the most recent update to the California Department of Conservation's (CDC) Important Farmland Map as "Grazing Land" [Farmland Mapping and Monitoring Program (FMMP) 2018]. A portion of the Project Footprint is in contract under the Williamson Act (FMMP 2016). The proposed access roads traverse through habitats classified as "Grazing Land" and "Nonagricultural and Natural Vegetation" (FMMP 2018). A large majority of the BSA is subject to cattle grazing. Rows of sprinklers have been installed across the Property in a grid pattern to create a spray field, which is regularly irrigated using water from a detention basin. The Substation within the BSA has several culverts diverting stormwater under access roads surrounding the substation. North of the Substation, there is a laydown yard storing infrastructure material. Asphalt debris was observed in the cut hillside north of the laydown yard. Large areas around the Substation are regularly disced.

A cattle yard and fence are present at the southern part of the Azalea Property. Cattle are released either to the east or west through the cattle yard. Two water troughs support cattle grazing activity. A detention basin storing water occurs along the eastern perimeter of the Property. Aluminum pipes are connected in a grid pattern and sprinklers are used to spray water from the detention basin. Based on aerial photographs, the Property has been disced and sprayed routinely since at least 2010 (Google Earth® 2021). No buildings occur on the Property. A series of Corrugated Metal Pipe (CMP) culverts convey stormwater from the substation to the south. Based on aerial photos and topographic maps, stormwater terminates as sheet flow across uplands southeast of the substation.

No cattle were present during the September 2020 surveys. The Property had been recently disced just prior to the Spring 2021 surveys and herds of cattle were present. Habitats within the Proposed Action area include the agricultural field, non-native annual grassland habitat, and patches of ruderal habitat along the fenced boundaries of the Property. Prior to the September 2020 surveys, a substantial amount of irrigation water was released near the northern perimeter of the Azalea Property. The excess irrigation created an approximately 0.41-mile corridor of moist soil and increased vegetation. Sprinklers were active during the September 2020 surveys. The corridor can be seen in September 2020 aerial photos (Attachment B; Google Earth®, 2021).

3 REGULATORY FRAMEWORK

3.1 FEDERAL REGULATORY SETTING

3.1.1 Plants and Wildlife

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 *et seq.*, as amended) provides for the conservation of threatened and endangered plants and animals and the habitats that support them, and is implemented by the US Fish and Wildlife Service and the US National Oceanic and Atmospheric Administration (NOAA). The ESA prohibits federal agencies from authorizing, permitting, or funding any action that would result in biological jeopardy to a plant or animal species listed as Threatened or Endangered under the Act. Section 10 of the ESA allows for the "take" of

species listed under the ESA by developing a Habitat Conservation Plan (HCP), working in consultation with the implementing agency.

Listed species are taxa for which proposed and final rules have been published in the Federal Register (USFWS 2016a, b). Federal Proposed species (USFWS 2016c) are species for which a proposed listing as Threatened or Endangered under ESA has been published in the Federal Register. If a proposed project may jeopardize proposed species, Section 7 of the ESA affords consideration of those species through informal conferences with USFWS. The USFWS defines federal Candidate species as *“those taxa for which we have on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded by other higher priority listing actions”* (USFWS 2016d). Federal Candidate species are not afforded formal protection, although USFWS encourages other federal agencies to give consideration to those species in environmental planning.

3.1.2 Wetlands/Waters and USACE Wetland Criteria

The federal government, acting through the USACE and the Environmental Protection Agency (EPA), has jurisdiction over all “Waters of the US” as authorized by §404 of the Clean Water Act (CWA) and §10 of the Rivers and Harbors Act of 1899 (33 CFR Parts 320-330). Properties that cause the discharge of dredged or fill material into Waters of the US require permitting by the USACE. Actions affecting small areas of jurisdictional Waters of the US may qualify for a Nationwide Permit (NWP), provided conditions of the permit are met, such as avoiding impacts to threatened or endangered species or to important cultural sites. Properties that affect larger areas or which do not meet the conditions of an NWP require an Individual Permit. The process for obtaining an Individual Permit requires a detailed alternatives analysis and development of a comprehensive mitigation/monitoring plan.

The EPA and USACE’s Navigable Waters Protection Rule became effective on 22 June 2020, but was vacated by the U.S. District Court in Arizona on 30 August 2021. Thus agencies have halted its implementation nationwide and are currently defining waters of the U.S. using pre-2015 definitions. The lateral limits of jurisdiction in waters of the U.S. may be divided into three categories. The categories are the territorial seas, tidal waters, and non-tidal waters [see 33 CFR 328.4 (a), (b), and (c), respectively].

The term “waters of the U.S.” is defined at 33 CFR 328.3(a) as:

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)-(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)-(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 EPA.

The term "adjacent" is defined at 33 CFR 328.3(c):

The term *adjacent* means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."

The limits of jurisdiction are identified in 33 CFR 328.4 as:

- a. Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)
- b. Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:
 1. Extends to the high tide line, or
 2. When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
- c. Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:
 1. In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
 2. When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
 3. When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

The term "ordinary high water mark" is defined at 33 CFR 328.3(e):

The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Wetlands, as defined by the USACE for regulatory purposes, are identified using a three-parameter test that considers whether hydrophytic vegetation, hydric soils, and hydrology are present (USACE 1987). Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3, 40 CFR 230.3). Wetlands also include less conspicuous wetland types such as vernal pools and other seasonal wetlands.

An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow. An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. A perennial stream has flowing water year-round during a typical year (66 FR 42099).

3.1.3 Migratory Bird Treaty Act

Migratory bird species are protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). Under the provisions of the MBTA, it is unlawful to take, possess,

buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the CDFG Code prohibit the take, possession, or destruction of birds, their nests, or eggs. Implementation of the take provisions requires that Project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 – August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered “taking” and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

On October 4, 2021, the USFWS published a final rule revoking the January 7, 2021, regulation that limited the scope of the MBTA (USFWS 2021a). With this final and formal revocation of the January 7 rule, the Service returns to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent and long-standing agency practice prior to 2017. This final rule goes into effect on December 3, 2021 .

In January 2021, USFWS published a regulation amended and defined the scope of the MBTA. The amended MBTA defines the scope of the MBTA's prohibitions to reach only actions directed at migratory birds, their nests, or their eggs (USFWS 2021a; USFWS 2021b). The regulation clarifies that:

“Conduct resulting in unintentional (incidental) injury or death of migratory birds is not prohibited under the MBTA. This rule provides regulatory certainty to the public, industries, states, tribes and other stakeholders about implementation of the MBTA and best practices for conservation.”

The regulation clarifies that accidental killing of migratory birds is not punishable by law. It states that the scope of the MBTA applies to intentional injuring or killing of birds.

3.1.4 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 Sections 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.

3.2 STATE REGULATORY SETTING

3.2.1 Plants and Wildlife

Project permitting and approval requires compliance with CEQA, the 1984 California Endangered Species Act (CESA), and the 1977 Native Plant Protection Act (NPPA). The CESA and NPPA authorize

the California Fish and Wildlife Commission to designate Endangered, Threatened, and Rare species, and to regulate the taking of these species (§§2050-2098, Fish and Wildlife Code). The California Code of Regulations (Title 14, §670.5) lists animal species considered Endangered or Threatened by the State.

The Natural Heritage Division of the CDFW administers the state rare species program. CDFW maintains lists of designated Endangered, Threatened, and Rare plant and wildlife species (CDFW 2021a, b). Listed species either were designated under the NPPA or designated by the Fish and Wildlife Commission. In addition to recognizing three levels of endangerment, the CDFW can afford interim protection to candidate species while they are being reviewed by the Fish and Wildlife Commission.

CDFW also maintains a list of wildlife Species of Special Concern (CDFW 2021b), most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status, CDFW recommends considering them during analysis of potential impacts to the BSA to protect declining populations and avoid the need to list them as endangered in the future.

Under provisions of §15380(d) of the CEQA Guidelines when making a determination of significance, the Project lead agency and CDFW must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFW considers plant species with California Rare Plant Rank (CRPR) 1A (Plants Presumed Extinct in California), CRPR List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), or CRPR 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2020) as qualifying for legal protection under §15380(d). Species with CRPR List 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species and CDFW Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the California Natural Diversity Database (CNDDDB) working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California). Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status plants or their habitat. The CDFW List of California Terrestrial Natural Communities provides the most up-to-date list of natural communities that are considered sensitive (CDFW 2021) and subject to CEQA review.

3.2.1.1 Fully Protected Species

The Fish and Game Code (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 §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 §3511. Migratory nongame birds are protected under §3800, and mammals are protected under §4700.

3.2.2 Wetlands/Waters

The California State Water Resource Control Board (SWRCB) and each of its nine Regional Boards (RWQCB) regulate the discharge of waste (dredged or fill material) into Waters of the US and Waters of the State. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code 13050[e]).

Section 401 of the CWA requires certification for any federal permit or license authorizing impacts to Waters of the US (i.e., waters that are within federal jurisdiction), such as Section 404 of the CWA

and Section 10 of the Safe Rivers and Harbors Act, to ensure that the impacts do not violate state water quality standards. When a project could impact waters outside those under federal jurisdiction, the RWQCB has the authority under the Porter-Cologne Water Quality Control Act to issue Waste Discharge Requirements (WDRs) to ensure that impacts do not violate state water quality standards. Clean Water Act Section 401 Water Quality Certifications, WDRs, and waivers of WDRs are also referred to as orders or permits.

In 2000, the SWRCB determined that all Waters of the US are also waters of the state by regulation, prior to any regulatory or judicial limitations on the federal definition of Waters of the US (California Code of Regulations title 23, §3831(w)). Waters of the State include features that have been determined by the EPA or the USACE to be “Waters of the US” in an approved jurisdictional determination; “Waters of the US” identified in an aquatic resource report verified by the USACE upon which a permitting decision was based; and features that are consistent with any current or historic final judicial interpretation of “Waters of the US” or any current or historic federal regulation defining “Waters of the US” under the federal CWA.

The SWRCB (2019) define an area as wetland as follows:

An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation.

The following wetlands are waters of the state:

1. *Natural wetlands;*
2. *Wetlands created by modification of a surface water of the state; and*
3. *Artificial wetlands that meet any of the following criteria:*
 - a. *Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;*
 - b. *Specifically identified in a water quality control plan as a wetland or other water of the state;*
 - c. *Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or*
 - d. *Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):*
 - i. *Industrial or municipal wastewater treatment or disposal,*
 - ii. *Settling of sediment,*
 - iii. *Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,*
 - iv. *Treatment of surface waters,*
 - v. *Agricultural crop irrigation or stock watering,*
 - vi. *Fire suppression,*
 - vii. *Industrial processing or cooling,*
 - viii. *Active surface mining – even if the site is managed for interim wetlands functions and values,*
 - ix. *Log storage,*
 - x. *Treatment, storage, or distribution of recycled water, or*

- xi. *Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or*
- xii. *Fields flooded for rice growing.*

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not Waters of the State. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state.

California Fish and Wildlife Code §§1600-1607 requires that CDFW be notified of any activity that could affect the bank or bed of any stream that has value to fish and wildlife (CDFW 2004). Upon notification, CDFW has the discretion to execute a Streambed Alteration Agreement. The CDFW defines streams as follows:

“... a body of water that flows at least periodically...through a bed or channel having banks and supporting fish and other aquatic life. This includes watercourses having a subsurface flow that supports or has supported riparian vegetation.” (Streambed Alteration Program, California Department of Fish and Wildlife).

In practice, CDFW authority is extended to any “blue line” stream shown on a USGS topographic map, as well as unmapped channels with a definable bank and bed. Wetlands, as defined by USACE, need not be present for CDFW to exert authority.

The FGC defines fish and wildlife to include: all wild animals, birds, plants, fish, amphibians, invertebrates, reptiles, and related ecological communities including the habitat upon which they depend for continued viability (FGC Division 5, Chapter 1, section 45 and Division 2, Chapter 1 section 711.2(a) respectively). Furthermore, Division 2, Chapter 5, Article 6, §1600 et seq. of the FGC does not limit jurisdiction to areas defined by specific flow events, seasonal changes in water flow, or presence/absence of vegetation types or communities.

3.2.3 California Porter-Cologne Water Quality Act

The 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 §13260). Waste Discharge Requirements 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 §71200). This differs from the CWA definition of Waters of the US by its inclusion of groundwater and waters outside the OHWM in its jurisdiction

3.2.4 California Environmental Quality Act

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. According to Appendix G of the CEQA Guidelines (CEQA 2005), the proposed project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS;

- Have 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;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict 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.

3.3 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.
- **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 rules and regulations and CDFG codes 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.

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.

4 METHODS

4.1 BIOLOGICAL STUDY AREA

The BSA includes all Proposed Action areas and a 250-foot buffer on all sides except the eastern and southern boundaries, which constitutes a total of 1069.1 acres (Table 2). The BSA consists of the 640-acre Azalea Property, approximately 22.65-acre area surrounding PG&E Substation, the two access route options leading to the Azalea Property Proposed Action area [Route 1 (approximately 4.02 miles in length), and Access Route 2, (approximately 6.01 miles in length)], the PG&E substation, and the 250-foot survey buffer on either side of the access routes (Figure 2).

Table 2: Acreage of Biological Study Area (BSA)

PROJECT FOOTPRINT COMPONENT	ESTIMATED ACREAGE (no buffer)	ESTIMATED ACREAGE (with 250 foot buffer)
Azalea Property	640	720
Access Road Option 1	4	127.4
Access Road Option 2*	9.8	199
Gen-Tie Line)	6	
PG&E Substation and addition	20.5	22.7
TOTAL	680.3	1069.1

*Gen-tie line overlaps with access road

Buffers along the southern and eastern boundaries of the Azalea Property were excluded due to safety issues, as the adjacent private lands are active orchards and are engaged with regular activities and mechanical equipment conducting maintenance, pesticide applications, and

production for the orchards. The 250-foot buffer areas were therefore not extended along the southern and eastern boundaries.

4.2 LITERATURE AND DATABASE REVIEW

Prior to conducting the field surveys, S2S biologists conducted a focused review of literature and queried available databases to identify special-status plant and wildlife species with the potential to occur within the BSA. Sensitive biological resources were defined to include species, subspecies, varieties, and populations recognized by 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;
- 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 CDFG Code, Section 460, 3511, 4700, 5050, or 5515;
- Special-status plant species also included those with a ranking of CRPR 1A (Plants Presumed Extinct in California), CRPR 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), or CRPR 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere), as indicated by the CNPS *Inventory*. Impacts to these species must be reviewed under the provisions of the CEQA Guidelines. Also considered as special-status species are those with CRPR 3 (Plants About Which We Need More Information—A Review List) and CRPR 4 (Plants of Limited Distribution—A Watch List) of the CNPS *Inventory*; however, these species do not generally fall under federal or state regulatory authority.

Sources reviewed included:

1. Biogeographic Information and Observation System ([BIOS], including CNDDDB occurrence records and other relevant records.
2. Audubon Society bird list.
3. The e-bird list for Kern County.
4. The CNPS Inventory of Rare and Endangered Plants was queried for the nine-quad area surrounding the BSA. Local and regional flora were identified and reviewed.
5. The Jepson Floral Project (2020) and the California Consortium of Herbaria (CCH 2020) were reviewed for taxonomic status and specimen records.
6. CalPhotos (a Berkeley Natural History Museums Project) (CalPhotos 2020).
7. Kern County Flora (Moe 2016).
8. The USFWS Critical Habitat Portal.
9. National Resources Conservation Service (NRCS) database for soils types in the BSA.
10. USFWS Species List (USFWS Species List) as part of an online consultation obtained from the USFWS Sacramento office website.
11. National Wetlands Inventory (NWI) was queried for information relative to previously mapped and documented Wetlands and Waters of the US.

For databases with geographic search capabilities, (specifically CNDDDB, CNPS, and CCH), records from the nine USGS 7.5-minute quadrangles containing and surrounding the project were queried: Avenal Gap, Kettleman Plain, Pyramid Hills, Sawtooth Ridge, Los Viejos, Emigrant Hill, Dudley Ridge, W. Camp, and Antelope Plain.

Sources consulted for up-to-date agency status information included USFWS for federally listed species (for lists of Proposed and Candidate species), the CDFW for the State of California Special Animals List (CDFW 2021a) and the CDFW State and Federally Listed Endangered, Threatened and Rare Plants of California (CDFW 2021b).

Based on information from the above sources, a target list of special-status plant and wildlife species documented to occur within and in the vicinity of the BSA was prepared for use in the field surveys.

4.2.1 Potential to Occur

Regulatory agencies evaluate the potential for a species to occur based on habitats observed on-site and the degree of connectivity with other special-status species' habitats in the vicinity of the BSA.

The potential for each species listed to occur in the BSA was initially evaluated during a desktop review prior to entering the field. Evaluations were further refined in the field upon observing field and habitat conditions. Potential for occurrence of each special-status or protected plant and wildlife species was evaluated using the following criteria.

- **High Potential:** Species or subspecies was observed or detected within the BSA during surveys or has been documented within a 2-mile radius of the BSA within the last 15 years and suitable breeding and/or foraging habitat is present.
- **Moderate Potential:** The species has been documented by CNDDDB or other sources as occurring within 5 miles of the BSA within the last 25 years and suitable habitat for the species is present.
- **Low Potential:** The species has historically occurred on or within 5 miles of the BSA or further away, but no occurrences have been documented within the last 25 years and/or marginal habitat is present for the species.
- **No Potential:** The species would not occur within the BSA due to lack of suitable habitat conditions, and/or the lack of known occurrences within the last 35 years and/or agency protocol-level surveys were conducted; the species was not found.

4.3 FIELD SURVEYS

Field surveys were conducted by Maya Khosla and Juan Mejia in September 2020 and March 2021. The field survey efforts are summarized in Table 3 below.

Table 3: Field Surveys Details – 2020-2021

DATE	SURVEY TYPE	PERSONNEL
September 14, 2020	General Biological / Wildlife/ Botanical Aquatic Resource Reconnaissance	Maya Khosla Juan Mejia
September 16, 2020	General Biological / Wildlife / Botanical Aquatic Resource Reconnaissance	Maya Khosla Juan Mejia
September 17, 2020	General Biological / Wildlife / Botanical Aquatic Resource Reconnaissance	Maya Khosla Juan Mejia
September 18, 2020	General Biological / Wildlife Aquatic Resource Reconnaissance	Maya Khosla
March 14, 2021	Botanical / Aquatic Resource Delineation	Juan Mejia
March 15, 2021	General Biological / Wildlife/ Botanical Vegetation Mapping / Aquatic Resource Delineation	Maya Khosla Juan Mejia
March 16, 2021	General Biological / Wildlife / Botanical Vegetation Mapping / Aquatic Resource Delineation	Maya Khosla Juan Mejia
March 17, 2021	General Biological / Wildlife / Botanical Vegetation Mapping / Aquatic Resource Delineation	Maya Khosla Juan Mejia
March 18, 2021	General Biological / Wildlife / Botanical Vegetation Mapping / Aquatic Resource Delineation	Maya Khosla Juan Mejia
March 19, 2021	General Biological / Wildlife	Maya Khosla

Maya Khosla is a field-based wildlife biologist with 20 years of experience, who has conducted over 3000 hours of surveys for nesting birds including burrowing owls and other raptors, approximately 200 hours of protocol and non-protocol surveys for San Joaquin kit fox, over 300 hours each of

American badger and small mammal surveys, 56 hours of blunt-nosed leopard lizard surveys, and reporting. She has presented her findings at professional meetings.

Mr. Mejia is a field botanist with over 9 years professional experience in California. As a UC Davis graduate, his education includes California floristics, field ecology, field botany, plant biology and plant ecology. He worked three growing seasons conducting field research for the USDA including weed management efficacy and rare plant life history studies in the central valley, coast range and San Francisco Bay estuary. As a consultant he has conducted protocol botanical surveys and wetland delineations in San Joaquin, Calaveras, Tuolumne, Stanislaus, Mariposa Counties and many others. For ongoing education Mr. Mejia has completed several Jepson Herbarium workshops, UC Davis extension classes and is a certified CRAM practitioner.

4.3.1 Rare Plant Surveys

Protocols for surveying and evaluating special status plant species and communities were conducted as set forth by CDFW (2018). Botanical field surveys provided information used to determine the potential environmental effects of proposed projects on special status plants and sensitive natural communities as required by CEQA, CESA, and federal ESA (CDFW 2018). All vascular plant species occurring within the BSA and in identifiable condition at the time of the survey, regardless of regulatory status, were identified to species or infraspecific taxon using keys and descriptions in the Jepson Flora Project (2020). Scientific nomenclature and common names for plant species in this report follow the Jepson Flora Project (2020) and CNPS (2020).

Botanical surveys for Summer-blooming plant species were conducted during the day from September 14 to 17, 2020. Reference populations for rare plants were visited prior to the September 2020 and March 2021 botanical field surveys that were conducted within the Property and associated lands.

Botanical surveys for Spring-blooming plants were conducted during the day from March 14 to 18, 2021. The timing of the March 2021 botanical surveys was planned to occur within the blooming period of the eight spring-blooming special-status plant species that were evaluated (Table 4).

4.3.2 Wildlife Surveys

Biological surveys were conducted within the approximately 1069.1-acre BSA (Figure 2). General reconnaissance and focused surveys for wildlife and biological resources that could support sensitive species within the BSA were conducted from September 14 to 18, 2020 and from March 15 to 19, 2021. Surveys were conducted by walking, driving, and setting remote camera stations within the BSA and along the length of the Gen-tie line, including all existing dirt roads extending across the northern boundary, along a section close to the western boundary of the Property, and along the two proposed access routes leading to the Azalea Property. Surveys included visual observations and assessments of the potential for existing habitat to support sensitive plant and wildlife as identified in the literature and database searches.

Camera stations were set up in appropriate and widely distributed areas where existing structures (e.g., fencing, signposts) could support trail cameras with minimal disturbance from cattle, passing vehicles or moving vegetation. Cameras were left in place for the duration of the field surveys to collect daytime and nighttime photographs (Figure 2). All habitats within the BSA were photo-documented.

4.4 PLANT COMMUNITY MAPPING

The CDFW-CNPS vegetation rapid assessment method (CDFW 2019) was used to determine plant communities present and recognized alliances. Habitat types were characterized within the survey areas, and data on dominant and characteristic species, topographic position, slope, aspect, substrate conditions, hydrologic regime, and evident disturbance for each habitat type, were recorded. In classifying the habitat types of these areas, the generalized plant community

classification schemes of Holland (1986); CDFW (2018) and Sawyer et al. (2009) were consulted. The final classification and characterization of the habitat types of the survey areas were based on field observations and data points taken using the CDFW-CNPS protocol for the CDFW Vegetation Rapid Assessment Field Form (CDFW 2019). Where necessary, deviations were made when areas were not consistent with the “membership rules” set forth in Sawyer et al. (2009). Such modifications to the vegetation alliances were designated based on the dominant plant species. Habitat types recognized during the field surveys were mapped onto detailed, high-resolution satellite imagery from ESRI® ArcGIS World Imagery (ArcGIS online).

4.5 AQUATIC RESOURCE DELINEATION

The aquatic resource delineation was conducted in accordance with the USACE Wetland Delineation Manual (USACE 1987), the Interim Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement; USACE September 2008), and A Guide to the Ordinary High-Water Mark (OHWM) for non-perennial streams in the Western mountains, valleys, and Coast region of the US (USACE 2014).

The western mountains OHWM guide was used because the regional streams around the BSA are more accurately represented by that guide. Regional supplements are intended to bring the USACE Manual (USACE 1987) up to date with current knowledge and practice in specific regions. The Arid West Supplement is applicable to the BSA because it is located in Arid West sub region (LRR C, Mediterranean California). All wetland and water features were identified and mapped. Hydrophytic classifications of plants were determined from the current National Wetland Plant List (USACE 2018). Plant nomenclature follows the Jepson Flora Project (2020).

The aquatic resource delineation was conducted using the Routine On-Site Determination Method (USACE 1987). Jurisdictional data were recorded using the Wetland Determination Data Form for the Arid West Region (USACE 2008). Soil, vegetation, and hydrology data were recorded at the data points. The OHWM for non-wetland features was determined using the OHWM Guide (USACE 2014).

4.6 SOILS

The soils present within the BSA may determine if habitat on the site is suitable for certain special-status plant and wildlife species. The host plants of some special-status invertebrates may also require specific soil conditions and some plant species are only found on certain soil types. In the absence of suitable soil conditions, special-status plant and wildlife species requiring those conditions would be presumed absent. Information regarding soil characteristics for the BSA was obtained by viewing the NRCS Web Soil Survey report for the BSA (NRCS 2020).

5 RESULTS

5.1 EXISTING CONDITIONS

5.1.1 Regional Overview

The San Joaquin Valley comprises the southern two-thirds of the Central Valley of California. Situated between the towering Sierra Nevada on the east, the Diablo and Temblor Ranges to the west, and the Tehachapi Mountains to the south, the valley occupies a trough created by tectonic forces related to the collision of the Pacific and North American Plates. The trough is filled with marine sediments overlain by continental sediments, in some places thousands of feet deep, deposited largely by streams draining the mountains, and partially in lakes that inundated portions of the valley floor from time to time. More than half the thickness of the continental sediments is composed of fine-grained (clay, sandy clay, sandy silt, and silt) stream (fluvial) and lake (lacustrine) deposits susceptible to compaction. Lying between the Coast Ranges (west) and the Sierra Nevada (east), the trough is drained largely by the San Joaquin River.

Today the San Joaquin Valley is the backbone of California's modern and highly technological agricultural industry and is the most productive agricultural region in the world, cultivating more than 250 crops, and producing 11 percent of the total US agricultural value.

The Proposed Action area is on the west side of the Southern San Joaquin Valley at the southernmost end of the South Dome of the Kettleman Hills, in Kern County. The Kettleman Hills are gently rolling in the Proposed Action Area and extend to the north and the west. To the south are the Lost Hills, to the east is the San Joaquin Valley, and to the northeast is the now-drained Tulare Lake, formerly a large shallow body of water. Elevations in the Proposed Action area range from approximately 421-500 feet above mean sea level (amsl).

Extensive tule swamps once surrounded the large, shallow lakes and sloughs in the region. The Coast Ranges to the west create a rain shadow over the southern San Joaquin Valley resulting in average rainfall of approximately 6 inches per year (Chang 1988). This leaves the region generally arid, with lakes and sloughs being fed by the Kern River, Kings River, or other tributaries from the Sierra Nevada. Vegetation away from the slough and lake is dominated by desert saltbush (*Atriplex* sp.) and annual grasses (Twisselman 1967).

The modern environment is substantially different from those of late prehistoric and early historic times due to the introduction of numerous plant and animal species, extirpation of indigenous plant and animal species, draining and filling of wetlands, and alteration of the landscape for ranching, agricultural use, and oil exploration and production.

5.1.2 Climate and Weather

The climate of the southern San Joaquin Valley is typically arid. In general, winters are mild, with temperatures averaging 45° F in January, and rarely falling below 28°F. Winter months are also characterized by dense ground or "tule" fog. Summer temperatures average 84° F in July and often exceed 100° F during summer months (Chang 1988). It is historically known that the region experiences rapid shifts in rainfall patterns, with both severe droughts and high rainfall years.

Drainage patterns in the San Joaquin Valley region evolved throughout the Quaternary in response to both valley floor subsidence and sedimentation by multiple streams draining into the valley (Atwater et al. 1986). Progradation of alluvial fans into the valley produced barriers to the valley's northward drainage, which resulted in the formation of the shallow, hydrologically closed Tulare Lake and Buena Vista Lake basins. The Tulare Lake basin is closed to the north by the Los Gatos Creek and Kings River alluvial fans and extends southward to the Kern River fan and the northern base of the Elk Hills. Tulare Lake has now been drained for agricultural purposes, but it formerly extended over as much as 1600 km², supporting a large and productive marshland or "tulare" around its margins. The lake reached its overflow level only in above average rainfall years, draining northward into the Fresno Slough and the San Joaquin River. During dry periods, the lake shrank dramatically or would entirely desiccate (Hilgard 1880; Grunsky 1930; Atwater et al. 1986).

The smaller Buena Vista basin lies at the southern margin of the San Joaquin Valley, bordered to the north by the Kern River fan and by the Elk Hills on the northwest. The Buena Vista Basin was comprised of two shallow lakes known as Buena Vista and Kern, which usually received most or all of the flow of the Kern River. During wet years, these lakes merged into a single body of water and drained into Buena Vista Slough at the base of the Elk Hills, which in turn flowed northwest into Tulare Lake. Historically, these lakes were also known to partially or completely desiccate, either due to dry conditions or to northward shifts in the drainage pattern of the Kern River, which would allow the river to drain directly into Buena Vista and Goose Lake sloughs.

While many of the upland areas are deeply incised by drainages, there is no year-round source of surface water. Storm runoff is rapid, flowing for a few days or weeks and contributing little to valley wetlands aside from a significant amount of eroded sediment. However, surface water is relatively abundant on the San Joaquin Valley floor due to the multiple stream flows draining from the Sierra

Nevada. Today, stream channeling and groundwater pumping for agriculture have greatly reduced surface water flows.

5.2 LITERATURE AND DATABASE REVIEW

The results of extensive literature and database reviews are discussed in the following sections and results of field surveys are discussed in Section 5.3. Species summaries are in Table 4 and Table 55.2.

5.2.1 Critical Habitat

No critical habitat for any plant and wildlife species is present within the Property (Figure 4).

5.2.2 Rare Plants

Eleven special-status plant species have been documented within the nine-quad area surrounding the USGS 7.5' Avenal Gap quadrangle. CNDDDB records document three of these special-status plant species and Valley Saltbush Scrub habitat as occurring within a 5-mile radius surrounding the BSA, as shown in Figure 5. A summary of the 11 special status plants and their potential to occur is shown in Table 4. Three species have no potential to occur due to a lack of suitable habitat and five species have a low potential to occur in the BSA. Three plant species have a moderate potential to occur in the BSA and are described in detail in the following sections.

California Jewelflower (*Caulanthus californicus*)

CRPR 1B.1; Federal and State Endangered

Habitat and Biology: California jewelflower is an annual herb with a blooming period that extends from February to May. It occurs on flats and slopes; generally, in non-alkaline grasslands from 230 to 3281 feet (Jepson 2020). It is supported by sandy soils in chenopod scrub, piñon and juniper woodland, and valley and foothill grasslands from 200-3,281 feet (CNPS 2020). Moe (2016) notes that it is rare in Kern County and grows only in wet years.

Range: Known from Kern, Fresno, Santa Barbara, and San Luis Obispo Counties (CNPS 2020). Presumed extirpated from Kings and Tulare Counties (CNPS 2020).

Known Records: CNDDDB documents two occurrences of California jewelflower within the nine-quad area surrounding the BSA. Both are extirpated or assumed extirpated. Within Kern County most records are also extirpated or presumed extirpated. Moe (2016) notes that California jewelflower is rare and only growing in wet years on the alkali plains north of Semitropic and the upper Sonoran grasslands of the Greenhorn foothills. New populations have been discovered in southern Kern County on the Tejon Ranch quad.

San Joaquin Bluecurls (*Trichostema ovatum*)

CRPR 4.2

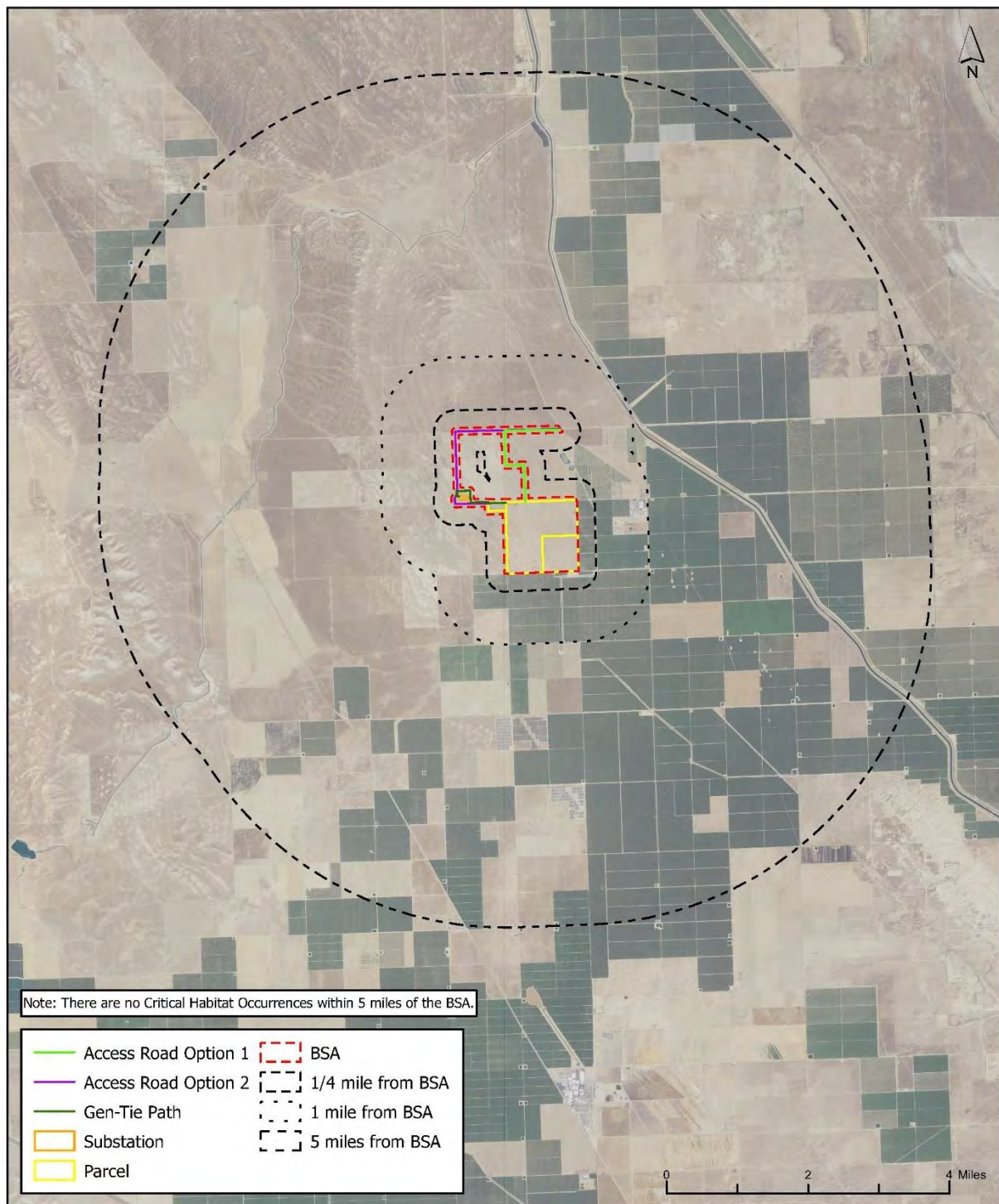
Habitat and Biology: San Joaquin bluecurls is an annual herb with a blooming period that extends from July to October and has a moderate potential to occur within the BSA. It occurs on disturbed sites in grasslands below 984 feet. (Jepson 2020), in chenopod scrub, and in valley and foothill grasslands from 213 to 1,050 feet (CNPS 2020). Moe (2016) notes that transient colonies do well during years with late spring rains.

Range: Known from Kern, Fresno, Kings, San Luis Obispo and Tulare Counties (CNPS 2020).

Known Records: There are no CNDDDB records of San Joaquin bluecurls within the nine-quad area surrounding the BSA. CNDDDB may not have tracked it because it is a CNPS CRPR 4.2 plant. CNPS (2020) shows that San Joaquin bluecurls do occur on Avenal Gap. Additionally, several collections were shown near the BSA in 2020 by the CCH Berkeley Mapper (California Consortium of Herbaria Online). The nearest record is approximately 8 miles north of the BSA (CCH specimen number UCD105212). The 2010 record was in grasslands adjacent to the aqueduct. This

This Page Intentionally Left Blank

Figure 4: Critical Habitat Map



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

**Figure 4: Critical Habitat
Azalea Solar Energy Project
Kern County, California**

Figure 5: Special-status Plant Species – CNDDB

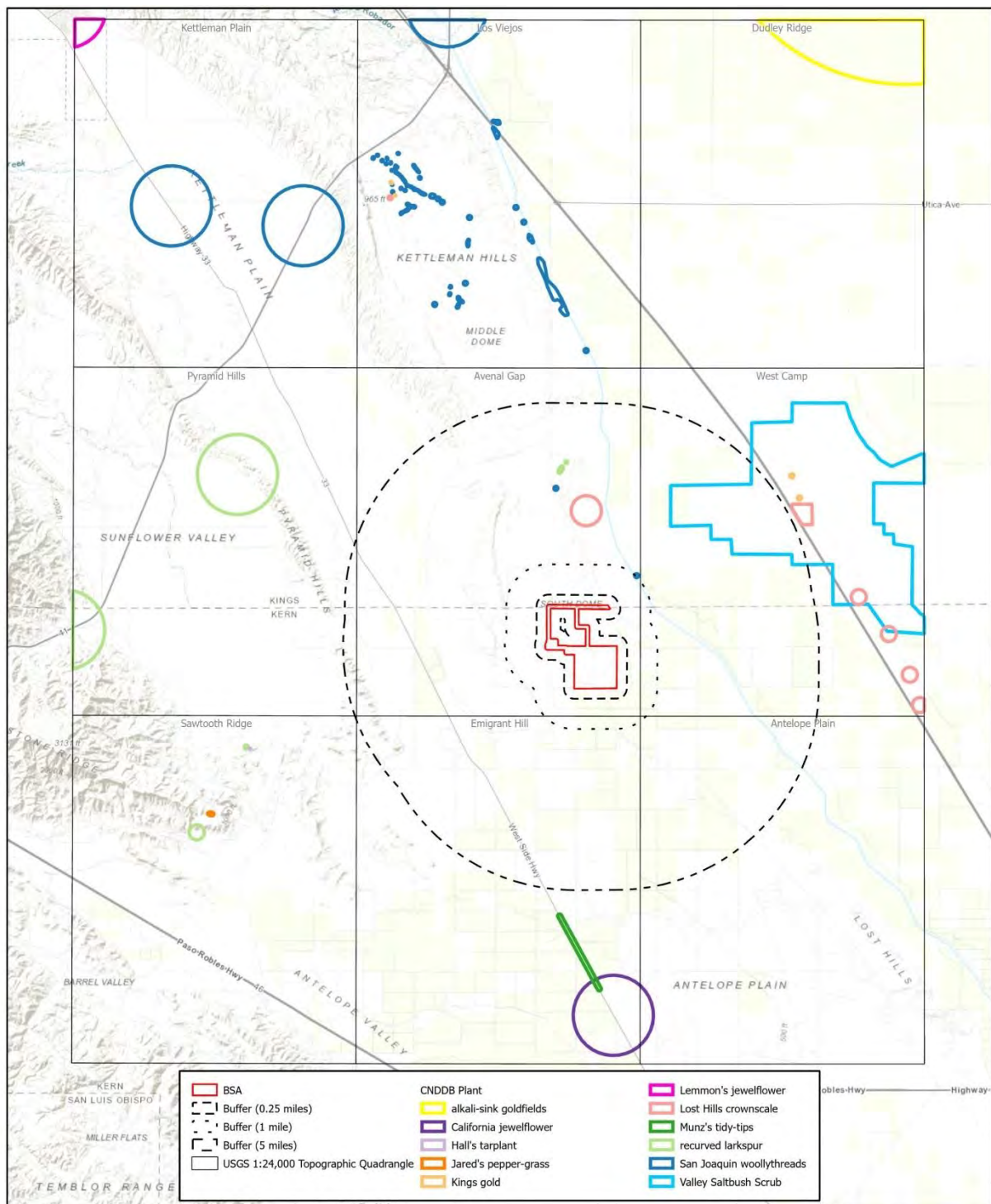
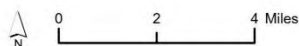


Figure 5: CNDDB Plant (Nine Quadrangle)
Azalea Solar Energy Project
Kern County, California



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041



This Page Intentionally Left Blank

Table 4: Special-status Plant Species - CNDDDB Occurrences

SPECIES NAME	LISTING STATUS ¹	HABITAT REQUIREMENTS ²	FLOWERING PERIOD	POTENTIAL TO OCCUR
Howell's onion <i>Allium howellii</i> var. <i>howellii</i>	CRPR 4.3	Perennial bulbiferous herb. Common plant on grassy slopes including serpentine from 656 to 2,953 ft. (Jepson 2020). Occurs on clay or serpentinite in valley and foothill grasslands from 164 to 7218 ft. (CNPS 2020).	March to April	Suitable clay substrate occurs in survey area. Only one historic record (1947) occurs within a 40-mile radius around the survey area. Species not observed at time of field survey. Low Potential
Forked fiddleneck <i>Amsinckia furcata</i>	CRPR 4.2	Annual herb. Occurs on semi-barren, loose, shaly slopes from 164-3281 ft. (Jepson 2020). Occurs in cismontane woodland and valley and foothill grasslands from 164 to 3,281 ft. (CNPS 2020).	February to May	Suitable substrate does not occur in survey area. No Potential
Crownscale <i>Atriplex coronata</i> var. <i>coronata</i>	CRPR 4.2	Annual herb. Occurs on fine alkaline soils below 656 ft (Jepson 2020). Often occurs on alkaline clay in chenopod scrub, valley and foothill grasslands, and vernal pools from 3 to 1,935 ft. (CNPS 2020).	March to October	Alkaline soils occur along the western perimeter of the BSA. Chenopod scrub community was not observed within the BSA. Low Potential
Lost Hills crownscale <i>Atriplex coronata</i> var. <i>vallicola</i>	CRPR 1B.2	Annual herb. Occurs on dried ponds with alkaline soils below 1,410 ft. (Jepson 2020). Often occurs on alkaline clay in chenopod scrub, valley and foothill grasslands, and vernal pools from 164 to 2,083 ft. (CNPS 2020).	April to September	Alkaline soils occur along the western perimeter of the BSA. Chenopod scrub community was not observed within the BSA. Low Potential
California jewelflower <i>Caulanthus californicus</i>	FE, SE, CRPR 1B.1	Annual herb. Occurs on flats and slopes; generally, in non-alkaline grasslands from 230 to 3,281 ft. (Jepson 2020). Occurs on sandy soils in chenopod scrub, pinyon and juniper woodland, and valley and foothill grasslands from 200 to 3,281 ft. (CNPS 2020).	February to May	Suitable habitat (sandy soils and non-alkaline grassland) occurs in the survey area. Not observed at time of field survey. Moderate Potential
Recurved larkspur <i>Delphinium recurvatum</i>	CRPR 1B.2	Perennial herb. Occurs in poorly drained, fine, alkaline soils; <i>Atriplex</i> scrub from 98-1969 ft. (Jepson 2020). Occurs on alkaline soil in chenopod scrub, cismontane woodland, and valley and foothill grasslands from 197 to 1,969 ft. (CNPS 2020).	March to June	Alkaline soils occur along the western perimeter of the BSA; however, soils are well drained and lacked vegetation. Chenopod scrub community was not observed within the BSA. Low Potential
Hoover's Eriastrum <i>Eriastrum hooveri</i>	CRPR 4.2	Annual herb. Occurs on alkaline flats, above dry streambeds, below 2,953 ft (Jepson 2020). Sometimes occurs on gravelly areas in chenopod scrub, pinyon and juniper woodland, and valley and foothill grasslands from 164 to 3,002 ft. (CNPS 2020).	February to July	No suitable habitat occurs in survey area. No Potential
Jared's pepper-grass <i>Lepidium jaredii</i> ssp. <i>jaredii</i>	CRPR 1B.2	Annual herb. Occurs on alkali bottoms, slopes, washes, dry hillsides, vertic clay, and acidic and gypsiferous soils from 1.641 to 2.297 ft. (Jepson 2020). Occurs on alkaline and adobe soils of valley and foothill grasslands from 1,099 to 3,297 ft. (CNPS 2020). Known only from near Soda Lake on the Carrizo Plain (SLO Co.) and Devil's Den (KRN Co.).	April to May	No suitable habitat occurs in survey area. No Potential
San Joaquin woollythreads <i>Monolopia congdonii</i>	FE, CRPR 1B.2	Annual herb. Occurs on sandy soil in grasslands from 295 to 2,297 ft. (Jepson 2020). Occurs on sandy soils in valley and foothill grasslands, and chenopod scrub from 197 to 2,625 ft. (CNPS 2020).	January to May	Suitable habitat (sandy soils and non-alkaline grassland) occurs in the survey area. Not observed at time of field survey. Moderate Potential
San Joaquin bluecurls <i>Trichostema ovatum</i>	CRPR 4.2	Annual herb. Occurs on disturbed sites in grasslands below 984 ft. (Jepson 2020). Occurs in chenopod scrub and valley and foothill grasslands from 213 to 1,050 ft. (CNPS 2020).	July to October	Suitable habitat (sandy soils and non-alkaline grassland) occurs in the survey area. Not observed at time of field survey. Moderate Potential
King's gold <i>Tropidocarpum californicum</i>	CRPR 1B.1	Annual herb. Occurs on alkaline, sandy clay soil in Atriplex scrub at approximately 213 ft. (Jepson 2020). Occurs in chenopod scrub from 213 to 591 ft. (CNPS 2020).	February to March	Alkaline soils occur along the western perimeter of the BSA. Chenopod scrub community was not observed within the BSA. Low Potential

¹Plant listing status:
Federal (USFWS 2016a): FE – Endangered; FT – threatened
State of California (CDFW 2021a): SE– endangered; SR – rare
California Rare Plant Rank (CRPR) (CNPS 2016): CRPR 1A: Presumed extinct in California. CRPR 1B: Rare, threatened, or endangered in California and elsewhere. CRPR 2B: Rare, threatened, or endangered in California, but more common elsewhere. CRPR 3: More information needed. CRPR Threat Code extensions: .1: Seriously endangered in California. .2: Fairly endangered in California.

²

Table 5: Special-status Wildlife Species - CNDDDB Occurrences

SPECIES NAME	LISTING STATUS ²	DETAIL	POTENTIAL TO OCCUR
Reptiles			
Blunt-nosed Leopard Lizard <i>Gambelia sila</i>	FE, CE; CFDW Fully Protected	Blunt-nosed leopard lizard historically occurred at elevations of 100 to 2,400 feet throughout the San Joaquin Valley, surrounding foothills, and valleys to the west, from San Joaquin County south to the Tehachapi Mountains.	Suitable habitat is present within the survey area. Occurrence documented within the last 15 years within the BSA. High Potential
San Joaquin Coachwhip <i>Masticophis flagellum ruddocki</i>	SSC	San Joaquin Coachwhip, is endemic to California, ranging from Arbuckle in the Sacramento Valley in Colusa County southward to the Grapevine in the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges. An isolated population occurs in the Sutter Buttes. Apparently intergrades with <i>C. f. piceus</i> in eastern Kem County.	Occurrences documented 9-19 miles from the BSA. Marginal habitat present. Low Potential
Birds			
Prairie Falcon <i>Falco mexicanus</i>	WL, BCC	Prairie falcon is an uncommon permanent resident ranging from southeastern deserts northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada.	Species observed on site (pair) and documented within 5 miles of the BSA within the last two years. Suitable foraging habitat is present. No breeding habitat present. High Potential: Foraging
Swainson’s Hawk <i>Buteo swainsoni</i>	CT	Swainson’s hawk is found in multiple populations in California, with the larger part of the species’ distribution in the northeastern part of the state, and populations in the Sacramento and San Joaquin Valleys, occasionally extending south to Antelope Valley and Joshua Tree National Monument.	Species documented within 5 miles of the BSA within the last two years. Suitable foraging habitat is present. No breeding habitat present Moderate Potential: Foraging
Western Burrowing Owl <i>Athene cunicularia hypugaea</i>	SSC	In California, western burrowing owl is considered a year-round resident breeding locally. Species prefers expanses of level, well-drained open habitat with sparse ground cover and few shrubs. Generally, inhabits burrows of fossorial mammals, primarily California ground squirrels.	Species documented within 1.9 miles of the BSA. Suitable breeding and foraging habitat are present. High Potential: Foraging and nesting
California horned lark <i>Eremophila alpestris actia</i>	WL	California horned lark is found from grasslands along the coast and deserts extending from near sea level to alpine dwarf-shrub habitat above tree-line and in coniferous or chaparral habitats.	Suitable foraging habitat is present. High Potential: Foraging and nesting
Tri-colored Blackbird <i>Agelaius tricolor</i>	CT, BCC	Tricolored blackbird occurs east from the Central Valley to San Francisco Bay and south to northern Santa Barbara County at elevations from sea level to approximately 4,000 feet. Disjunct populations are also present along the south coast from southern Ventura County down to Baja California, with disjunct populations northward to Washington.	No Suitable habitat present within the BSA. No Potential
Loggerhead shrike <i>Lanius ludovicianus</i>	SCC	Loggerhead shrike inhabits open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. The species frequents agricultural fields and pastures, where it preys on insects.	Suitable foraging habitat is present. High Potential: Foraging and nesting

² Explanation of state, federal and listing codes:

Federal listing codes:

-FE: Federally Endangered Species

-FT: Federally Threatened Species

-BCC: U. S. Fish & Wildlife Service Birds of Conservation Concern

Other listing codes:

-M: Western Bat Work Group-Medium priority

-LC: World Conservation Union- Least Concern

-VU: World Conservation Union- Vulnerable

-NT: World Conservation Union- Near Threatened

-IM: Xericus Society: Imperiled

-WLBBC: American Bird Conservancy - U. S. Watch List of Birds of Conservation Concern

California listing codes:

-CT: State-listed as Threatened

-CE: State-listed as Endangered

-SSC: California Species of Special Concern

-WL: On California Watch List

-CDFS: California Department of Forestry and Fire Prevention: Sensitive

-FP: Fully protected species

-G1S1 -CNDDDB Ranking system

-G2 – Global Rank Imperiled

-S2 – State Rank Imperiled

For detailed breakdown of codes refer to:

http://www.natureserve.org/publications/ConsStatusAssess_StatusFactors.pdf

US Forest Service Codes:

USFSS: Forest Service Sensitive

Bureau of Land Management Codes:

BLMS: BLM Sensitive

Species Name	Listing Status2	Detail	Potential to Occur
Mammals			
American Badger <i>Taxidea taxus</i>	SSC	American badger is found in dry,open habitats including grassland and open woodland. Suitable burrowing habitat requires dry, sandy soil. Although badger is widely distributed across California, the species may be comparatively uncommon or absent from areas where it occurred historically.	Species observed with remote camera and documented within 6.5 miles of the BSA in the last 22 years. Suitable habitat is present. High Potential: Foraging and denning
Giant Kangaroo Rat <i>Dipodomys ingens</i>	CE, FE	Historically, giant kangaroo rat occurred at elevations from approximately 300 to 3,000 feet in the western San Joaquin Valley and bordering hills and valleys. Due primarily to extensive agricultural conversion, its populations have become fragmented. The Kettleman Hills area support one population.	Species documents within 4.1 miles of the BSA within the last 33 years. Suitable foraging and burrowing habitat are present. Unidentified kangaroo rat observed with remote camera. High Potential: Foraging and breeding.
Nelson's Antelope Squirrel <i>Ammospermophilus nelsoni</i>	CT	This species inhabits the arid grassland, shrubland, and alkali sink habitats of the San Joaquin Valley and adjacent foothills. Present populations can be found at elevations 165 feet on the San Joaquin Valley floor to around 3,609 feet in the Temblor Mountains.	Two occurrences documented in 2006 within 3 miles of the BSA. Suitable foraging and burrowing habitat are present. Moderate Potential: foraging and breeding.
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i>	CE, FE	San Joaquin kit fox occurs, or historically occurred, throughout most of the San Joaquin Valley. Several occurrences within a 5-mile radius of the BSA have been recorded in the CNDDDB. One of the occurrences is 1 mile north of the Property.	Five occurrences documented within 5 miles. One occurrence documented in 2016 within 3.4 miles of the BSA. Suitable habitat is present. High Potential: Foraging and denning.
Short-nosed Kangaroo Rat <i>Dipodomys nitratoides brevinasus</i>	SSC	Short-nosed kangaroo rat is endemic to the state of California and occurs, or historically occurred, on the western, southern, and extreme southeastern sides of the San Joaquin Valley, from Livingston in Merced County south to Kern County, although there are few records from north of Fresno County. It is also known from Panoche Valley, the Carrizo Plain, and the Cuyama Valley.	Four occurrences documented in 2002 over 5 miles from the BSA. Unidentified kangaroo rat observed with remote camera. Low Potential
Tipton Kangaroo Rat <i>Dipodomys nitratoides</i>	FE, CE	Tipton kangaroo rat is endemic to the state of California and occurs, or historically occurred, primarily on the San Joaquin Valley floor in the Tulare Basin in Kings, Tulare, and Kern counties. There are also (CNDDDB) records from the Carrizo Plain.	Two occurrences documented in 2006 over 5 miles from the BSA. Unidentified kangaroo rat observed with remote camera. Low Potential
Tulare Grasshopper Mouse <i>Onychomys torridus tularensis</i>	SSC	Tulare grasshopper mouse occurs in the southern San Joaquin Valley, from western Merced and eastern San Benito counties, east to Madera County and south to Kern and east San Luis Obispo counties, including Panoche Valley, the Carrizo Plain, the foothills of the Tehachapi and San Emigdio Mountains, and the upper Cuyama Valley. It also occurs in the southernmost Sierra Nevada and Tehachapi Mountains.	One occurrence documented in 2006 over 5 miles from the BSA. Low Potential
Amphibians			
Western Spadefoot Toad <i>Spea hammondi</i>	SSC	Western spadefoot toad occurs in California from Redding south through the Central Valley and bordering hills, in portions of the Coast Ranges (away from the coast in the north) from the Monterey Bay area to Santa Barbara County, and in coastal southern California (inland to western Riverside and southwestern San Bernardino counties) south to northwest Baja California.	One occurrence documented in 2019 within 4.8 miles from the BSA. No suitable habitat within the BSA. No Potential

Explanation of state, federal and listing codes:

Federal listing codes:

- FE: Federally Endangered Species
- FT: Federally Threatened Species
- BCC: U. S. Fish & Wildlife Service Birds of Conservation Concern

Other listing codes:

- M: Western Bat Work Group-Medium priority
- LC: World Conservation Union- Least Concern
- VU: World Conservation Union- Vulnerable
- NT: World Conservation Union- Near Threatened
- IM: Xericus Society: Imperiled
- WLBBC: American Bird Conservancy - U. S. Watch List of Birds of Conservation Concern

California listing codes:

- CT: State-listed as Threatened
- CE: State-listed as Endangered
- SSC: California Species of Special Concern
- WL: On California Watch List
- CDFS: California Department of Forestry and Fire Prevention: Sensitive
- FP: Fully protected species
- G1S1 -CNDDDB Ranking system
- G2 – Global Rank Imperiled
- S2 – State Rank Imperiled

For detailed breakdown of codes refer to:

http://www.natureserve.org/publications/ConsStatusAssess_StatusFactors.pdf

US Forest Service Codes:

USFSS: Forest Service Sensitive

Bureau of Land Management Codes:

BLMS: BLM Sensitive

record was visited prior to the September 2020 surveys and San Joaquin bluecurls was observed in flower and fruit.

San Joaquin Woollythreads (*Monolopia congdonii*)
CRPR 1B.2; Federal Endangered

Habitat and Biology: San Joaquin woollythreads is an annual herb with a blooming period that extends from January to May and has a moderate potential to occur within the BSA. It occurs on sandy soil in grasslands from 295 to 2297 feet (Jepson 2020). It occurs in valley and foothill grasslands, and chenopod scrub from 197 to 2625 feet (CNPS 2020). Suitable substrate occurs in survey area, sandy soils and grassland. Moe (2016) notes that San Joaquin woollythreads are scarce in the valley; the plant usually grows on wind-modified light soil or sand dunes. It also grows only in years of more than normal rainfall.

Range: Known from Kern, Fresno, Santa Barbara, San Benito and San Luis Obispo Counties (CNPS 2020). Presumed extirpated from Tulare County (CNPS 2020).

Known Records: There are 15 CNDDDB extant records of San Joaquin woollythreads within the nine-quad area surrounding the BSA. The closest record is located approximately 2.8 miles north of the BSA (Occurrence # 85; 2016). The record states that San Joaquin woollythreads were observed growing on gently rolling hills in fine sandy soils.

5.2.3 Wildlife

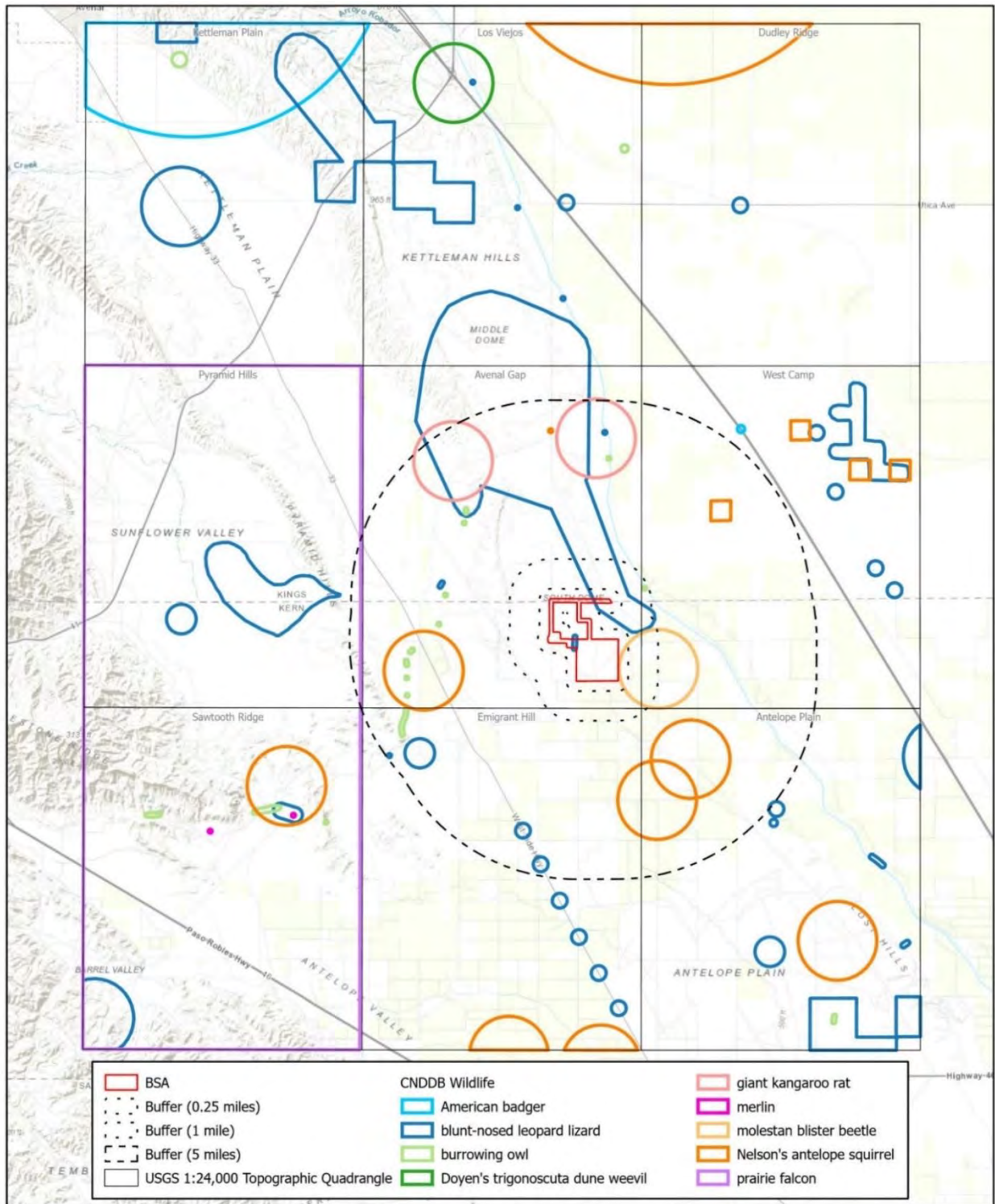
A total of 15 sensitive wildlife species have been documented in CNDDDB records (Figure 6a, 6b) within a 5-mile radius of the BSA. Six species have a low or no potential to occur. Six of the sensitive wildlife species have a moderate to high potential to occur (Table 5). Three additional sensitive species that are on state and/or federal watchlists were observed during surveys. These nine sensitive species are described in detail in the following sections.

Blunt-nosed Leopard Lizard (BNLL; *Gambelia sila*)
Federal and State Endangered

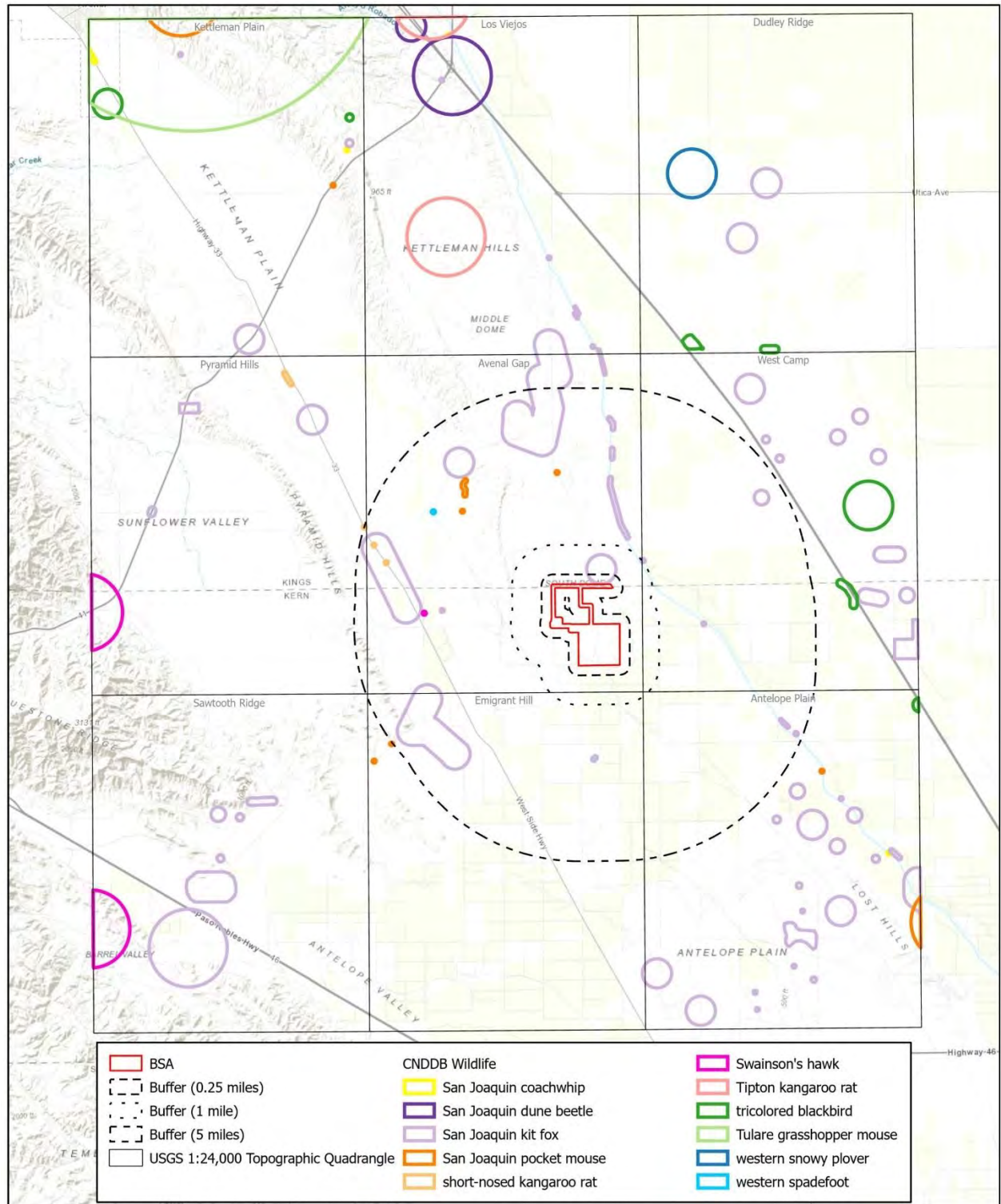
CNDDDB documents 35 occurrences of BNLL within the nine-quad search area. Four of these occurrences are within 5 miles of the BSA, 30 occurrences are more than 5 miles from the BSA (occurrences ranging from 2006-2019), and a single occurrence was within the BSA (2006). One occurrence is believed to be extirpated (Occ #254) while all remaining occurrences are believed to be extant. According to CNDDDB records, BNLL has been documented along the Project's Gen-tie line alignment as well as less than 1 mile north of the Property, including a sighting documented in 2016.

BNLL is a fully protected species that has a high potential to occur within the BSA (Figure 6) and is presumed present within the BSA. Historically, this species occurred at elevations ranging from 100 to 2,400 feet throughout the San Joaquin Valley, surrounding foothills, and valleys to the west, from San Joaquin County south to the Tehachapi Mountains. This species is active from early April to early November, while spending winter in a state of dormancy called brumation. BNLL often basks in the morning and is active during the day. The species utilizes small mammal burrows, especially abandoned California ground squirrel (*Otospermophilus beecheyi*) tunnels or occupied or abandoned kangaroo rat (*Dipodomys* spp.) tunnels for refuge, sheltering during periods of inactivity, and for laying eggs. The diet consists primarily of various insects, especially grasshoppers, crickets, cicadas, moths, and other lizards (including young of its own species). It also occasionally consumes plant matter. The species breeds between late April and July. Males defend a territory and will mate with any females that occupy the

Figure 6: Special-status Wildlife Species - CNDDDB



This Page Intentionally Left Blank



2246 Camino Ramon
 San Ramon, CA 94583
 (925) 362-3041

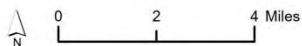


Figure 6b: CNRDB Wildlife (Nine Quadrangle)
 Azalea Solar Energy Project
 Kern County, California

This Page Intentionally Left Blank

territory. Clutches of one to six eggs are laid in June or July, and hatch in July or August. Females lay a single clutch per year, but additional clutches may be laid if conditions during that year are favorable.

Swainson's Hawk (*Buteo swainsoni*)
California State Threatened

The CNDDDB records document three occurrences of Swainson's hawk within a 5-mile radius, with a single occurrence located 4.1 miles west of the BSA and documented in 2019 (Occ #2792). No nesting habitat is present within the BSA. As foraging habitat is present, this raptor has a moderate potential to utilize the BSA for foraging purposes. Swainson's hawk is found in multiple populations in California, with the larger part of the species' distribution in the northeastern part of the state, and populations in the Sacramento and San Joaquin Valleys occasionally extending south to Antelope Valley and Joshua Tree National Monument.

Swainson's hawk has a moderate potential to occur; foraging habitat is present in the BSA. It prefers open grassland or agricultural habitat. It utilizes scattered trees or trees within riparian corridors for nesting. In California, Swainson's hawk preys on other birds, invertebrates, and rodents. Individuals often change foraging behavior in response to agricultural activity such as mowing and discing. The breeding season begins upon arrival in the breeding grounds in early March and continues until late August through mid-September. The breeding season peaks between April and June. A large, relatively flat platform nest composed of sticks is constructed in a tree, often in riparian corridors. The nest is typically built 5-30 feet high in the tree. A clutch of two eggs is laid and incubated by both parents for approximately 28 days. The young are fed

by both parents until they fledge and fly when they are 28 to 35 days old. Currently, CDFW recommends mitigation for Swainson's hawk foraging habitat that is impacted by project activities.

San Joaquin Kit Fox (SJKF; *Vulpes macrotis mutica*)
Federal and State Endangered

According to CNDDDB records, SJKF has been observed 1 mile north of the Property and at multiple locations along the 25th Avenue/King Road corridor. Sightings were documented in 2004, 2007 and 2017. Most of the sightings were documented in 2007. Several sighting locations were 5 miles west of the Property (Figure 6a and 6b; Table 55). No burrows with signs indicating occupation by SJKF were sighted within the BSA during the surveys. Due to the number of previous records in the vicinity, SJKF has a high potential to occur within the BSA.

SJKF historically occurred throughout most of the San Joaquin Valley. The numbers have declined in recent years (Smith et al 2006). A recent study indicated that some populations of SJKF have developed sarcoptic mange. The study found that the survival of mites that cause the infection to SJKF is related to irrigation levels, which support mites for longer periods in the dens (Loredo et al 2019).

SJKF has a slim body with large, conspicuously long and pointed ears, and a long, bushy, tail, with a black tip that is diagnostic in identification. The species inhabits grassland habitats where friable soils are present. The general habitat requirement for SJKF is annual grasslands or grassy open habitat with scattered shrubby vegetation. This species is active year-round and primarily nocturnal, requiring dens for temperature regulation, shelter from adverse weather, protection from predators, and pupping.

Diet consists primarily of rodents and insects; but the species is known to opportunistically forage on garbage in urbanized areas. Prey items for SJKF include small mammals such as white-footed mice (*Peromyscus leucopus*), California ground squirrels, black-tailed jackrabbit (*Lepus californicus*), other small mammals including desert cottontails (*Sylvilagus audubonii*), as well as insects. Kit foxes also exhibit a capacity to utilize habitats that have been altered by humans, such as oil fields, grazed

pasturelands and “wind farms” (Cypher 2000). This species does prefer gentle slopes of less than 10 degrees, and the requirement for gentle slopes for reproductive dens may limit population viability in slopes with greater topographic relief. However, topographic ruggedness has been determined to be an important habitat factor affecting SJKF distribution (Warrick and others 1998). The SJKF generally constructs its own burrow but can also enlarge or modify existing burrows.

SJKF mates once per year from mid-December to February, or March, with a typical gestation period of 49 to 55 days. The species produces a litter of one to seven, with an average of four, occurring from February to late March (perhaps into April). SJKF fox young stay in their birth den until they are four weeks old and are weaned at eight weeks. The young begin to hunt with their parents at three to four months of age and are independent by five to six months, dispersing by eight months. Both male and female parents care for and protect their young. Female SJKF are able to breed after 10 months. However, many females do not reproduce in their first year.

**Giant Kangaroo Rat (*Dipodomys ingens*),
Federal and State Endangered**

According to CNDDDB records, giant kangaroo rat has been found within 5 miles of the BSA, with occurrences concentrated to the north of the BSA (Figure 6; Table 5). The sighting was documented in 1989. Giant kangaroo rat has a high potential to occur within the BSA; an unidentified kangaroo rat was detected in the southernmost part of the BSA with one of the remote cameras. Giant kangaroo rat has a high potential to occur within the BSA.

Giant kangaroo rat is endemic to California. It is the largest kangaroo rat species with a body length of 6 to 7.8 inches and a tail length of 7 to 8.5 inches. Historically, this rodent occurred at elevations from about 300 to 3,000 feet in the western San Joaquin Valley and bordering hills and valleys to the west from southwestern Merced County, south through southeastern San Benito County, western Fresno and Kings counties, eastern San Luis Obispo County, northeastern Santa Barbara County, and western Kern County to the northern base of the Tehachapi Mountains. Its range included the western edge of the San Joaquin Valley, stretching from the Tehachapi Mountains to eastern San Luis Obispo County, but it is now limited to the southwestern edge of the San Joaquin Valley, including the Carrizo Plain, Elkhorn Plains, Kettleman Hills, and Cuyama Valley. Due primarily to extensive agricultural conversion within its historic range, its populations have become fragmented. Close to the BSA, the Kettleman Hills area of southwestern Kings County, north and northwest of the BSA, supports one population (Figure 6).

Optimal habitat is believed to be annual grassland with few or no shrubs, sandy loam soils, and gentle slopes free from periodic flooding. Steeper slopes in open scrub types, including saltbush scrub; upper Sonoran subshrub scrub; and other scrub habitat, are believed to be suboptimal habitat. Giant kangaroo rats emerge shortly after sunset and spend an average of less than 20 minutes foraging for food before returning to their burrows. The primary diet consists of seeds, including seeds of filaree (*Erodium spp.*), peppergrass (*Lepidium spp.*), and brome grasses (*Bromus spp.*). This kangaroo rat also consumes green vegetation and insects. Its diet supplies all its needed water.

Giant kangaroo rats typically breed in late winter or early spring, but may breed between December and April or May. In areas with low population density, reproduction may extend into August or September. Young are born in a burrow in the spring (1 to 6 young with 3 on average). The young are cared for by both parents and are weaned in 15 to 25 days, reaching sexual maturity in 60 to 84 days. The young then leave the burrow and seek new territories within the colony to dig their own burrows. Giant kangaroo rat has been known to live up to 9.8 years in the wild.

Nelson's Antelope Squirrel (*Ammospermophilus nelsoni*)
California State Threatened

The CNDDB records indicate that Nelson's antelope squirrel (or San Joaquin antelope squirrel) has been sighted within 2 miles southwest of the BSA and within 3 miles west of the BSA; the sighting was documented in 1988. The BSA has a moderate potential of supporting this species. It is a small, ground-dwelling rodent with tiny, rounded ears and relatively short tail and legs. It is light brown in color with a light-colored stripe on each of its sides. The tail is light gray or whitish on the underside and is usually held in a vertical position when sitting or curled over the back when running. This species inhabits the arid grassland, shrubland, and alkali sink habitats of the San Joaquin Valley and adjacent foothills. Nelson's antelope squirrel is active year-round and lives in burrows that are either modifications of kangaroo rat burrows or are self-constructed. Nelson's antelope squirrel is omnivorous as diets are dependent on food availability. Items consumed include green vegetation, fungi, seeds, and more commonly, insects. The breeding season extends from late winter to early spring. Young are born between March and April and are first seen above ground when they are about 30 days old. Present populations can be found at elevations 165 feet on the San Joaquin Valley floor to approximately 3,609 feet in the Temblor Mountains. Loss of habitat due to agriculture, urbanization, petroleum extraction and the use of rodenticides for ground squirrel control are the primary threats to the survival of the Nelson's antelope squirrel.

Prairie Falcon (*Falco mexicanus*)
USFWS Birds of Conservation Concern; State Watchlist

Prairie falcon is an uncommon permanent resident ranging from southeastern deserts northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada. This raptor is on the CDFW watch list (CDFW 2021b). Prairie falcon has a high potential to occur within the BSA, and it was observed during surveys.

Prairie falcon distribution extends across annual grasslands to alpine meadows, but is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. It eats mostly small mammals, some small birds, and reptiles. It may catch prey in the air in open areas, diving from a perch with rapid pursuit or diving from flight. This bird requires sheltered cliff ledges for cover. Prairie falcons usually nest in a scrape on a sheltered ledge of a cliff overlooking a large, open area and sometimes nest on old raven or eagle stick nest on cliff, bluff, or rock outcrop. This falcon may live for 13 to 20 years.

Prairie falcon breeds from mid-February through mid-September, with the peak breeding season in April to early August. Aerial courtship displays occur near the nest site. Typically, a scrape on a cliff or rock outcrop is used for nesting. Ledges under overhangs on rock outcrops near grasslands, farmlands, oak savannah, or other foraging habitat are also used as nest sites. The nests of common raven (*Corvus corax*) and golden eagle (*Aquila chrysaetos*) may be used as well. Much time is spent perching near the nest (eyrie). A single clutch of four or five eggs is laid and incubated by the female for 29 to 31 days while the male provides food for her. The prairie falcon forages mostly early morning and late afternoon except when feeding nestlings or when prey is scarce. In California, the average home range size has been found to extend between 14,579 and 71,166 acres. In one study, fledging success over 5 years for 135 nests averaged 3.2 young. The semi-altricial young receive care from both parents and are able to leave the nest approximately 40 days after hatching. The young begin to disperse in June and July.

Western Burrowing Owl (*Athene cunicularia hypugaea*)
California State Species of Special Concern

Western burrowing owl has been documented within 1.25 miles northeast of the BSA, along 25th Avenue (CNDDDB 2020). This species was not sighted during surveys. Due to the presence of ground squirrel burrows and proximity to previous records to the northeast, burrowing owl has a moderate potential of nesting and foraging within the BSA.

In California, burrowing owl occurs primarily at elevations below approximately 1,800 feet and is considered a year-round resident breeding locally. The species occupies a range extending from northeastern California, the Sacramento Valley, and the San Francisco Bay Area to southern California, throughout the southwestern deserts, and south to Mexico. Population declines are evident throughout the state, with the singular exception being the agricultural areas in the Imperial Valley. Migration occurs with some non-resident birds moving south to Central America during September and October and back north to the U.S. and Canada to breed in March and April.

Burrowing owl prefers expanses of level, well-drained open habitat with sparse ground cover and few shrubs. The species generally inhabits the burrows of fossorial mammals, primarily California ground squirrels. Burrowing owl can be observed in habitats ranging from natural areas of grassland and desert to disturbed areas such as pasture, ruderal vacant lots, agricultural settings and areas of intense human activity like parking lots and roadsides. The species is active during the day and night, foraging for arthropods, rodents, birds, reptiles, amphibians, and carrion. Peak foraging activity is concentrated around sunrise and sunset. In California, the breeding season generally runs from March through August, peaking between April 15 and July 15. Females lay a clutch of approximately four to six eggs in an expanded cavity lined with debris several feet deep in a burrow. Both parents care for the young. The female remains with the young while the male hunts to provision the brood for approximately 40 to 45 days after hatching.

Loggerhead Shrike (*Lanius ludovicianus*)
California State Species of Special Concern

Loggerhead shrike has a high potential to nest and forage within the BSA. It inhabits open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. Shrikes are the only passerines capable of killing vertebrate prey by biting the neck and disarticulating cervical vertebrae and are known for their habit of impaling small vertebrates on thorns or other sharp objects. Food habits studies have demonstrated that the species is primarily insectivorous. Loggerhead shrike frequents agricultural fields and pastures, where the species preys on insects.

The range of the species covers a broad area. Regardless of the geographic location, each occupied breeding territory includes nesting substrate (a tree or shrub); elevated perches for hunting, pair maintenance, and territory advertisement; and relatively short grass foraging areas (Shuford and Gardali, 2008). Loggerhead shrikes appear to occupy similar habitats in winter, although winter ecology of the species has not been thoroughly studied. Native habitats occupied by shrikes prior to European settlement of North America likely included longleaf pine-wiregrass grassland, prairie, savanna, piñon-juniper woodland, and shrub-steppe. After settlement, the species expanded its range to include agricultural habitats, particularly pastures and hayfields. In the eastern and midwestern US, agricultural grasslands now comprise most of the suitable habitat for shrikes.

Loggerhead shrikes breed in open areas dominated by grasses and/or forbs, interspersed with shrubs or trees and bare ground. They often build their nests in thorny vegetation, which may help keep predators away. In the absence of trees or shrubs, they sometimes nest in brush piles or tumbleweeds, building nests 2 to 5 feet off the ground. Many pairs stay together through winter, possibly a contributing factor

to this species' earlier breeding season when compared to other passerines. Nesting season begins in January or February in the southern part of the range and late April or May in the north. The young become independent in July or August. The female often lays two to three broods of four to seven eggs. A bulky cup nest is constructed primarily or completely by the female in dense vegetation, preferably with thorns or spikes. The female incubates the eggs for 14 to 16 days. The young are cared for by both parents, with the female brooding for several days after hatching. The young are able to leave the nest 17 to 21 days after hatching. Loggerhead shrike was observed foraging on the BSA during 2021 surveys.

American Badger (*Taxidea taxus*)

California State Species of Special Concern

American Badger can be found throughout California from below sea level to 12,000 feet with the exception of the northern coast in Del Norte and northern Humboldt counties. The species can be found in a variety of habitats with friable soil, which it requires for burrowing, but is most commonly found in open country, such as grasslands, savannas, and mountain meadows, as well as open stages of scrub and forest habitats. It tends to avoid heavily wooded areas and habitats with rocky soils. The BSA has a high potential of supporting this species, as it was observed during surveys.

American badger is more active at night. The animal may enter a state of torpor during the winter months in areas that get cold enough, remaining in a nest chamber deep within its burrow for several days or weeks in the winter. It is solitary outside of the mating season. The species is an avid burrower using long, thick front claws to break fresh ground while the back legs kick out excess dirt. American badger burrows are constructed mainly in the pursuit of prey, but burrows are also used for sleeping and rearing young. A typical American badger den extends as far as 10 feet below the surface and contains approximately 33 feet of tunnels. American badgers use multiple burrows within their home range, but may not use the same burrow more than once a month. It is carnivorous and primarily eats small fossorial mammals, such as ground squirrels (*Otospermophilus* spp., *Ammospermophilus* spp.), kangaroo rats (*Dipodomys* spp.), and chipmunks (*Tamias* spp.), but will also consume other mammals as well as birds, reptiles, bees, earthworms, and carrion. The species is known to dig faster than any other mammal and often gets its meals by out-digging its prey.

American badger measures between 20 and 34 inches from head to tail, with the tail making up 4 to 6 inches of this length, and weighs between 8.8 4 and 26.6 pounds. American badger has a flattened body and short, stocky legs with pelage on the back and flanks that ranges from grayish to reddish. The species has distinct facial markings with a whitish throat and chin and black patches on the rest of the face. A white dorsal stripe extends back over the head from the nose and sometime continues to the shoulders or even across the back to the rump. American badger is highly sexually dimorphic with males being significantly larger than females; in addition, animals from northern populations are larger than those from southern populations.

American badger breeds annually in late summer or early autumn; however, embryos are arrested early in development and implantation is delayed until December or as late as February. The species is technically pregnant for seven months but has a gestation that is only six weeks. American badger has litters of one to five offspring, born blind and helpless with a thin coat of fur, typically in March or April. Eyes open at four to six weeks with the young being nursed by their mother until they are two to three months old. American badger gives their young solid food before - and for a few weeks after they - are weaned. Young of the year may emerge from the den as early as five to six weeks in age with juveniles dispersing at five to six months. Females are able to mate when they are four months old, but males do not mate until the autumn of their second year.

California horned lark (*Eremophila alpestris actia*)
California State Watchlist

California horned lark is found from grasslands along the coast and deserts extending from near sea level to alpine dwarf-shrub habitat above tree-line and in coniferous or chaparral habitats. The BSA has a high potential of supporting this species, as it was observed foraging within the BSA during surveys. Nesting habitat is on open ground; suitable nesting habitat is present in areas that are not regularly disced (e.g. along Access Road Option 2, Figure 2). Small flocks may remain to winter on windswept, snow-free areas at high elevations in the Sierra Nevada. This lark consumes insects, snails, and spiders during breeding season and adds grasses, forbs, seeds, and other plant matter to its diet during other seasons. The nest is grass-lined and cup-shaped, constructed in a depression on open ground. Once the breeding is over, the birds often form large flocks foraging and roosting together.

5.2.4 Soils

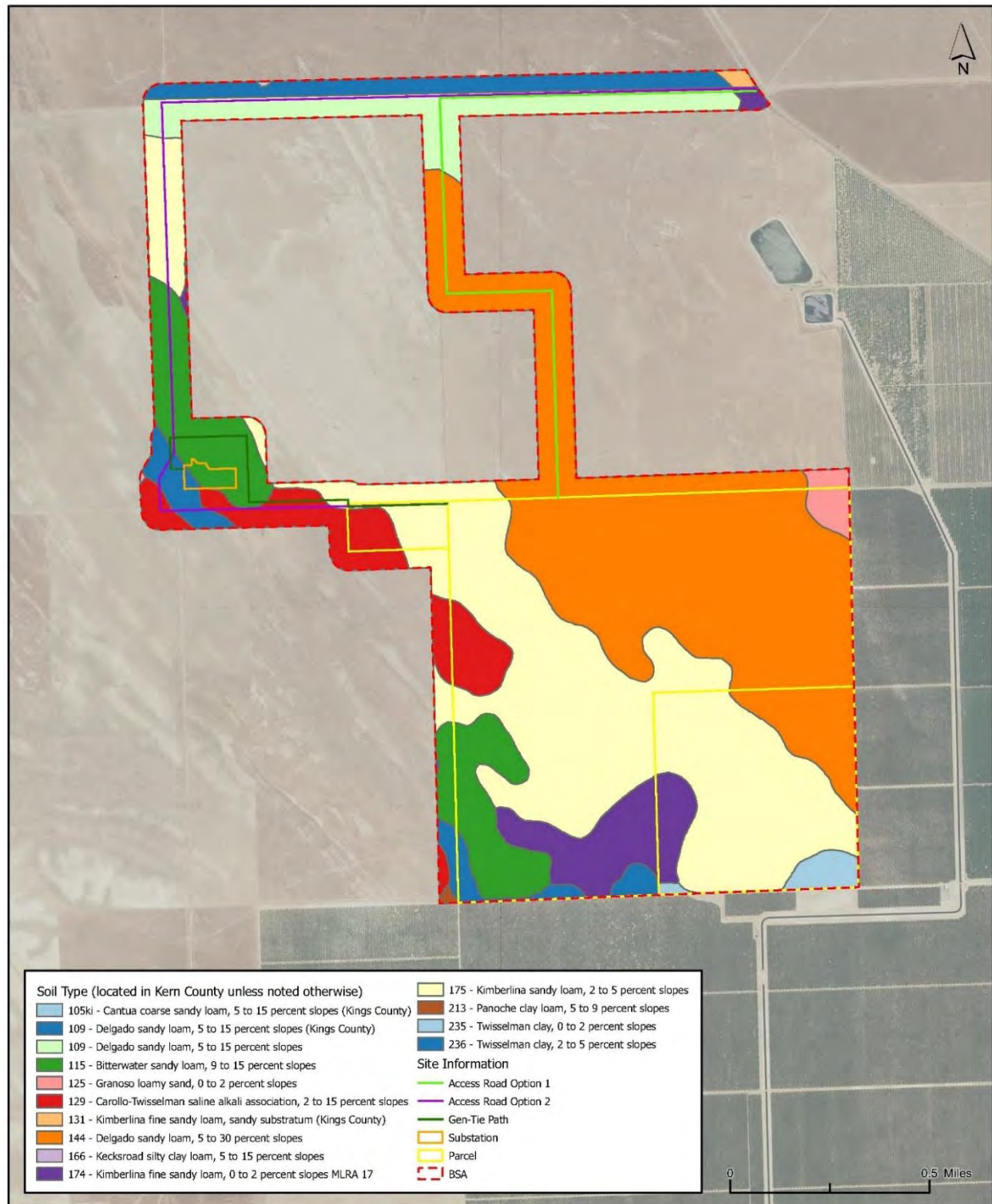
Several of the 11 special-status plant species evaluated have an affinity with alkaline soils. Soils in the BSA range from neutral to moderately alkaline. Alkalinity within the BSA generally increases from east to west. Soils transition from sandy soil to clays going east to west. Major soil types include Kimberlina sandy loam and Delgado sandy loam soil types, which dominate the BSA, as well as Bitterwater Sandy Loam and Carollo-Twisselman Saline Alkali Association. The Soils map is presented in Figure 7.

5.2.4.1 Kimberlina Sandy Loam, Dominant Soil Type

The Kimberlina series (0 to 5% slopes) consists of very deep, well drained soils on flood plains and recent alluvial fans in the San Joaquin Valley. These soils formed in mixed alluvium that was derived primarily from igneous and/or sedimentary rock sources. Typical slopes range between 0 and 9% and their elevations lie between 125 and 2,250 feet. This soil is well drained; negligible to medium runoff; moderately rapid and moderate permeability, however saline-sodic phases and soils with sandy clay loam substrates have moderately slow permeability. These soils are used for growing irrigated field, forage, and row crops. Some areas used for livestock grazing. When not irrigated, the vegetation supported by these soils includes annual grasses, forbs, and *Atriplex* spp. in the San Joaquin Valley. Depth profiles follow:

- **Ap**--0 to 9 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and nonplastic; many very fine roots; many very fine tubular and interstitial pores; moderately alkaline (pH 8.0); clear smooth boundary. (1 to 18 inches thick)
- **C1**--9 to 31 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine roots; many very fine tubular and interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.2); clear smooth boundary. (20 to 22 inches thick)
- **C2**--31 to 45 inches; pale brown (10YR 6/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular and interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.4); abrupt wavy boundary. (13 to 19 inches thick)

Figure 7: Soils Map



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 7: Soil
Azalea Solar Energy Project
Kern County, California

This Page Intentionally Left Blank

- **2C3**--45 to 71 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular and few very fine interstitial pores; strongly effervescent, carbonates segregated as few fine irregularly shaped threads; moderately alkaline (pH 8.4).

5.2.4.2 Delgado Sandy Loam, Dominant Soil Type

The Delgado series (5 to 30% slopes) are shallow, somewhat excessively drained soils on hills, foothills and uplands. These soils formed in material weathered from hard sandstones and shales. The slope ranges from 5 to 75%; their elevations lie between 450 to 2,120 feet. This soil is somewhat excessively drained; medium to very high runoff; moderately rapid permeability. This soil is used for livestock grazing during the late winter and spring. Natural vegetation is annual grasses, forbs, and species of saltbush (*Atriplex*). Depth profiles follow:

- **A**--0 to 2 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; neutral (pH 7.0); abrupt smooth boundary. (1 to 6 inches thick)
- **C**--2 to 10 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.0); abrupt wavy boundary. (5 to 14 inches thick)
- **R**--10 to 14 inches; pink (5YR 7/3) hard laminar lime coatings, 1 to 2 mm thick, underlain by pale yellow (2.5Y 8/2) relatively unweathered feldspathic calcareous sandstone that does not slake in water, has cracks at 4-to-8-inch intervals. Cracks are free of soil. No roots in cracks.

5.2.4.3 Bitterwater Sandy Loam, 9 To 15 % Slopes

The Bitterwater series consists of deep, well drained soils formed in material weathered from sandstone. Bitterwater soils are on foothills and have slopes of 9 to 75%. They occur at elevations of 600 to 2,000 feet. These soils are well-drained; medium to very rapid runoff; moderately rapid permeability. Areas supporting this soil are used for spring grazing of sheep and cattle. Oil wells are a common feature on this soil. Natural vegetation consists of red brome, fescues, filaree, allscale, and saltbush (*Atriplex* spp.). Depth profiles follow:

- **A11**--0 to 10 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; common very fine tubular and many very fine interstitial pores; 5 percent pebbles, 2 to 10 mm in diameter; strongly effervescent with disseminated lime; moderately alkaline (pH 8.0); clear smooth boundary. (8 to 12 inches thick)
- **A12**--10 to 23 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial and few very fine tubular pores; 5 percent pebbles, 2 to 10 mm in diameter; strongly effervescent with disseminated lime; moderately alkaline (pH 8.0); clear smooth boundary. (10 to 16 inches thick)
- **C1**--23 to 41 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak very coarse subangular blocky structure; slightly hard; very friable; nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 10 percent pebbles, 2 to 10 mm in diameter; violently effervescent, lime disseminated and segregated in common, fine filaments; moderately alkaline (pH 8.0); clear wavy boundary. (5-20 inches thick)
- **C2**--41 to 60 inches; very pale brown (10YR 7/4) sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic;

few very fine roots; common very fine interstitial pores; 10 percent pebbles, 2 to 10 mm in diameter; violently effervescent with lime disseminated and in common, fine filaments; moderately alkaline (pH 8.0); clear wavy boundary. (10 to 65 inches thick)

- C3r--60 to 65 inches; soft, weathered soft sandstone.

5.2.4.4 Carollo-Twisselman Saline Alkali Association

The Carollo series consists of deep, well drained soils that formed undulating to hilly uplands with slopes ranging from 5-20%. The soils formed in material weathered from fine grained fractured shales. Elevations are between 300 and 700 feet. Carollo clay loam, on a slope of 7 percent under sparse cover of shrubs and annual grasses at 390 feet elevation. These soils are well drained; rapid runoff; very slow permeability. This soil is used for cattle and sheep grazing during the late winter and spring season. Natural vegetation is all scale saltbush (*Atriplex polycarpa*), filaree (*Erodium*), and foxtail barley (*Hordeum jubatum*). Depth profiles follow:

- **Az**--0 to 2 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable, slightly sticky and plastic; many very fine roots; common very fine tubular and common very fine interstitial pores; common fine gypsum crystals; neutral (pH 6.8); EC 18 mmhos, SAR 28; abrupt smooth boundary. (2 to 4 inches thick)
- **Btyz1**--2 to 6 inches; yellowish brown (10YR 5/4) clay, brown (10YR 4/3) moist; strong medium columnar structure parting to strong coarse subangular blocky; very hard, firm, sticky and very plastic; many very fine roots; common very fine tubular and common very fine interstitial pores; few moderately thick clay films in pores and on peds; common fine gypsum crystals; mildly alkaline (pH 7.4); EC 38 mmhos; SAR 44; abrupt wavy boundary. (3 to 5 inches thick)
- **Btyz2**--6 to 11 inches; yellowish brown (10YR 5/4) clay, brown (10YR 4/3) moist; strong coarse subangular blocky structure; extremely hard, firm, sticky and very plastic; few very fine roots, few very fine tubular and common very fine interstitial pores; few moderately thick clay films in pores and on peds; many fine gypsum crystals, mildly alkaline (pH 7.4); EC 40 mmhos; SAR 46; abrupt smooth boundary. (4 to 11 inches thick)
- **Btyz3**--11 to 19 inches; brown (10YR 5/4) clay, brown (10YR 4/3) moist; weak medium subangular blocky structure; extremely hard, firm, sticky and very plastic; few very fine interstitial pores; many thick clay films on peds; common fine gypsum crystals; a 1/2 inch layer of clear, nearly pure gypsum overlies the C horizon; EC 40 mmhos; SAR 46; neutral (pH 7.3); abrupt wavy boundary. (6 to 9 inches thick)
- **Cyz**--19 to 32 inches; mixed olive gray (5Y 5/2) and very dark gray (N 3/0) clay loam, olive gray (5Y 4/2) and very dark gray (N 3/0) moist; common fine prominent yellowish brown (10YR 5/8) dry and moist mottles; massive; slightly hard, very friable, sticky and plastic; common very fine interstitial pores; common fine gypsum crystals; neutral (pH 7.0); EC 45; SAR 50; abrupt wavy boundary. (5 to 16 inches thick)
- **Cr**--32 inches; mixed light olive gray (5Y 6/2) and very dark gray (N 3/0) highly fractured shale, olive gray (5Y 4/2) and very dark gray (N 3/0) moist. Common fine prominent brownish yellow (10YR 6/8) mottles, yellowish brown (10YR 5/8) moist; hard, firm shale slakes in water.

5.2.5 NWI

National Wetlands Inventory (USFWS 2021) shows one linear aquatic feature within the BSA (Figure 8) which is listed as Riverine (R5UBFx). The code translates to an unknown perennial feature (lower/upper/tidal unknown) with an unconsolidated bottom (at least 25% small stones and 30%

Figure 8: NWI Map

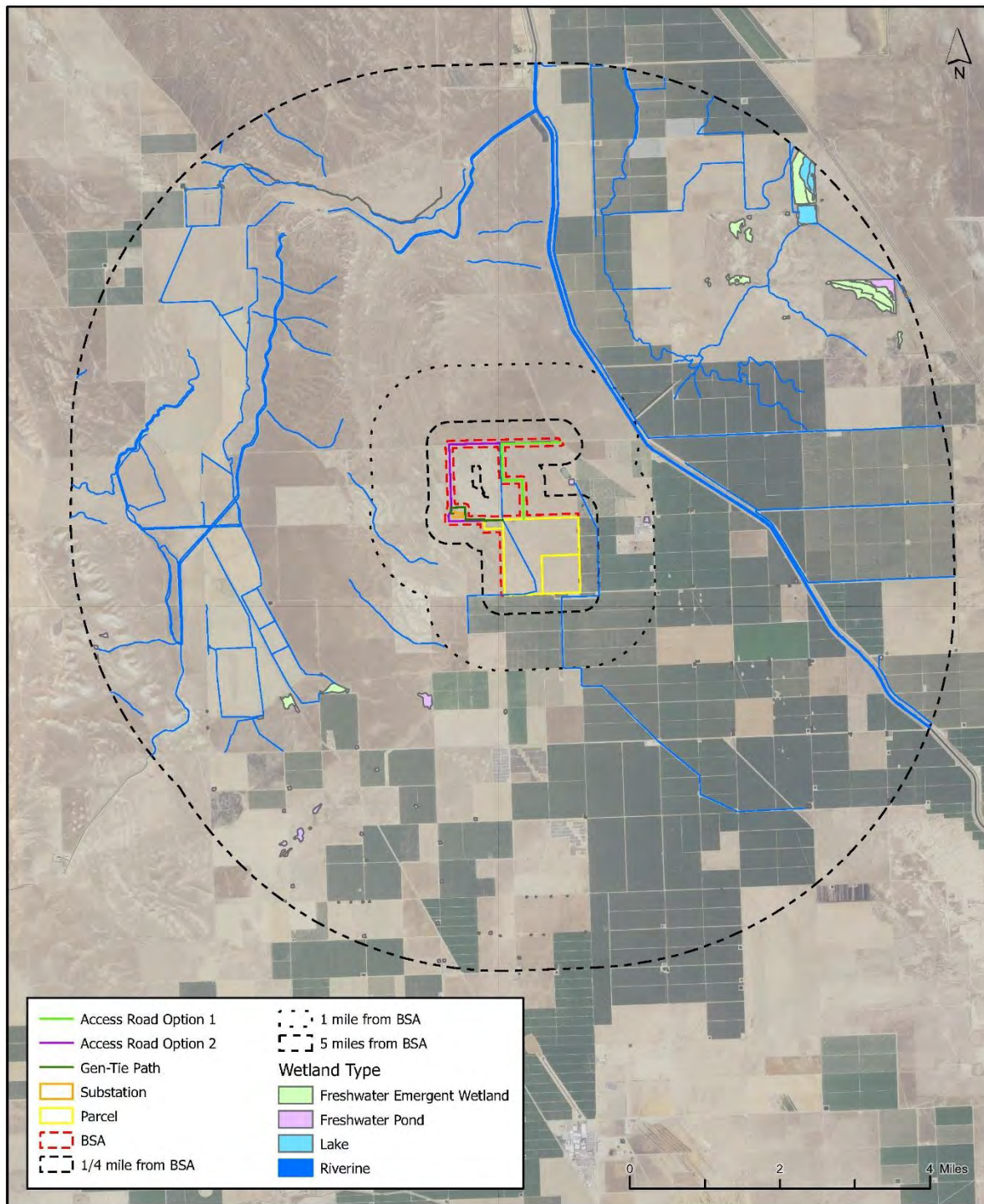


Figure 8: National Wetlands Inventory
Azalea Solar Energy Project
Kern County, California

This Page Intentionally Left Blank

vegetation cover or less), semi-permanently flooded (water table at or near surface) and excavated (created by humans). The feature follows an existing fence line from the northern access road, south along a fence line separating two properties, and then southeast towards the existing cattle yard. The feature was not observed during September 2020 and March 2021 surveys. Based on aerial photos (Google 2021), the feature has not been present within the BSA since at least 1994.

5.3 FIELD SURVEYS

5.3.1 Rare Plant Surveys

No special status plant species were observed within the BSA during the September 2020 and March 2021 surveys. Surveys were floristic in nature and all vascular species present, and in adequate condition, were identified to species or intraspecific taxon. Eleven special-status plant species have been documented within the nine-quad area surrounding the USGS 7.5' Avenal Gap quadrangle based on CNDDDB, CNPS and CCH records. Three species have no potential to occur due to a lack of suitable habitat and five species have a low potential to occur in the BSA. Three plant species have a moderate potential to occur in the BSA. A complete list of the plant species observed is provided in Attachment A.

Prior to surveys database records were searched thoroughly for plant records that would be quality reference populations for summer/fall and spring plants with potential to occur in the BSA. All eleven special-status plant species, that have been documented within the nine-quad area surrounding the USGS 7.5' Avenal Gap quadrangle, were included in this search. Priority was given to recent records, publicly accessible records, and species with most potential to occur in the BSA. Reference population fieldwork covered several sites adjacent the aqueduct north of the BSA, alkaline flats of the Cholame valley west of the BSA, near the Caririzo Plain south of the BSA, the Lost Hills southeast of the BSA and the Kern National Wildlife Refuge to the east of the BSA.

Two of three special status Summer/Fall plants were observed during reference population visits prior to surveys in September 2020. Just north of the BSA, San Joaquin bluecurls (*Trichostema ovatum*) was observed in flower (CCH specimen number UCD105212, CCH 2020). Twenty miles west of the BSA, Lost Hills crownscale (*Atriplex coronata* var. *vallicola*) was observed producing seeds. Plants were desiccating, but identifiable (CNDDDB, Occurrence #180). A population of crownscale (*Atriplex coronata* var. *coronata*) was not located prior to botanical surveys but was assumed to be in a similar phenological state as Lost Hills crownscale.

Reference populations were also visited prior to the March 2021 botanical surveys, but no special status species were observed. As shown in Attachment B, precipitation was far below normal prior to the March 2021 surveys (23% of normal). Overall plant phenology reflected the lack of water; plants were generally shorter than usual and blooming at the early side of their blooming timeframe. Given the below average precipitation in 2021, two Spring plants with moderate potential to occur (San Joaquin woollythreads and California jewelflower), may not have been identifiable even if present (see discussions in Section 5.2.2 above). Several records were not located due to access issues, development, or other vegetation removal activities.

Potential Access Roads (Option 1 and 2; Figure 2) were added to the BSA prior to the March 2021 surveys. Access Road Option 2 occurs along the existing asphalt road leading to the substation. Access Road 1 crosses the California Annual Grassland (CAG) north of the Project Footprint (Figure 2). The September 2020 and March 2021 botanical surveys were conducted within the evident and identifiable period for all plants with the potential to occur (Table 4.). The additional BSA relative to Access Road Option 2 occurs primarily on existing asphalt roads. Although this entire route was not surveyed for Summer/Fall blooming plants, this route would likely avoid impacts to Summer/ Fall blooming special

This Page Intentionally Left Blank

Figure 9: Plant Communities Map

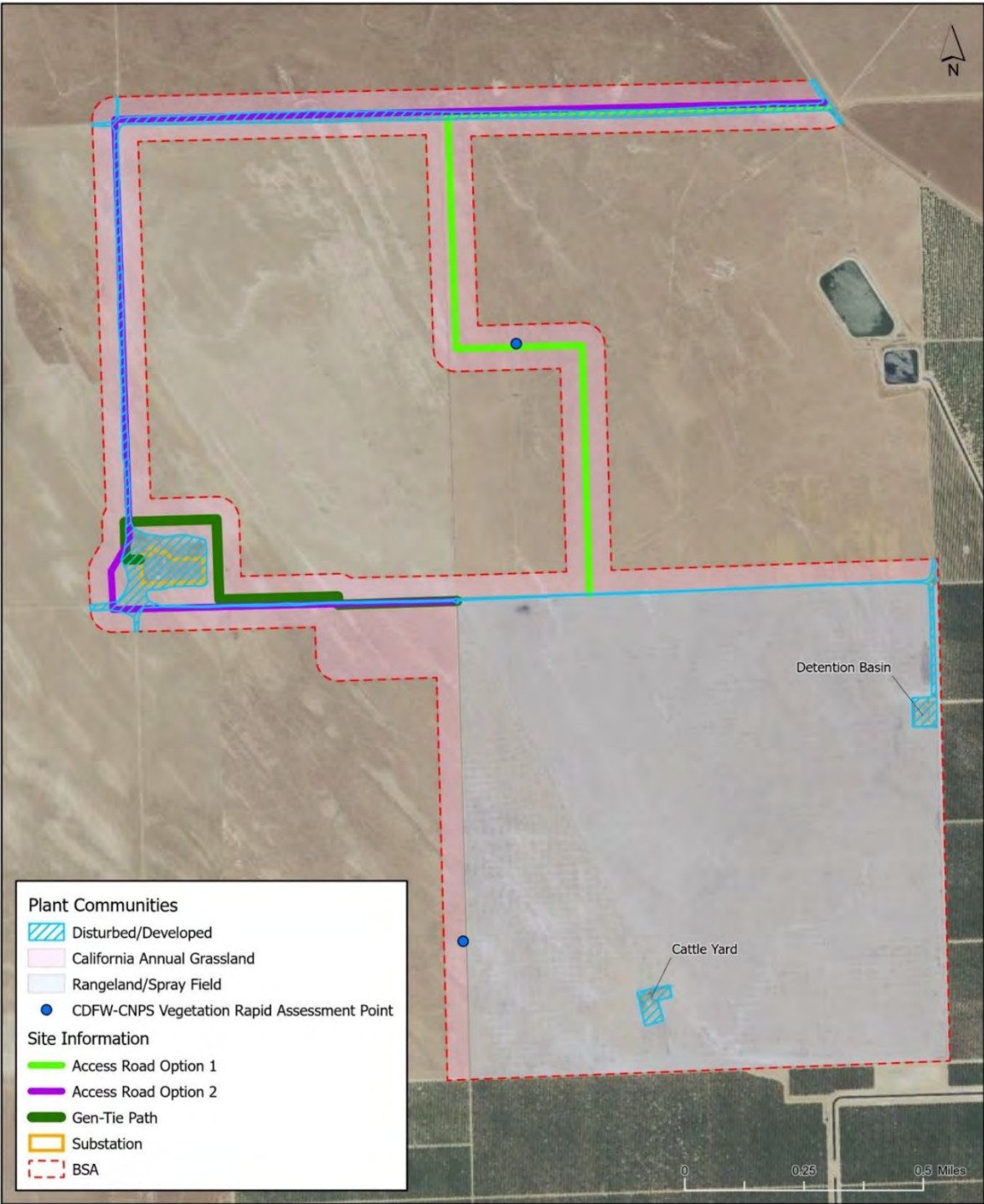


Figure 9: Plant Communities
Azalea Solar Energy Project
Kern County, California

status plants, that may occur within it. Access Road Option 1 crosses the CAG and is potential habitat for both Summer, Fall, and Spring-blooming special-status plants with potential to occur in the BSA. See discussion in Section 6.1.1.

5.3.2 Habitat Characterization and Plant Communities

Vegetation ranged from grass dominant with moderate coverage in the east, to sparse and ruderal in the west (Figure 9). All plant communities within the BSA were dominated by annual non-native grasses and non-native forbs. No sensitive plant communities were identified during the vegetation assessment. Plant communities within the BSA are heavily influenced by the amount of disturbance from anthropogenic sources. A large majority of the BSA is subject to cattle grazing. APNs 043-210-17 and -018 are also used as a spray field. The Substation within the BSA has several culverts diverting stormwater under access roads surrounding the substation, which influence vegetation in discharge areas.

5.3.2.1 California Annual Grassland

The CAG community occurs on moderately disturbed grazing lands within the BSA. The CDFW rapid assessment did not recognize an existing alliance or semi-natural stand. Based on species cover, the designation of *Hordeum murinum* ssp. *glaucum* (smooth barley) Semi-Natural Stand best describes the California annual grassland community. *Hordeum murinum* ssp. *glaucum* had greater than 30% relative cover throughout the Stand. Other associated species that were co-dominant include Russian thistle or tumbleweed (*Salsola tragus*) and redstem filaree (*Erodium cicutarium*). These three dominant species have a Cal-IPC negative ecological impact of Moderate, Limited and Limited, respectively.

Despite the dominance of the three non-native, invasive species, native forbs persist interspersed throughout the CAG community. In the northeastern area of the annual grassland, soils are sandy and plant growth appeared stunted for most plants, but smooth barley was a clear dominant. Based on both aerial photos and field surveys, much of the northeastern area was disced occasionally or not at all. Native forbs, common goldfields (*Lasthenia gracilis*), common fiddleneck (*Amsinckia intermedia*), shining pepperweed (*Lepidium nitidum*), valley popcorn flower (*Plagiobothrys canescens*), and blue dicks (*Deuterostoma capitatus*) were all observed in the northeastern area, especially along Access Road Option 1 during the field surveys (Figure 9).

The southern and western areas of the CAG contain more clay and moderately alkaline soils. The total vegetation cover was observed to decrease toward the west, especially around the substation. The southern area was not disced prior to the September 2020 or March 2021 surveys. Cattle grazing appeared to be the primary source of disturbance to plant communities. Redstem filaree and smooth barley were co-dominant in the southern area. Interspersed native forbs included California plantain (*Plantago erecta*), buckwheat (*Eriogonum* spp.), microceris (*Microseris* spp.) and shining pepperweed.

The western area surrounds the Substation, the Property immediately north of the Substation, and existing dirt and asphalt roads. This area has an increase in clay and alkaline soils, and disturbance from discing and substation activities. Tumbleweed was the dominant plant species, but redstem filaree and smooth barley occurred. A native forb, vinegarweed (*Trichostema lanceolatum*), was abundant on alkaline soils southeast of the Substation. In stormwater drainages surrounding the Substation and culverts along the access road, cheeseweed (*Malva parviflora*) was often the dominant plant.

5.3.2.2 Rangeland/ Spray Field

The Rangeland/Spray Field (RSP) community occurs on APNs 043-210-17 and -018 and encompasses most of the BSA. A cattle yard and fence bisect this community from northwest to southeast. A detention basin occurs along the eastern perimeter. Aluminum pipes are connected in a grid pattern and

sprinklers are used to spray water from the detention basin across the rangeland. Based on aerial photos, the rangeland has been routinely disced and sprayed since at least 2010 (Google 2021).

Increased water input and disturbance has altered the plant community. Native forbs are sparse compared to the adjacent CAG. Smooth barley is dominant, but several other non-native grasses are abundant including ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), and Bermuda grass (*Cynodon dactylon*). Total vegetation cover is increased in the RSP plant community and plant growth is noticeably greater in sprinkler areas. Native forbs are uncommon in this area, but include few that are abundant relative to the CAG: jimsonweed (*Datura wrightii*), white nightshade (*Solanum americanum*), and procumbent pigweed (*Amaranthus blitoides*). Prior to the conversion to a spray field and increased disking, the rangeland likely resembled plant communities observed in the CAG.

5.3.2.3 Developed/Disturbed

This community included asphalt and dirt access roads, the Substation and laydown yard, a detention basin, and a cattle yard. Vegetation was sparse and ruderal plant species are dominant. Tumbleweed, ripgut brome, red brome, and puncture vine (*Tribulus terrestris*) were common along access roads. London rocket (*Sisymbrium irio*) and lamb's quarters (*Chenopodium album*) were common around the detention basin.

5.3.3 Common Wildlife Species

The BSA supports foraging and potential nesting habitat for multiple commonly occurring wildlife species. During the daytime field surveys, birds observed included mourning dove (*Zenaida macroura*), turkey vulture (*Cathartes aura*), common raven (*Corvus corax*), American kestrel (*Falco sparverius*), western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris actia*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), and killdeer (*Charadrius vociferus*). One common raven was perched close to an inactive nest structure north of the BSA, along the proposed Access Area Option 2 (Figure 2).

Wildlife surveys also revealed that the BSA supports common mammals including coyote (*Canis latrans*; trail camera detections), California ground squirrel, striped skunk (*Mephitis mephitis*) and black-tailed jackrabbit. Multiple canid tracks corresponding to coyote prints were sighted along the dirt road adjacent to the proposed Gen-tie line alignment. Several juvenile side-blotched lizards (*Uta stansburiana*) were sighted within the BSA (Gen-tie line alignment).

5.3.4 Sensitive Wildlife Species

Sensitive wildlife that have previously been observed (per CNDDDB records) within a nine-quadrant area centered on the Property are described in Section 0 and summarized in Table 5; survey results are illustrated in Figure 6. Representative photographs of the site and sensitive wildlife documented are provided in **Attachment C**.

Biological surveys conducted in the BSA detected the presence of several sensitive wildlife species: American badger, prairie falcon, loggerhead shrike, and California horned lark, which have a high potential to occur in the area. Other sensitive wildlife not detected during the surveys but with a moderate to high potential to occur within the BSA include giant kangaroo rat, Nelson's antelope squirrel (which can co-occur with kangaroo rat), SJKF, BNLL, and burrowing owl. The presence of abundant ground squirrel burrows indicates that the BSA may include nesting habitat appropriate for burrowing owls.

An unidentified kangaroo rat was detected with nighttime remote camera positioned at the southern part of the BSA close to the cattle containment area. The range, records of occurrence, the size of the animal and shape of its head suggested giant kangaroo rat. No confirmation could be obtained. The proximity to known giant kangaroo rat occurrences listed in CNDDDB records indicates that there is a high potential for giant kangaroo rats in the area.

According to CNDDDB records, Blunt-nosed leopard lizard has been previously documented in the grassland habitat within the BSA (in the proposed Gen-tie line alignment), and the species is assumed to be present. However, the area of the BSA where BNLL has been documented is periodically disced, which could reduce the likelihood of occurrence and of occupied burrow habitat. The Azalea Property was disced prior to the March 2021 surveys, which decreased the quality of burrow habitat.

SJKF and badger have a high potential to occur within the BSA. However, active dens were not found during surveys. The BSA supports foraging habitats for all species detected. The more commonly occurring species including ground squirrels and jackrabbits may be preyed upon by listed wildlife including prairie falcon and American badger, and SJKF, which would support the use of the BSA as a foraging area.

American badger was detected on a trail camera placed along the dirt road adjacent to the proposed Gen-tie line alignment on the night of September 15, 2020 (**Attachment C**). Although large burrows were found north of the dirt road, they appeared to be unoccupied at the time of documentation, lacking in signage of recent use or covered with cobwebs, which may indicate the badger was utilizing the BSA for foraging purposes at the time of the surveys. No sign of recent use by badgers was noted, though future use could occur. The badger could utilize existing ground squirrel burrow habitat or create new burrow habitat within or near the BSA.

Signage on the access road leading to the Substation indicates the presence of SJKF in the vicinity of the BSA. Prints showing the foot pads of a small canid (approximately 1 inch in length and width) were identified within the BSA and west of the Property, along the dirt road located adjacent to the proposed Gen-tie line alignment, and a single set of small prints was sighted one mile northwest of the BSA (**Attachment C**). Although no SJKF were sighted or documented in remote cameras during the surveys, the small tracks detected north of Access Route Option 2 (Figure 2) could indicate the presence of SJKF, as CNDDDB records and signage at the substation gate indicate that SJKF have occurred in areas north of the BSA. No signs of active burrow use by SJKF were observed at the time of the surveys. The periodic disking efforts within the Azalea Property are likely to reduce the quality of SJKF habitat in the area. SJKF could utilize existing ground squirrel burrow habitat or create new burrow habitat within or near the BSA in the future and could utilize the area for foraging purposes.

During the September 2020 surveys, a pair of prairie falcons were sighted roosting on one of the poles located immediately east of the PG&E Arco substation along Access Route Option 2, flying together in close proximity to the western extent of the proposed Gen-tie line alignment, and also roosting on poles located along the northern part of Access Route Option 2. Nesting habitat for prairie falcon is not present within the BSA; the birds appear to be using the areas for roosting and foraging purposes. A small flock of horned larks were sighted within the 640-acre Property, foraging within the irrigated rangeland and spray field. Disking activity within the Azalea Property, conducted prior to the March 2021 surveys, decreased the quality of nesting habitat for birds. Foraging birds were observed within the Property across the remainder of the BSA. Loggerhead shrikes were observed at the southernmost part of the BSA close to the cattle yard and containment area, and along the boundary, which is dominated by *Salsola tragus*. Shrikes are known to nest in such habitats featuring thorny vegetation, or

tumbleweeds, building nests 2-5 feet off the ground. The thorny vegetation may assist in keeping predators away.

5.3.5 Wildlife Corridors

Sensitive wildlife was observed and documented within the BSA. Sensitive species that were observed may utilize the BSA as a wildlife corridor between lands further to the north and west. As habitat within the BSA is marginal due to land use conditions, it likely serves to facilitate movement and foraging activity for animals. Local wildlife species with a high potential to occur could move through the BSA while foraging. Migratory wildlife could use the BSA as a stopover during the migration seasons. Movement of sensitive wildlife to and from other nearby areas is likely to be impacted by discing activities (i.e. during and after discing has been completed).

5.3.6 Aquatic Resources

Topography, geographic location, limited precipitation, and soils all contribute to an overall lack of significant aquatic resources within the BSA (Table 6).

Table 6: Summary of Aquatic Resources

Summary of Aquatic Resources			
Feature Name	Type	Jurisdiction	Acres (ac)/Linear Feet (lf)
Drainage A	Ephemeral/Artificial	None	0.03 ac/865 lf
Drainage B	Ephemeral/Artificial	None	0.03 ac/639 lf
Drainage C	Ephemeral	SWRCB; Waters of the State, CDFW: Non-riparian Stream.	0.16 ac/592 lf
Drainage D	Ephemeral	SWRCB; Waters of the State, CDFW; Non-riparian Stream.	0.26 ac/ 27 lf
Detention Basin	Artificial	None	1.12 ac

The gently rolling hills lack distinct channelization or sufficient depressions. The soil types are variable; they are well-drained. The table below summarizes aquatic resources delineated within the BSA, which are illustrated in which are illustrated in Figure 10 and Figure 11..

5.3.6.1 Drainage A and Drainage B

Drainages A and B (Figure 10 and Figure 11) are ephemeral and were created incidental to the construction of the Substation and surrounding dirt access roads. Drainage A originates from a pair of 24-inch culverts that pass storm water from within the Substation. Storm water from Drainage A flows southeast and appears to terminate as sheet flow across the CAG community outside the BSA. There are no distinguishable bed and banks. The substrate is entirely on clay and alkaline soils. Drainage A is a shallow (2 to 4 inch) erosion rill and is sparsely vegetated with tumbleweed and cheese weed. Most of Drainage A is subject to heavy disking, grazing, and vehicle traffic and does not support aquatic flora or fauna.

Drainage B is similar to Drainage A in terms of substrate, vegetation, and disturbance, but is up to 8 inches deep in some locations. Drainage B originates from a series of small culvert north of the Arco substation which diverts water to the west and south. Natural sheet flow from the west also contributes to Drainage B. Upland grasses and forbs were present in the deeper parts of Drainage B during the September 2020 and March 2021 surveys. Ephemeral flows from Drainage B partially disperse into manmade depressions adjacent to dirt access roads. Wetland data points were taken in the adjacent

depressions and are discussed below. The remaining flows disperse as sheet flow prior to crossing Drainage A.

Ephemeral in nature, flows in Drainages A and B would not be considered Waters of the US under current regulations (33 CFR 328.3(a)(1-8)) (see Section 3.1.2 of this report). These drainages are not tributaries to any waters list in 33 CFR 328.3(a)(1-4) since they terminate as sheet flow across uplands. Thus, the Drainages are not subject to USACE (CWA Section 404) or the SWRCB (CWA Section 401) jurisdiction. Without a clear OHWM, Drainage A and B likely do not meet Waters of the State criteria nor the State Wetland Definition.

Neither Drainage A nor B support aquatic flora or fauna, neither have riparian canopies, both are subject to ongoing disking from the substation, and both lack well defined bed and banks. Dirt access roads bisect both drainages. Neither Drainage A nor B would likely represent regulated CDFW stream systems.

5.3.6.2 Drainage C

Drainage C flows are ephemeral. The OHWM was determined by changes in the character of soil. Drainage C crosses under an existing asphalt road north of the substation. Flow is conveyed from west to east along natural contour lines through a set of four 48-inch culverts. Within the BSA, Drainage C is subject to routine disking and cattle grazing. Drainage C contains no riparian canopy and does not support aquatic flora or fauna. During the March 2021 surveys, vegetation at the culvert inlets and outlets consisted of cheese weed and several annual grasses. Flows appear to terminate as sheet flow east of and outside the BSA.

Drainage C would not be considered Waters of the US under current regulations (33 CFR 328.3(a)(1-8)). Drainage C is not a tributary to any waters list in 33 CFR 328.3(a)(1-4) since it terminates as sheet flow across uplands. Thus, impacts to Drainage C would not be subject to §§404 and 401 of the CWA.

The SWRCB also regulates Waters of the State, which are defined as any feature that would be considered a Waters of the US under current or past definitions (see Section 3.2.2 of this report for details). Essentially, all surface waters with a distinguishable bed and banks (or OHWM) may be considered Waters of the State (with exceptions). Thus, impacts to Drainage C may be regulated by the SWRCB as Waters of the State.

Although Drainage C does not support aquatic flora and fauna, it does pass a significant amount of water based on the number and size of culverts. Drainage C follows natural contours and provides ephemeral flow to a large area of semi-natural CAG, influencing vegetation. Thus, Drainage C could be important to local wildlife, including small mammals as well as horned larks that were observed in flocks within the BSA. Impacts may be subject to CDFW jurisdiction as a non-riparian stream.

5.3.6.3 Drainage D

Drainage D passes ephemeral flows under an existing asphalt road through a set of four 48-inch culverts. The direction of flow is from south to north and is partially impeded just upstream of the culvert inlets by cattle fencing. Powerlines cross over the culvert inlets. A large accumulation of *Salsola tragus* tumbleweeds were blocking the inlet and the upstream end has routinely been disced. North of the culvert outlet, fire-line disking is routine at the Property boundary. Drainage D appears to terminate as sheet flow across uplands north and outside of the BSA.

The OHWM of Drainage D was determined by a change in the character of soil and a change in vegetation cover. Flows in Drainage D originate from an accumulation of sheet flows from the south and west. At the upstream end, water accumulates in a wide shallow area prior to passing through the fence

Figure 10: Aquatic Resources Map A

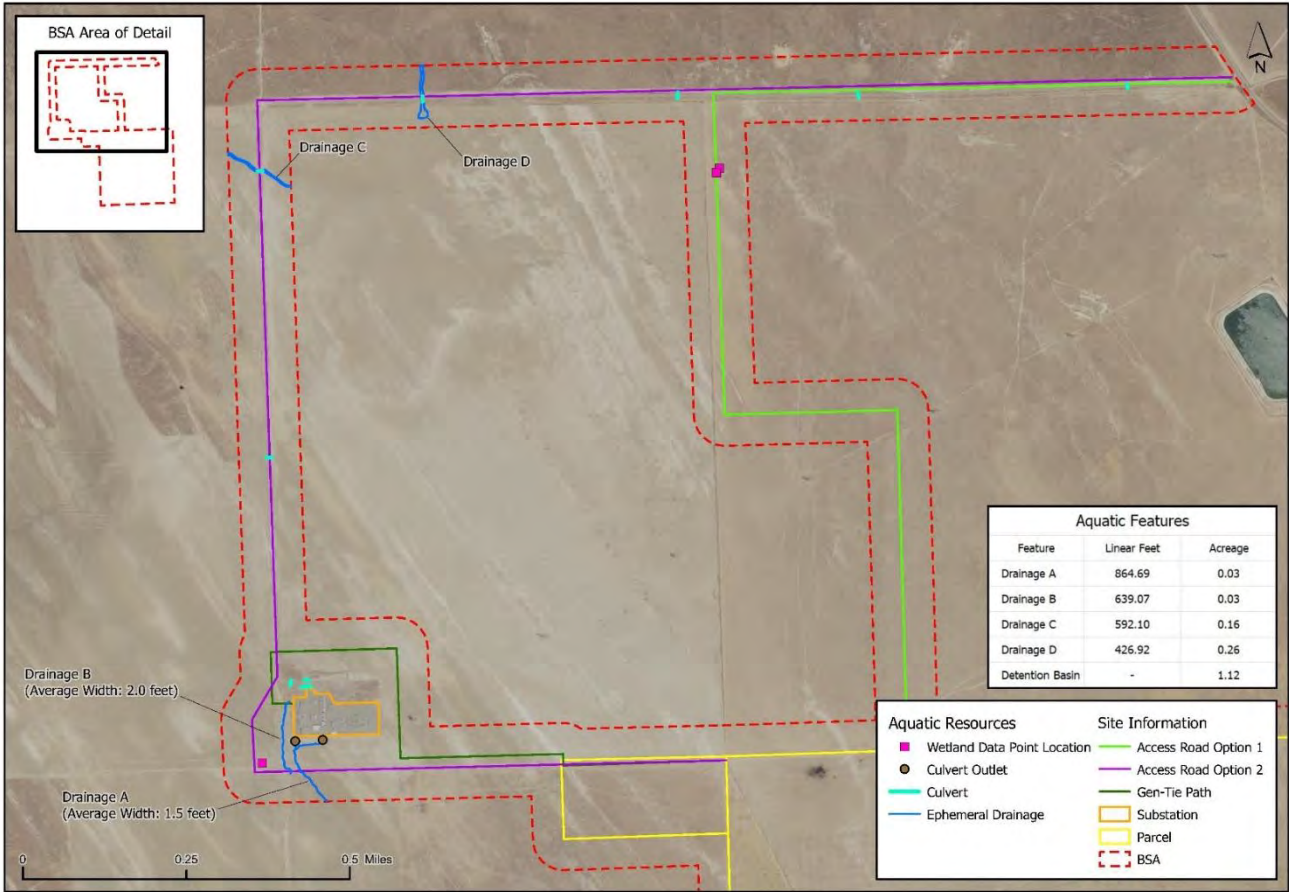


Figure 10: Aquatic Resources
Azalea Solar Energy Project
ern County, California

This Page Intentionally Left Blank

Figure 11: Aquatic Resources Map B

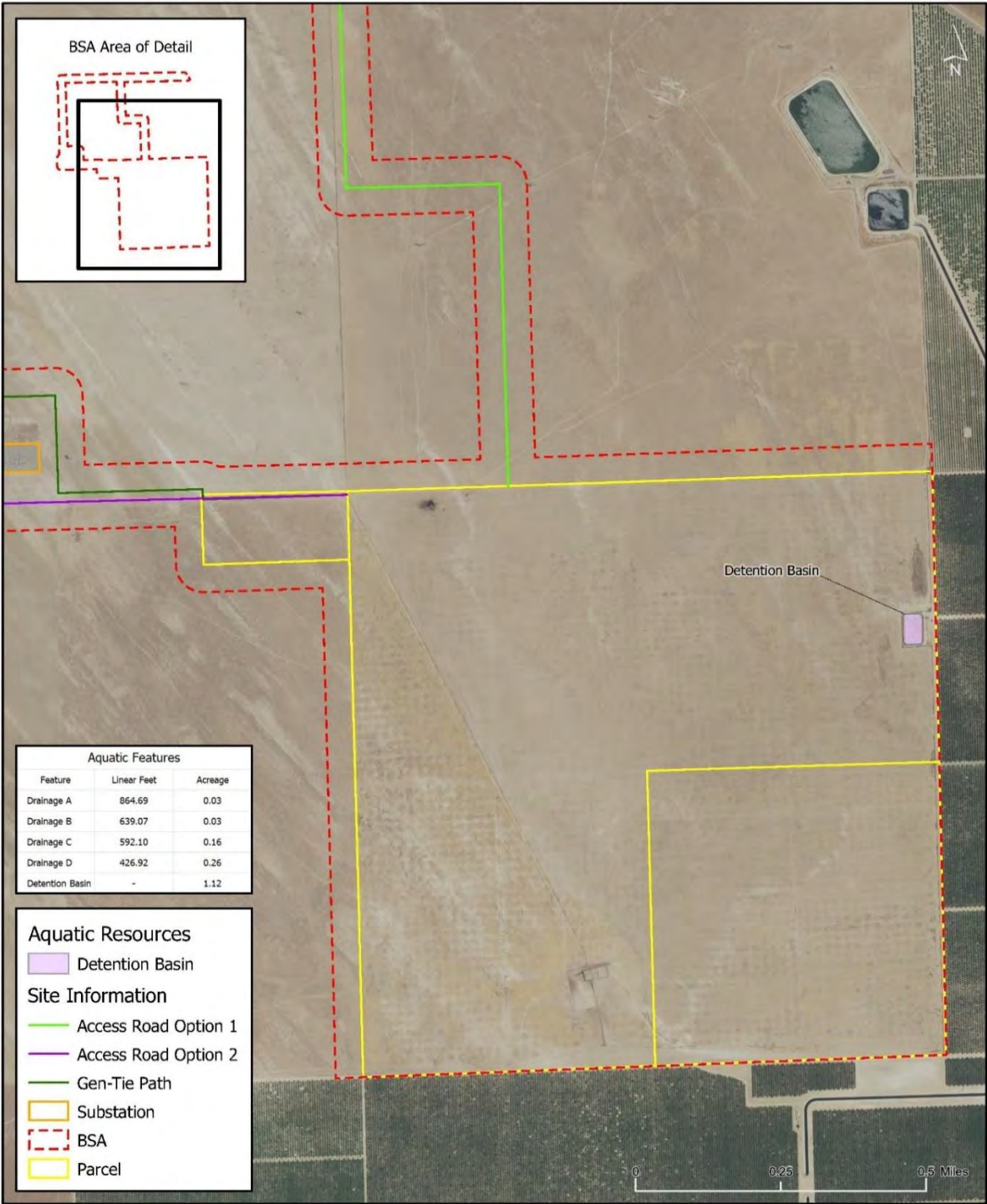


Figure 11: Aquatic Resources
Azalea Solar Energy Project
Kern County, California

line and culverts of Drainage D. The upstream end may have been used as a cattle watering area in the past.

Drainage D would not be considered Waters of the US under current regulations (33 CFR 328.3(a)(1-8). It is not a tributary to any waters list in 33 CFR 328.3(a)(1-4) since it terminates as sheet flow across uplands. Impacts to Drainage D would not be subject to §§404 and 401 of the CWA.

Drainage D does not support aquatic flora and fauna. No riparian canopy occurs within the BSA or surrounding areas of Drainage D. Regardless, Drainage D may be regulated by the SWRCB and CDFW as Waters of the State and as a non-riparian stream, respectively.

Detention Basin

The detention basin is an artificial structure created in uplands. Based on aerial photos, the detention basin was created sometime prior to July 2003 (Google 2021). A culvert conveys water from the orchard to the east. Water is pumped into the pipe grid and sprinklers in the Rangeland Spray Field area of the BSA. The detention basin is not a Waters of the US under current regulations. would not be considered Waters of the US under current regulations (33 CFR 328.3(a)(1-8). Similarly, the detention basin would not meet any of the criteria for artificial wetlands to be waters of the state (SWRCB 2019).

5.3.6.4 Wetland Data Points

No wetlands were present to be delineated during the September 2020 or March 2021 surveys. The USACE Arid West Region form (Version 2.0) was used at depressions adjacent to Drainage B and at a small terrace along Access Road Option 1. None of the data points met USACE wetland criteria using the three parameter test (Section 3.1.2 of this report). The data points were cross referenced with the SWRCB wetland definition (see Section 3.2.2 of this report) and failed to meet the three (3) criteria set forth (SWRCB 2019). Thus, no wetlands considered Waters of the State were observed during the surveys.

6 DISCUSSION

No special status plant species were observed within the BSA during the September 2020 and March 2021 surveys (**Attachment A**). Eleven special status plant species were identified as being recorded in the nine-quad area surrounding the BSA (Table 4.). Three are Summer/Fall blooming plants with low to moderate potential to occur. September 2021 surveys were conducted during the evident and identifiable period for all three plants. Precipitation prior to September 2020 the nearby Sanberg, California NOAA weather station was approximately 123% of normal and did not affect the surveys (see Attachment B). Additional areas added after these surveys lack Summer/ Fall survey coverage. Prior to construction focused surveys should be conducted for crownscale, Lost Hills crownscale and San Joaquin bluecurls. The survey area should focus on all of Access Road Option 1 (if chosen) or Access Road Option 2 north of the existing substation (if chosen).

The remaining 8 special status plants are Spring blooming species. March 2021 surveys were conducted during the evident and identifiable period for all Spring blooming plants except San Joaquin woollythreads and California jewelflower. Prior to the March 2021 surveys the nearby Sanberg, California NOAA weather station (**Attachment B**) shows a very below-average rain year (23% of normal). San Joaquin woollythreads and California jewelflower may occur within the BSA during a year of above normal rainfall. Prior to construction focused surveys should be conducted for San Joaquin woollythreads and California jewelflower. Precipitation data prior to surveys should be monitored to confirm an above average rain year has occurred. The survey area should focus on all of Access Road

Option 1. Of the remaining six Spring blooming plants listed in Table 4, three were determined to have no potential to occur and three with low potential to occur. None were observed during Spring surveys and thus, no additional surveys are needed for these species.

Sensitive wildlife species documented within the BSA were American badger, prairie falcon, loggerhead shrike, and California horned lark; previous data and field observations indicate that giant kangaroo rat, BNLL, and SJKF are also likely to occur within the BSA. Loggerhead shrike may nest in Russian thistle habitat along the southern BSA boundary where it was sighted. Prairie falcons are not expected to nest within the BSA as no suitable habitat is present. Horned lark could nest in open grassland habitats.

Blunt-nosed leopard lizard has been documented along the Gen-Tie line within the BSA and is assumed to be present. In addition, giant kangaroo rat may be present at the southern part of the BSA close to the cattle containment area (**Attachment C**). Trapping surveys would be required to confirm the presence of giant kangaroo rat.

While American badger was sighted, and SJKF has been previously sighted (CNDDDB 2021b), no appropriate denning habitat was detected within the BSA during the surveys. SJKF were not sighted during the surveys but have been previously sighted within the area immediately north of the BSA. Tracks of a small canid, which were observed along the northern boundary of the BSA, were a sign of potential SJKF presence. SJKF and American badger are likely to utilize the BSA for foraging purposes, could possibly utilize existing burrow habitat or create burrows, and may also utilize the BSA as a wildlife corridor between lands further to the north and west. American badger and SJKF may create temporary dens for cover, shelter or breeding purposes within the available habitat.

6.1 DIRECT AND INDIRECT IMPACTS OF THE PROPOSED ACTION

6.1.1 Plant Communities

Surveys of the BSA identified three plant communities present: CAG, RSP, and disturbed/developed. All three plant communities were dominated by non-native plant species. The CAG community occurs on moderately disturbed grazing lands within the BSA. The CDFW rapid assessment did not recognize an existing alliance or semi-natural stand. Based on species cover, the designation of *Hordeum murinum* ssp. *glaucom* Semi-Natural Stand would best describe the CAG community.

No sensitive plant communities were identified within the BSA. The construction and operations of the Project would not result in direct or indirect impacts to sensitive plant communities within the Project area. Most of the permanent impacts would occur in the RSP community (Table 7), which is strongly dominated by non-native grasses and has been impacted by routine grazing, discing, and the spray field since at least 2010. Impact acreages by Project component is shown in

Table 8. Permanent impacts to these plant communities may not require mitigation. Impacts to plant communities would not be considered significant under CEQA since no sensitive communities were identified.

Table 7: Impact Acreages by Plant Community

PLANT COMMUNITY	TOTAL ACREAGE
Disturbed/Developed	10.
California Annual Grassland (CAG)	11.1
Rangeland/Spray Field (RSP)	310.16

Table 8: Impact Acreages to Plant Communities by Project Component.

PROJECT COMPONENT	PLANT COMMUNITY	ACREAGE OF IMPACT
Fencing	Rangeland/Spray Field	6.31
	Disturbed/Developed	0.11
	TOTAL	6.42
Solar Facility	Rangeland/Spray Field	298.27
Access Road 1	Disturbed/Developed	1.95
	California Annual Grassland	3.07
	Rangeland/Spray Field	0.00
	TOTAL	5.02
Access Road 2	Disturbed/Developed	7.60
	California Annual Grassland	0.29
	TOTAL	7.89
Battery Storage	Rangeland/Spray Field	5.01
Project Substation	Rangeland/Spray Field	0.55
Gen-Tie	Disturbed/Developed	1.33
	California Annual Grassland	7.66
	Rangeland/Spray Field	0.02
	TOTAL	9.01

6.1.2 General Mitigation Measures

MM Bio-1: Exclusionary Fencing

Exclusionary fencing, staking or other marking shall be installed prior to grading activities and remain in place for the duration of construction to ensure limiting disturbance to only that which is necessary.

MM Bio-2: Implementation of Best Management Practices

The plans and specifications for the Proposed Action shall require the construction contractor to reduce transport of fugitive dust particles related to construction activities through the use of soil stabilization, watering, or implementation of comparable measures. Construction materials and stockpiled soils shall be covered or treated to the extent feasible to ensure they 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 (BMPs) also discussed in MM Bio-3. Erosion management areas shall be inspected and maintained regularly.

A spill management plan shall be developed and implemented as necessary. To minimize potential impacts to existing plant communities from accidental fuel spills, the plans and specifications for the Project shall require the construction company 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. Drip pans shall be used under the fuel pump and

valve mechanisms of any bulk fueling vehicles parked at the construction site; spill kits shall be required on all construction-related vehicles and heavy machinery, and spills shall be immediately addressed per the spill management plan. Soil cleanup and soil removal shall be initiated as needed.

The Proposed Action design shall limit the size of temporary construction work areas and minimize the impacts to plant communities to the greatest extent feasible. Limits of disturbance shall be clearly shown on construction drawings and maps. Exclusionary fencing, staking or other marking shall be installed prior to grading activities and remain in place for the duration of construction to ensure limiting disturbance to only that which is necessary. MM Bio-2 shall also be implemented prior to and during decommissioning activities.

MM Bio-3: Prevention of Invasive Weed Introduction

A Weed Control Plan shall be prepared to address the control of invasive weeds. The plan shall include a risk assessment of the invasive weed species currently known within the Proposed Action 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-3 shall also be implemented prior to and during decommissioning activities.

MM Bio-4: Implementation of a SWPPP

To ensure that stormwater quality is protected during the construction and decommissioning phases, the applicant shall complete and implement a Stormwater Pollution Prevention Plan (SWPPP) for the Project Actions that shall be in effect during all construction activities for the Proposed Action, and for decommissioning activities. 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 the following:

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. 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. Monofilament covered wattles shall not be used as they pose a danger to wildlife.

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 initiated as soon as possible after completion of grading and prior to the onset of rainy season (October 15 to April 15).

6.1.3 Mitigation Measures for Impacts to Wildlife

Construction and operation of the Proposed Action would result in direct and indirect impacts to wildlife and wildlife habitats. Impacts to wildlife and wildlife habitats would vary depending on the type and duration of disturbance, and would be substantially reduced by implementation of recommended and required mitigation measures provided in the following sections.

6.1.3.1 Construction-related Impacts

Direct impacts to wildlife during construction or during decommissioning could occur from interactions with on-site traffic and equipment as vehicles and machinery move through the Project Footprint as well as ground-disturbance and trenching activities that cut through underground burrow systems. Vehicle collisions, entrapment in trenches, crushing by equipment or stockpiled materials, and burial in collapsed burrows are examples of potential direct impacts. Direct mortality and injury can be avoided and minimized by conducting pre-construction surveys, providing biological on-site monitoring and establishing avoidance buffers to allow animals to leave of their own volition. Direct temporary impacts would include noise, vibration associated with the use of heavy equipment, and lighting at night in the event that nighttime construction is conducted.

Impacts to wildlife could occur through modification of the existing habitats at the Proposed Action site. Under the Proposed Action, total permanent vegetation disturbance would be approximately 650.5 acres (Table 1). Proposed Action implementation would result in the temporary disturbance of approximately 680.3 acres of wildlife habitat (see Table 1), including solar arrays that constitute the Solar Facility, roads, inverters, Substation expansion, and other infrastructure that is part of the Proposed Action and the surrounding fence. It also includes the re-routed access road, underground electrical collection, and battery storage area. Activities causing indirect impacts to wildlife through direct disturbance to their habitats may include ground surface grading and excavation, 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.

Areas of temporary disturbance would be revegetated with approved seed mixes following the completion of Proposed Action construction. 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 temporary impacts to vegetation would depend on the success of mitigation 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 restoration.

Permanent and temporary loss of habitat as a result of construction activities could affect some small mammal and reptile species. 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 restored areas produce suitable habitats.

Indirect effects due to loss of foraging habitat for wildlife also would occur as a result of construction activities associated with the Project Footprint. In response to the increase in human activity (e.g., equipment operation, vehicular traffic, and noise), wildlife may avoid the sources of disturbance and move to other habitats. Wildlife habitats adjoining the Project Footprint may also be directly affected by fugitive dust produced by vehicles and during grading; wildlife in these areas may avoid or move away.

MM Bio-5: Worker Environmental Awareness

Prior to - and for the duration of - construction, all new personnel shall attend a Worker Environmental Awareness Training (WEAT). 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 WEAT program. A WEAT shall also be provided to all workers prior to decommissioning activities.

- i. The program shall include information on the life history of the BNLL, SJKF, giant kangaroo rat, raptors, American badger, as well as all other sensitive wildlife and plant species that may be encountered during construction, and operations and maintenance activities.
- ii. Construction personnel will be instructed to halt Project construction (if it is safe to do so) in the event that a listed wildlife species is found within the work area during active construction.
- iii. Worker awareness training shall include a recommendation for workers to check under vehicles prior to moving vehicles to avoid impacts to wildlife.
- iv. An acknowledgement form signed by each worker indicating that WEAT has been completed shall be kept on record by the on-site biologist.
- v. The program shall provide guidance on responding to injured wildlife on the Project site.
- vi. A sticker shall be placed on construction crew hard hats upon the worker's successful WEAT completion

MM Bio-6: Vehicle Speeds

Vehicle speed limits shall not exceed 15 mph within the Project Footprint during construction. A speed limit sign shall be posted at all Project site entry locations. MM Bio-6 shall also be implemented prior to and during decommissioning activities.

MM Bio 7: Preconstruction Surveys for Nesting and/or Sensitive Birds

Surveys for nesting birds protected under the MBTA shall be conducted if work related to construction or decommissioning is initiated at any time during the breeding bird season (February 1- August 15). The pre-construction surveys shall be conducted in compliance with agency specifications (e.g., guidelines for surveys to be conducted within a specific timeframe prior to initial ground disturbance). If a lapse of seven days or more occurs for Project Actions, the surveys shall be repeated.

Surveys shall be conducted during periods of peak activity (e.g., early morning, dusk) and shall be of sufficient duration to observe movement patterns. Surveys shall encompass all potential habitats (e.g., grasslands and all burrows) within the BSA. The qualified biologist conducting the surveys shall be familiar with the breeding behaviors and nest structures for birds known to nest in the Project vicinity. Survey results, including a description of timing, duration and methods used, shall be submitted for

agency review prior to the initiation of the Project. No work shall proceed until the results have been submitted to the CDFW, if other Project activities are scheduled to occur during the bird breeding season (February through August for raptors and March through August for most other birds). The nesting-bird survey would need to include areas of the BSA where Project activities have the potential to cause nest failure. Results of the field surveys conducted in 2020-2021 could assist in focusing the surveys on specific species including loggerhead shrike, horned lark, and western meadowlark.

If any active nests are identified, a qualified biologist would need to establish an appropriate disturbance limit buffer and acceptable flagging, conducted in compliance with appropriate agency consultations. Construction activities would need to be avoided within any disturbance limit buffer zones until the nest is no longer active as confirmed by the qualified biological monitor.

If nesting birds are found, minimization measures and biological monitoring shall be required. The size of the buffer may vary for different species and shall be determined in coordination with the agencies. For example, a 50-foot radius buffer around the nest of non-raptors, approximately 300-foot radius buffer around the nest of raptors, and a 1,000-foot radius buffer for special-status raptors could be effective. Buffers will ultimately be based on observed behaviors of a nesting pair and site-specific conditions. If site-specific conditions determine that a smaller buffer area is appropriate, then a new buffer zone around the nest shall be determined in coordination with the appropriate agencies. If an active nest is shielded from the view and noise associated with the Project, a waiver of the avoidance and minimization measure can be obtained with agency approval.

MM Bio-8: General Wildlife Protection

During construction and decommissioning, sensitive biological resources in the Project Footprint shall be delineated with stakes, flagging and/or signage prior to construction to avoid disturbance. During construction, measures to prevent inadvertent entrapment of wildlife shall be implemented in compliance with agency specifications.

MM Bio-9: Trenches, Pipes, and Excavations

All measures to protect wildlife from being entrapped or harmed by trenches, piles and excavation work will be implemented to follow agency specifications. Excavated spaces including holes or trenches with steep walls and depths of greater than five feet will be covered at the close of each working day by plywood or similar materials. Holes and trenches less than five feet deep may either be covered or be provided with escape ramps at a rate of one ramp every 100 feet. Escape ramps may be constructed of earth fill or wooden planks with a slope no steeper than 45 degrees. All construction-related areas that could be occupied by wildlife will be inspected daily for trapped animals. A thorough inspection will be conducted prior to filling holes or trenches. If special status species are found, appropriate escape ramps will be placed to facilitate escape by the species or actions in compliance with agency specifications will be conducted.

Open trenches or other excavations shall be inspected for wildlife prior to backfilling. All pipes, conduit, etc. will be capped and the interiors examined prior to use to ensure no wildlife is entrapped in a pipe. MM Bio-9 shall also be implemented prior to and during decommissioning activities.

MM Bio-10: Biological Monitor

A qualified biological monitor will be present on site daily during Project construction. The biological monitor shall perform daily sweeps for BNLL prior to the start of construction and shall remind workers to check under all vehicles and tires prior to moving vehicles around the site. The

biological monitor shall halt all work if a sensitive species (e.g., BNLL) is observed and shall not allow resumption of work until the animal has safely left the Project Footprint. MM Bio-10 shall also be implemented prior to and during decommissioning activities.

MM Bio-11: 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 and the appropriate resources agency (e.g., USFWS or CDFW) before construction is allowed to proceed.

6.1.4 Special-status Species

Typically, Project construction and operations impacts on special-status plant and wildlife species and their habitats would be similar to those discussed in the preceding sections for plant communities, general wildlife, and avian species. 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 may be limited in the Project Footprint and surrounding areas.

6.1.4.1 Special-status Wildlife

Reptiles

Blunt-nosed leopard lizard is the only sensitive reptile species determined to be present at the Proposed Action site – primarily in the vicinity of the Gen-tie line. BNLL is a fully protected species. The species is listed as Federal and State endangered. If present, direct impacts to BNLL could include being hit by vehicles on access roads; mechanical crushing during site preparation, grading of new access roads, preparation of staging locations; and general disturbance due to increased human activity. Furthermore, Project Actions will result in permanent loss of habitat due to installation of permanent structures and/or roads, and temporary loss of habitat from construction activities. With the implementation of mitigation measures compliant with agency specifications, implementation of the Proposed Action is not expected to have a substantial adverse effect on this species.

MM-BIO 12: Protocol-level surveys for BNLL shall be conducted at the Project site during the period when the species is most active (April -July), in suitable habitat that will be disturbed by construction, to determine the potential for occupancy by BNLL. If surveys indicate that BNLL and appropriate burrow habitat are absent, then the construction area(s) can be fenced using materials and installing fencing in a compliance with agency specifications to prevent potential future occupancy by BNLL. If burrows are present within the fenced area(s), hand excavation of the burrows shall be conducted to determine occupancy in a manner that allows animals to escape from the burrow.

If excavations of the burrows determine burrows are unoccupied by special-status rodents, then construction activities could proceed within fenced areas. Fencing shall be regularly inspected by an approved qualified biological monitor, who shall make sure that fence repairs are conducted in a timely manner. Fencing shall be removed on completion of construction activities.

If BNLL are found within the Project Action areas, measures to protect the species shall include appropriate signage, monitoring by approved qualified biologists and other specific protection measures developed in compliance with agency guidelines. If burrows are found to be occupied, measures for avoidance and minimization of impact to BNLL shall be written in compliance with recommendations provided during agency consultations and shall contain Project-specific details. Project Actions shall be restricted to the species active period (April to early November) to ensure that no aestivating blunt-nosed leopard lizards in burrows are impacted while in their burrows. Working in coordination with the

agencies, sensitive areas shall be established and protected with appropriate signage. A qualified biological monitor shall be present to ensure activities are compliant with protection measures. Ground disturbance shall be prohibited in sensitive areas, and biological monitors shall conduct regular inspections.

Furthermore, implementation of MMs Bio-1, Bio-5, Bio-6, Bio-8, Bio-9, Bio-10, and Bio-14 will contribute to minimizing the potential impacts to this species.

Birds

The Project is not expected to directly affect bald or golden eagle, through either take or disturbance. Potential nesting and foraging habitat for burrowing owl and loggerhead shrike is present. The BSA is also appropriate foraging habitat for prairie falcon. The Proposed Action could have impacts on burrowing owl, prairie falcon, and loggerhead shrike and habitat supporting those species.

Burrowing owl and loggerhead shrike are CDFW Species of Special Concern that may be present within the BSA. Potentially suitable breeding habitat is present for burrowing owl; however, no sign of burrowing owl was observed during field surveys. Suitable nesting habitat is present for loggerhead shrike; the species was observed foraging within the BSA during field surveys.

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. Both of these species can forage in all of the undeveloped portions of the Project Footprint. Burrowing owls may also occupy burrows in the non-native grasslands at the site during either the breeding or non-breeding season. Implementation would reduce foraging habitat for these species. Both species occupy large ranges and implementation of the project is not expected to have a substantial adverse effect on either species.

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. The mechanisms by which the Proposed Action may impact special-status migratory birds are the same as those by which non-special-status migrants may be impacted. Measures described in MM Bio 7 will protect nesting and sensitive birds during construction and decommissioning activities.

MM Bio 13: Pre-construction Surveys for Burrowing Owl

While no burrowing owls were sighted within the BSA, the abundance of ground squirrels and ground squirrel burrows indicates the presence of potential habitat and the potential for burrowing owl to occur. Mitigation measures shall be implemented in compliance with recommendations provided during agency consultations and shall contain Project-specific details applicable to MM13.

Mitigation measures shall include the preparation and implementation of an agency-approved Burrowing Owl Management Plan, which shall guide mitigation measures including acceptable survey windows for breeding season surveys to be conducted prior to construction, burrow monitoring during construction, a no-disturbance buffer zone established and maintained if active use of burrow(s) by burrowing owls is observed, other protection measures to be implemented during the breeding season (February 1 through August 31), passive relocation of burrows if avoidance to burrows is unavoidable, and timely communications and reporting. All measures shall be conducted in conjunction with agency consultation and approval.

As appropriate, burrowing owl passive relocation shall be accomplished by installing one-way doors (e.g., modified dryer vents or other CDFW approved materials), which will be left in place for a minimum of 1 week and monitored daily to ensure that the owls have left the burrow. Excavation

of the burrow shall be conducted using hand tools. During excavation of the burrow, a section of flexible plastic pipe (at least 3 inches in diameter) shall be inserted into the burrow tunnel to maintain an escape route for any animals that may be inside the burrow.

With the implementation of MM Bio-13, the Proposed Action is not expected to have a substantial adverse effect on this species. Implementation of MMs Bio-5, Bio-6, Bio-7, Bio-8, Bio-9, Bio-10, and Bio-12, and related specific guidelines written in consultation with the agencies will minimize impacts to this species. MM Bio-13 shall also be implemented prior to and during decommissioning activities.

Mammals

Giant kangaroo rat, Nelson's Antelope squirrel, American badger and SJKF are sensitive wildlife with a moderate to high potential to occur within the BSA. The permanent and temporary loss of foraging and breeding habitat as a result of construction activities could affect these species. Proposed Action construction impacts are likely to be moderate in the short term and to be reduced over time as restored areas produce suitable habitats. The loss of some foraging 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 Proposed Action. These effects would be similar to those previously described for general wildlife. Implementation of MMs Bio-4, Bio-6, Bio-7, Bio-11, Bio-12, and Bio-15 will minimize impacts to these species.

MM Bio 14: Preconstruction Survey for San Joaquin Kit Fox and American Badger

A preconstruction survey for SJKF and American badger shall be conducted 14 to 30 days prior to the beginning of construction activities, or before any activities that could impact SJKF. The surveys shall cover the Project Footprint and shall be conducted according to the USFWS and/or CDFW protocols and recommendations. The SJKF survey protocol shall guide den monitoring procedures (USFWS 1999). If SJKF or American badger, other sensitive species and/or appropriate denning habitat are identified within the BSA during the preconstruction survey, appropriate agency consultation shall be conducted prior to proceeding. Buffer distances around each burrow or potential burrow shall be determined and implemented in compliance with agency recommendations. If present, dens occupied by SJKF, or American badger shall be flagged and ground-disturbing activities avoided by implementing a no-disturbance buffer in compliance with agency consultation.

If occupied dens cannot be avoided during construction, appropriate agency guidelines for avoidance, exclusion, and/or passive relocation shall be followed as described in the *USFWS Standard Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (2011) and after consultation with USFWS and CDFW. Where avoidance is not a reasonable alternative, limited blocking/destruction of potential San Joaquin kit fox dens may be allowed in compliance with the agencies:

Natal/pupping dens: Natal or pupping dens that are occupied shall not be destroyed until the adults and pups have vacated the dens and then only after consultation with USFWS. Removal of natal/pupping dens shall be subject to the Proposed Action's incidental take authorization from USFWS and CDFW.

Active maternity dens: Dens shall be avoided during pup-rearing season (SJKF: February 1 through August 1, American badger: February 15 through July 1) and a minimum 200-foot buffer zone shall be established. Maternity dens shall be flagged for

avoidance and identified on construction maps. The biological monitor shall monitor the dens for signs of disturbance and shall confirm when the young have left the den. Implementation of the Proposed Action is not expected to have a substantial adverse effect on these species.

Potential and known dens within the footprint of the activity must be monitored for 3 days with tracking medium and/or an infrared camera to determine current use. If no kit fox activity is observed during this period, the den should be blocked/destroyed immediately to preclude subsequent use. If kit fox activity is observed during this period, the den shall be monitored for at least 5 consecutive days from the time of observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged by partially plugging its entrance(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied shall the den be excavated under the direction of a biologist. If the fox is still present after 5 or more consecutive days of monitoring, the den may be excavated when, in the judgment of the biologist, it is temporarily vacant, such as during the fox's normal foraging activities. Removal of known dens shall be subject to the project's incidental take authorization from USFWS and CDFW.

Potential dens: Potential dens can be blocked/removed (preferably by hand excavation) by an agency-approved biologist or under the direct supervision of an agency-approved biologist, unless other restrictions are required by the incidental take permits issued for this project. If any den was considered a potential den but was later determined during monitoring or destruction to be currently or previously used by kit foxes (e.g., kit fox sign is found inside), then all construction activities shall cease and USFWS and CDFW shall be notified immediately.

MM Bio-3 shall also be implemented prior to and during decommissioning activities.

Implementation of MMs Bio-5, Bio-6, Bio-8, Bio-9, and Bio-10 will minimize impacts to these species.

MM Bio 15: Kangaroo Rat and Nelson's Antelope Squirrel Measures

Mitigation measures will include the preparation and implementation of an agency-approved Plan. As appropriate, a kangaroo rat and Nelson's Antelope Squirrel Trapping and Relocation Plan shall be written with agency consultation. The Plan will guide mitigation measures including acceptable survey windows for breeding season surveys to be conducted prior to construction, burrow monitoring during construction, a no-disturbance buffer zone established and maintained if active use of burrow(s) is observed, other protection measures to be established and implemented during the breeding season (February 1 through August 31), passive relocation of burrows if avoidance to burrows is unavoidable, and timely communications and reporting. All measures will be conducted in conjunction with agency consultation and approval.

Trapping surveys for special status kangaroo rats and Nelson's antelope squirrel will need to be done within the Project Footprint to confirm presence and protect areas where presence is detected. A detailed agency-approved small mammal live trapping plan shall be implemented within the BSA to confirm the presence or absence of special status kangaroo rats and/or Nelson's antelope squirrel based on results of the initial surveys (see section 5.3.4). The trapping plan will contain specific details for trapping methods, distances between traps, daily checking frequencies

dependent upon temperatures, bait, shredding materials, team members, and other relevant details.

The use of live traps with sufficient length (e.g. extra-large kangaroo rat Sherman live traps) or other trap designs shall be approved by the Service prior to their use. For detecting the presence of kangaroo rats at a particular site, live-traps should be placed close to burrow entrances, along runways, and near rodent sign to increase the potential for trapping success. For larger survey areas traps can be laid out in regular grid patterns. Trap arrays may also be set up in unique configurations as needed. The planned density of traps and the geographic layout of trap arrays shall be presented in the survey authorization requests to USFWS and CDFW. Traps shall be placed 5 meters or greater away from any active ant mounds. MM Bio-15 shall also be implemented prior to and during decommissioning activities.

MM Bio 16 Wildlife Corridors

Movement Corridors will be established and managed for the benefit of sensitive species movement, in compliance with agency recommendations. Development of Azalea Property lands could support wildlife with a high potential to occur once discing has ceased. Movement Corridors will be incorporated into the long-term conservation strategy for the Project, to be protected and managed in perpetuity for the benefit of sensitive species once the Project is decommissioned.

MM Bio 17: Preconstruction Burrow Survey for Blunt-Nosed Leopard Lizard

BNLL are dependent on burrows. Therefore, a preconstruction burrow survey for BNLL, conducted in compliance with agency recommendations, will be used to determine if there are suitable burrows for these species on the Project construction site, according to the accepted USFWS and/or CDFW protocols. The survey would consist of identifying all burrows (e.g., small mammal burrows) suitable for BNLL occurring within the BSA. An agency-approved disturbance limit buffer shall be placed around all identified small burrows with the potential to support BNLL. Avoidance of burrows and associated buffer areas would need to be implemented (similar to MM Bio 12). If BNLL are identified on the Project site during the focused surveys, USFWS and CDFW would need to be consulted to obtain the necessary permit authorizations before proceeding. If burrow avoidance is not possible within the Project Footprint, a BNLL Management Plan would need to be prepared in consultation with the agencies. With the implementation of mitigation measures, the Proposed Action is not expected to have a substantial adverse effect on these species. Implementation of MMs Bio-5, Bio-6, Bio-8, Bio-9, Bio-10, and Bio-14 will minimize impacts to these species.

6.1.4.2 Special-status Plants

No CRPR special-status plant species were identified as occurring within or near the Proposed Action area. Access Road Option 1 crosses the CAG community and is potential habitat for both Summer/Fall, and Spring-blooming special status plants with potential to occur in the BSA. If this route is chosen for access, additional surveys would be warranted for Summer/Fall blooming special status plants. Access Route Option 1 and Option 2 did not receive summer survey coverage for rare plants, including San Joaquin bluecurls, crownscale and Lost Hills crownscale.

Additionally, due to a lack of precipitation prior to the March 2021 survey, two Spring-blooming special-status plants may have been unidentifiable during the surveys. Moe (2016) notes that both plants grow in wet years. If Access Road Option 1 is selected, additional focused surveys may be warranted for both San Joaquin woollythreads *and* California jewelflower which are Spring-blooming plants expected to bloom following above average winter precipitation.

Should any CRPR sensitive species or their habitat, be found to occur at the project site, either through identification in the field or change in status, the impacts shall be minimized through the implementation of MM Bio 15.

MM Bio 18: Preconstruction Surveys for Special-status Plants

If Access Road Option 1 is selected, Summer/ Fall surveys shall be conducted prior to construction. Surveys shall focus on San Joaquin bluecurls, crownscale and Lost Hills crownscale, but should be floristic in nature (all species identified). Summer/ Fall surveys should focus on the entire Access Road Option 1, especially disturbed areas and roadside drainages. If Access Road Option 2 is selected Summer/Fall surveys shall include all of Access Road Option 2 north of the existing substation.

If Access Road option 1 is selected, focused Spring surveys shall be conducted both San Joaquin woollythreads and California jewelflower. Surveys shall focus on the entire Access Road Option 1 area especially south of the existing asphalt road. Precipitation shall be monitored prior to Spring surveys to ensure an above average rain year occurs. Both species are Federally endangered with California jewelflower also being State endangered. If found these species must be fully avoided or FESA and CESA permits be acquired. If Access Road Option 2 is selected, no Spring surveys are required.

If any plants listed as CRPR special-status species are found at the Proposed Action site, the plants will be flagged, mapped and a setback of 250 feet from Project Footprint will be implemented where feasible. If setbacks are not feasible, a monitor shall be present to ensure populations are avoided. If populations will be directly impacted by Project Actions, agencies shall be notified, and mitigation measures shall be established prior to disturbance. Those measures may include seed collection, transplanting, or compensatory purchases depending on species and legal status.

6.1.4.3 Operational Impacts

Direct impacts to wildlife as a result of Operations and Maintenance (O&M) of the Proposed Action are expected to be minimal and insignificant. Vehicles used by operations and maintenance staff pose a collision risk to wildlife; observance of the 15-mph speed limit would minimize this hazard.

Artificial structures typically pose some risk to birds in flight particularly those species migrating at night (Loss et al. 2014). Large birds, especially raptors, are more likely to be diurnal migrants, whereas waterfowl display migration at any time in the 24-hour cycle. Collision with buildings, radio towers, wires (e.g., transmission lines and guy wires,) and other anthropogenic structures is a significant source of mortality to migrating small birds as all structures pose some collision risks (Longcore et al. 2012, Loss et al. 2014). This is particularly true of structures with nocturnal lighting in use. Avian mortalities have been recorded at solar PV facilities with impact trauma as the most frequently recorded cause of death for mortalities for which causation could be determined, (Kagan et al. 2014, McCrary et al. 1986). Utility-scale solar energy facilities development is a phenomenon that has only become wide-spread in the last 20 years; thus, few studies have been conducted on the biological significance of avian mortality incurred at these facilities. The majority of North American bird species are protected under the MBTA as summarized in Sections 0 and 3.1.4. The extent of operational impacts to birds will be monitored per MM Bio-7 and MM Bio 13.

6.1.5 Waters of the U.S.

On 2 December 2008, the USACE and EPA issued a memorandum providing guidance on implementation of the Supreme Court's decision in the consolidated cases of *Rapanos v. United States* and *Carabell v. United States* (2008). These two cases address the scope of the USACE's jurisdiction over waters of the United States under the Clean Water Act. The guidance distinguishes among traditional navigable waters (TNW), relatively permanent waters (RPW), and non-relatively

permanent waters (non-RPW). The USACE will routinely exercise jurisdiction over TNWs, RPWs, wetlands abutting these waters, and wetlands adjacent to TNWs. The jurisdictional determination for non-relatively permanent waters, their adjacent wetlands (if any), and wetlands adjacent to RPWs not considered traditionally navigable will be based on whether there exists a significant nexus with a TNW. Factors evaluated by the USACE during the significant nexus evaluation will include ecology, hydrology, and the influence of the water on the “chemical, physical, and biological integrity of downstream traditional navigable waters” (USACE 2008). The USACE may exert jurisdiction if the findings of the significant nexus evaluation indicate that “the tributary and its adjacent wetlands are likely to have an effect [on downstream traditional navigable waters] that is more than speculative or insubstantial” (USACE and EPA 2008). Finally, the guidance provides that the USACE will not generally assert jurisdiction over ditches (including roadside ditches) which are excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water. The guidance recognizes that these features, by their very nature, do not have a significant nexus to downstream traditional navigable waters.

The Rapanos memorandum (USACE and EPA 2008) does not affect the Court’s decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, No. 99-1178 (January, 2001; “SWANCC”) which involved statutory and constitutional challenges to the assertion of CWA jurisdiction over isolated, non-navigable, intrastate waters used as habitat by migratory birds. Isolated wetlands and waters are not subject to Clean Water Act jurisdiction.

Wetland and/or channel features not subject to the USACE’s jurisdiction may come under the jurisdiction of the California Department of Fish and Wildlife (CDFW) and/or the Regional Water Quality Control Board (RWQCB). For example, “isolated” wetlands not subject to Section 404 in accordance with the SWANCC decision are subject to regulation by the RWQCB.

The following is an assessment of USACE jurisdiction over the features identified within the BSA, pursuant to the USACE/EPA guidance memorandum:

A. TNWs and Adjacent Wetlands

No TNWs or wetlands adjacent to TNWs occur in the BSA. The nearest TNW is the San Joaquin River, over sixty mile northeast of the BSA. The San Joaquin River is considered navigable from its mouth to just west of Fresno (USACE).

B. RPWs that flow directly or indirectly into TNWs

No RPWs that flow directly or indirectly into TNWs occur in the BSA.

C. Non-RPWs that flow directly or indirectly into TNWs

No Non-RPWs that flow directly or indirectly into TNWs occur in the BSA.

D. Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

No wetlands directly abutting RPWs that flow directly or indirectly into TNWs occur in the BSA.

E. Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

No wetlands adjacent to but not directly abutting RPWs occur in the BSA.

F. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

No wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs occur in the BSA.

G. Impoundments of waters

There is a detention basin comprising 1.12 acre in the BSA. It is a manmade depression in uplands. Flow into the basin comes from a series of canals and other detention basins within the adjacent orchards, which is pumped out of the California aqueduct approximately 1.3 miles east. The detention basin discharges by a sprinkler system into uplands in the BSA (Rangeland/ Spray Field). The capacity of the detention basin to carry or reduce pollutants, flood waters, nutrients, or organic carbon is speculative and insubstantial relative to the nearest TNW. The detention basin does not have a sufficient volume, duration, or frequency of flow to have a significant nexus to the chemical, physical, or biological integrity of the nearest TNW based on the distance of the BSA from the navigable segment of the San Joaquin River, the negligible contribution of the watershed, and the lack of a relatively permanent hydrologic connection.

H. Isolated (interstate or intrastate) waters, including isolated wetlands

There are no isolated wetlands in the BSA.

I. Non-jurisdictional features

Drainages A, B, C and D, comprising 0.48 acre in the BSA, do not appear to meet the “significant nexus” criteria for federal jurisdiction under the Clean Water Act. All drainages are ephemeral and ultimately discharge into uplands as sheet flow. All drainages do not have a sufficient volume, duration, or frequency of flow to have a significant nexus to the chemical, physical, or biological integrity of the nearest TNW based on the distance of the BSA from the navigable segment of the San Joaquin River, the negligible contribution of the watershed, and the lack of a relatively permanent hydrologic connection.

J. Summary of Jurisdictional Acreages

No USACE jurisdictional occur in the BSA.

6.1.6 Waters of the State

Drainage C and D both have a distinguishable bed and banks (or OHWM) and maybe considered Waters of the State, defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code 13050[e]). Thus, and fill or temporary impacts to both drainage C and D may be regulated by the SWRCB.

Drainage C and D both follows natural contours and provides ephemeral flow to a large area of semi-natural CAG, influencing vegetation. Thus, Drainage C could be important to local wildlife, including small mammals as well as horned larks that were observed in flocks within the BSA. Impacts may be subject to CDFW jurisdiction as a non-riparian stream.

Assess Road Option 2 crosses both drainage C and D. An existing asphalt road passes over sets of four 48-inch culverts at both drainages. Vehicle traffic would likely stay on existing roads and avoid all impacts to both drainages. If impacts to drainage C and D cannot be avoided MM Bio-XX would lower impacts to less than significant.

MM Bio-20: Impacts to Waters of the State

If temporary or permanent impacts are proposed to Drainages C or D, the SWRCB shall be notified and any applicable waste discharge requirements must be obtained prior to impacts. Likewise, CDFW shall also be notified via the lake and streambed alteration program (LSA) prior to impacts. If construction staging or off-pavement access occur within 250ft of drainage C or D ESA fencing with signage shall be installed at a minimum 100 ft buffer around the drainages.

7 CEQA CHECKLIST

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IV. 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, U.S. Fish and Wildlife Service, or NOAA Fisheries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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, U.S. Fish and Wildlife Service, or NOAA Fisheries?

The Project could have significant impacts to federal and state-listed species: BNLL, SJKF, giant kangaroo rat, Nelson's antelope squirrel, American badger, prairie falcon, burrowing owl, loggerhead shrike, and California horned lark, which have a moderate or high potential to occur. Direct impacts could include habitat modifications as a result of construction. With the implementation of the mitigation measures outlined in this document, impacts would be reduced to less than significant.

- 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?

No riparian or sensitive habitat is present in the Proposed Action area; therefore, the Project will not have substantial adverse effects on riparian or sensitive natural communities.

- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, hydrological interruption, or other means?

No state or federally protected wetlands are present within or near the Proposed Action area; therefore, The Project will not have substantial adverse effects on federally protected wetlands.

- 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?

Construction of the Project could interfere with the movement of native wildlife species such as BNLL SJKF, giant kangaroo rat, Nelson's antelope squirrel, and American badger. With the implementation of the mitigation measures outlined in Section 6.1, impacts would be reduced to less than significant.

- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project will not conflict with any local policies or ordinances protecting biological resources.

- 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?

The Project will not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

8 REFERENCES

- ArcGIS Online: <http://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9>
- Atwater, B.F., D.P. Adam, J.P. Bradbury, R.M. Forester, R.K. Mark, W.R. Lettis, G.R. Fisher, K.W. Gobalet, and S.W. Robinson. 1986. A Fan Dam for Tulare Lake, California, and Implications for the Wisconsin Glacial History of the Sierra Nevada. *Geological Society of America Bulletin* 97:97-109.
- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Higher Plants of California. Second edition. University of California Press, Berkeley, CA. 1566 pp.
- Consortium of California Herbaria (CCH). Data updated 16 February 2021. Herbarium specimen data provided by the participants of the Consortium of California Herbaria. <http://ucjeps.berkeley.edu/consortium/>

California Department of Fish and Wildlife. 2022. <https://wildlife.ca.gov/Data/BIOS> 2003. Biogeographic Information and Observation System (BIOS);

_____. 2003. List of California terrestrial natural communities recognized by the Natural Diversity Data Base. <http://www.dfg.ca.gov/whdab/pdfs/natcomlist.pdf> (September 2003).

_____. 2004. Fish and Game Code Sections 1600-1616.

_____. 2010a. Natural communities list arranged alphabetically by life form, Sept. 2010. <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf> .

_____. 2010b. Hierarchical list of natural communities with Holland types, Sept. 2010. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=24716&inline=1> .

California Department of Fish and Wildlife. 2021a. State and federally listed endangered, threatened, and rare plants of California. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline=1> (January).

_____. 2021b. Special Animals List. State-listed endangered and threatened and other special status animals of California. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline> (February).

California Native Plant Society. 2016. California Native Plant Society inventory of rare and endangered plants. Online edition. v7-16aug, August 7, 2016. <http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi>.

California Native Plant Society (CNPS), Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). <http://www.rareplants.cnps.org> [accessed 25 September 2020].

California Natural Diversity Database online: <https://wildlife.ca.gov/Data/CNDDDB>.

CalPhotos, Berkley Natural History Museums. Accessed September 2020. University of California at Berkeley. <https://calphotos.berkeley.edu/flora/>

Chang, K.K. 1988. *Soil Survey of Kern County, California: Northwestern Part*. United States Department of Agriculture, Soil Conservation Service, and the University of California Agriculture Experiment Station.

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, MS. 100 pp.

Google, Inc. March 2021. Google Earth (Version 7.3.3.7786 (64-bit)). www.google.com/earth/

Grinnell, J. 1933. Review of the recent mammal fauna of California. Univ. Calif. Publ. Zool. 40:71-234.

Grunsky, C.E. 1930. Tulare Lake: A Contribution to Long-Time Weather History. Monthly Weather Review 58 (7):288-290.

- Hawbecker, A.C. 1951. Small mammal relationships in an Ephedra community. *J. Mammal.* 32:50-60.
- Hilgard, E.W. 1880. Lake and River Waters of the Great Valley. *University of California College of Agriculture Report* 22-35.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Nongame-Heritage Program, California Department of Fish and Wildlife, Sacramento, CA. 156 pp.
- Jepson Flora Project (eds.) 2020. Jepson eFlora, <https://ucjeps.berkeley.edu/eflora/>, accessed on September 25, 2020.
- Larsen, C.J. 1987. Badger distribution study. Project No. W-65-R-4, Job No. I-11. California Department of Fish and Game, Wildlife Management Division, Nongame Bird and Mammal Section, Sacramento, CA.
- Loredo, A I, JL Rudd, JE Foley, DL Clifford and B Cypher. 2019. Climatic Suitability of San Joaquin Kit Fox (*Vulpes macrotis mutica*) Dens for Sarcoptic Mange (*Sarcoptes scabiei*) Transmission. *J Wildl Dis* (2020) 56 (1): 126–133. <https://doi.org/10.7589/2019-02-035>.
- 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.
- _____ 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. Prepared for U.S. Army Corps of Engineers Wetland Regulatory Assistance Program. U.S. Army Engineer Research and Development Center, Hanover, NH.
- Longcore, T., C. Rich, P. Mineau, B. MacDonald, D.G. Bert, L.M. Sullivan, E. Mutrie, S.A. Gauthreaux Jr., M.L. Avery, R.L. Crawford, A.M. Manville II, E.R. Travis, and D. 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, S.R., T. Will, and P.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
- Moe, L. Maynard. 2016. Kern County Flora, A Key to Vascular Plant Species of Kern County, California. California Native Plant Society.
- 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.
- Moe, L. Maynard. 2016. Kern County Flora, A Key to Vascular Plant Species of Kern County, California. California Native Plant Society.
- Natural Resources Conservation Service. 2015. National hydric soils list. Microsoft Excel file. December 2015. Available at <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>.

- National Oceanic and Atmospheric Administration, National Weather Service Forecast Office (NOAA NWS). Accessed 4 April 2021. Preliminary Monthly Climate Data (CF6), Sandberg, CA Station. <https://w2.weather.gov/climate/index.php?wfo=lox>
- Quinn J. H. The ecology of the American badger *Taxidea taxus* in California: assessing conservation needs on multiple scales. Dissertation. University of California, Davis. 2008.
- Sawyer, J.O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation. Second edition. California Native Plant Society Press, Sacramento, CA. 1,300 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. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Smith, D.A., K. Ralls, B.L. Cypher, H.O. Clark Jr., P.A. Kelly, D.F. Williams, and J.E. Maldonado. 2006. Relative abundance of endangered San Joaquin kit foxes (*Vulpes macrotis mutica*) based on scat-detection dog surveys. The Southwestern Naturalist 51(2): 210-219.
- State Water Resources Control Board (SWRCB). 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. [For Inclusion in the Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California].
- Stone, C.O. and D.M. Irving. 1982. Calaveras County soil – vegetation handbook. Calaveras County Farm Advisor's Office, San Andreas, CA.
- U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers wetland delineation manual, Tech. Rept. Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- U.S. Army Corps of Engineers (USACE). September 2008. Regional supplement to the Corps of Engineers wetland delineation manual: Arid West region (Version 2). Final Report. Technical Report ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center, Vicksburg, MS.
- U.S. Army Corps of Engineers (USACE). August 2014. A Guide to ordinary high water mark (OHWM) delineation for non-perennial streams in the Western mountains, valleys, and Coast region of the United States. U.S. Army Engineer Research and Development Center. Hanover, NH
- U.S. Army Corps of Engineers (USACE). 2018. National Wetland Plant List, version 3.4. U.S. Army Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/home/home.html
- U.S. Fish and Wildlife Service. 2016a. Listed plants. http://ecos.fws.gov/tess_public/reports/ad-hoc-species-report?kingdom=P&status=E&status=T&status=EmE&status=EmT&status=EXPE&status=EXPN&status=SAE&status=SAT&mapstatus=3&fcritab=on&fstatus=on&fspecrule=on&finvpop=on&fgroup=on&family=on&header=Listed+Plants.

- _____. 2016b. Listed animals. <http://ecos.fws.gov/ecp0/reports/ad-hoc-species-report?kingdom=V&kingdom=I&status=E&status=T&status=EmE&status=EmT&status=EXPE&status=EXPN&status=SAE&status=SAT&mapstatus=3&fcrithab=on&fstatus=on&fspecrule=on&finvpop=on&fgroup=on&header=Listed+Animals>.
- _____. 2016c. Species Proposed for listing. <http://ecos.fws.gov/ecp0/reports/ad-hoc-species-report?status=P&header=Species+Proposed+for+Listing&fleadreg=on&fstatus=on&finvpop=on>.
- _____. 2016d. Candidate species report. <http://ecos.fws.gov/ecp/report/table/candidate-species.html>.
- _____. 1999. U.S. Fish and Wildlife Service San Joaquin Kit Fox Survey Protocol. https://www.fws.gov/ventura/docs/species/protocols/sjkw/sanjoaquin_kitfox_protection.pdf
- _____. 2016e. National Wetlands Inventory. <https://www.fws.gov/wetlands/index.html> (Updated July 26, 2016).
- USGS. 2018. Topographical Map for Avenal Gap. <https://catalog.data.gov/dataset/usgs-us-topo-7-5-minute-map-for-avenal-gap-ca-201556c58>
- USFWS. 2021a. Regulations Governing Take of Migratory Birds. <https://www.federalregister.gov/documents/2021/10/04/2021-21473/regulations-governing-take-of-migratory-birds-revocation-of-provisions>. October 4.
- USFWS. 2021b. U.S. Fish and Wildlife Service Governing the Take of Migratory Birds under the Migratory Bird Treaty Act. <https://www.fws.gov/regulations/mbta/>.
- USFWS Online: http://www.fws.gov/Sacramento/es_species/Lists/es_species_lists-form.cfm

Attachment A: Plant Species Observed During 2020 and 2021 Surveys

FAMILY	SCIENTIFIC NAME	COMMON NAME	N/I ¹	CAL-IPC ²
EUDICOTS				
Amaranthaceae	<i>Amaranthus blitoides</i>	Procumbent pigweed	N	
Asteraceae	<i>Centaurea melitensis</i>	Tocalote	I	Moderate
	<i>Erigeron canadensis</i>	Horseweed	I	
	<i>Lactuca serriola</i>	Prickly lettuce	I	
	<i>Lasthenia gracilis</i>	Common goldfields	N	
	<i>Microseris</i> sp.	Microseris	N	
	<i>Tragopogon</i> sp.	Salsify	I	
Boraginaceae	<i>Amsinckia intermedia</i>	Common fiddleneck	N	
	<i>Plagiobothrys canescens</i>	Popcorn flower	N	
	<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	Narrow-toothed pectocarya	N	
Brassicaceae	<i>Brassica</i> sp.	Mustard	I	
	<i>Capsella bursa-pastoris</i>	Shepherd's purse	I	
	<i>Lepidium nitidum</i>	Common pepper-grass	N	
	<i>Sisymbrium irio</i>	London rocket	I	Moderate
Caryophyllaceae	<i>Stellaria media</i>	Common chickweed	I	
Chenopodiaceae	<i>Bassia hyssopifolia</i>	Bassia	I	Limited
	<i>Chenopodium album</i>	Lamb's quarters	I	
	<i>Salsola tragus</i>	Russian thistle, tumbleweed	I	Limited
Euphorbiaceae	<i>Croton setigerus</i>	Turkey-mullein	N	
	<i>Euphorbia ocellata</i> ssp. <i>ocellata</i>	Valley spurge	N	
Fabaceae	<i>Acmispon americanus</i> var. <i>americanus</i>	Deervetch	N	
	<i>Acmispon wrangelianus</i>	Chilean trefoil	N	
	<i>Astragalus asymmetricus</i>	San Joaquin milk vetch	N	
	<i>Lupinus bicolor</i>	Miniature lupine	N	
Geraniaceae	<i>Erodium botrys</i>	Filaree	I	
	<i>Erodium cicutarium</i>	Redstem filaree	I	Limited
Lamiaceae	<i>Trichostema lanceolatum</i>	Vinegar weed	N	
Malvaceae	<i>Malva parviflora</i>	Cheeseweed, little mallow	I	
Montiaceae	<i>Calandrinia menziesii</i>	Red maids	N	
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	N	
Plantaginaceae	<i>Plantago erecta</i>	California plantain	N	
	<i>Veronica</i> sp.	Speedwell	N/I	
Polygonaceae	<i>Eriogonum</i> sp.	Buckwheat	N	
	<i>Polygonum aviculare</i>	Knotweed, knotgrass	I	
Solanaceae	<i>Datura wrightii</i>	Jimson Weed	N	
	<i>Solanum americanum</i>	White nightshade	N	
Zygophyllaceae	<i>Tribulus terrestris</i>	Puncture vine	I	
MONOCOTS				

FAMILY	SCIENTIFIC NAME	COMMON NAME	N/I ¹	CAL-IPC ²
Poaceae	<i>Avena barbata</i>	Slender wild oat	I	Moderate
	<i>Bromus diandrus</i>	Ripgut grass	I	Moderate
	<i>Bromus hordeaceus</i>	Soft chess	I	Moderate
	<i>Bromus madritensis</i> ssp. <i>rubens</i>	Red brome	I	High
	<i>Cynodon dactylon</i>	Bermuda grass	I	Moderate
	<i>Festuca myuros</i>	Rattail sixweeks grass	I	Moderate
	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley	I	Moderate
	<i>Hordeum murinum</i> ssp. <i>glaucum</i>	Smooth barley	I	Moderate
	<i>Triticum aestivum</i>	Cultivated wheat	I	
Themidaceae	<i>Dipterostemon capitatus</i>	Blue dicks	N	

¹ N = Native to CA; I = Introduced.

² Negative ecological impact according to the California Invasive Plant Council (Cal-IPC 2020).

Attachment B: Precipitation Data 2020 and 2021

Month to month precipitation levels were examined as they can influence plant germination and life cycles (e.g., San Joaquin woollythreads plants grow only in years of more than normal rainfall, according to Moe 2016). September precipitation data from the nearby Sanberg, CA NOAA weather station shows a slightly below-average rain year. The Table below shows precipitation prior to the September 2020 botanical surveys was approximately 123% of normal (NOAA NWS 2021). Much of the precipitation fell in Spring (March and April) and Fall (November and December), while January and February were below normal, as tabulated below.

Table 9: Precipitation Data – Field Survey 2020

MONTH/YEAR	PRECIPITATION AVG (INCHES)	PRECIPITATION OBSERVED (INCHES)
October 2019	0.60	0.00
November 2019	0.78	2.71
December 2019	2.25	4.34
January 2020	2.41	0.10
February 2020	3.42	0.18
March 2020	1.73	4.32
April 2020	0.63	3.78
May 2020	0.41	0.03
June 2020	0.06	0.02
July 2020	0.02	0.00
August 2020	0.03	0.00 (trace)
September 2020	0.17	0.00
Total	8.70	8.43

Botanical surveys for Spring blooming plants were conducted during the day from March 14 to 18, 2021. Precipitation prior to the March 2021 surveys precipitation was far below normal. The Table below shows precipitation was approximately 22.8% of normal prior to the March 2021 surveys (NOAA NWS 2021).

Table 10: Precipitation Data – Field Survey 2021

MONTH/YEAR	PRECIPITATION AVG (INCHES)	PRECIPITATION OBSERVED (INCHES)
October 2020	0.06	0.00 (trace)
November 2020	0.78	0.10
December 2020	2.25	0.54
January 2021	2.41	1.40
February 2021	3.24	0.04
March 2021	1.73	0.043
TOTAL	11.01	2.51

This Page Intentionally Left Blank

Attachment C: Representative Photographs

Representative Photographs



Photograph: 1

Location: Irrigated Grasslands and surrounding area within the Property, BSA.

Description: Aerial photograph showing irrigated area within the Property and orchards further east in the background.



Photograph: 2

Location: Detention Basin close to the eastern boundary of the Property, BSA.

Description: Aerial photograph showing reservoir and surrounding grassland and scrub habitat within the Property.

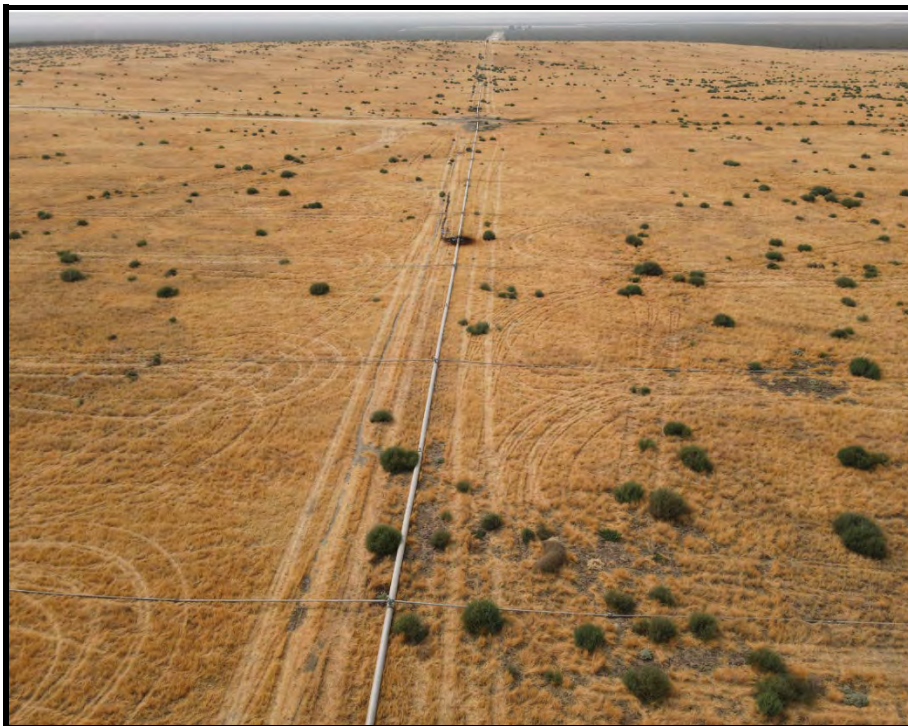
Representative Photographs



Photograph: 3

Location: View of southern part of Property, BSA.

Description: Aerial photograph showing irrigated area, cattle yard/containment area and spray fields further east. Orchards to the south of the Property can be seen to the right (south).

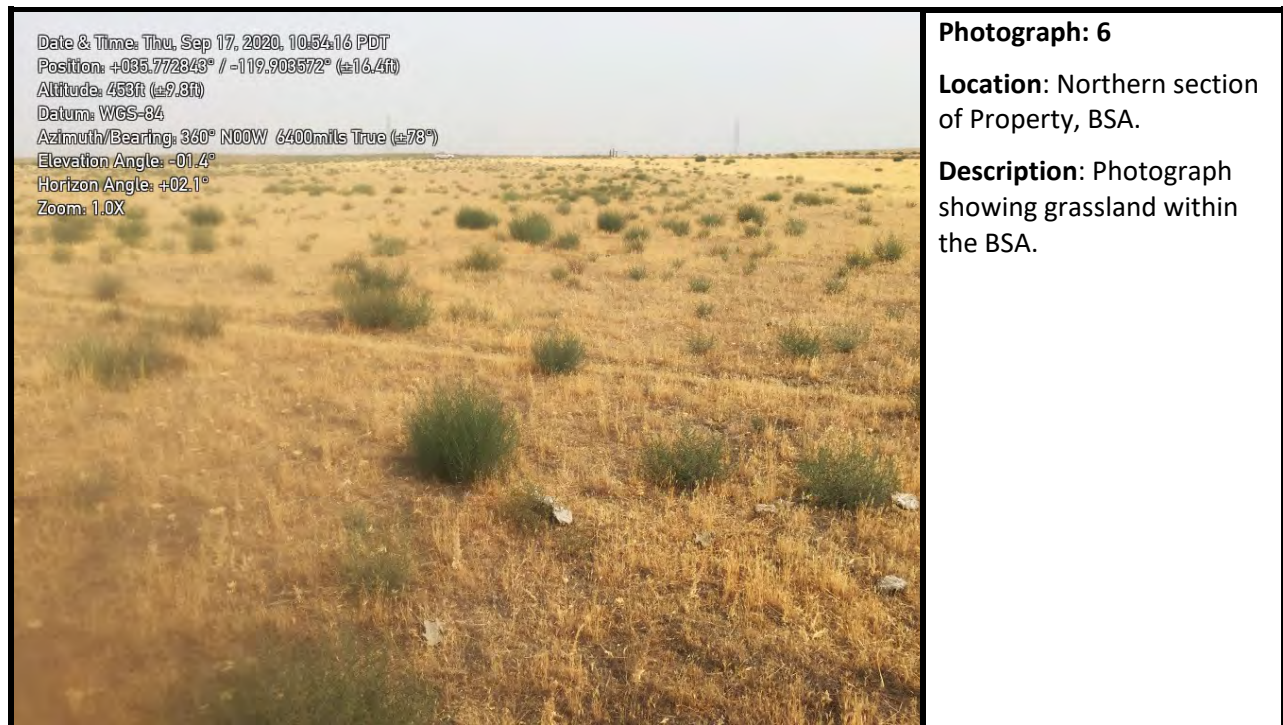
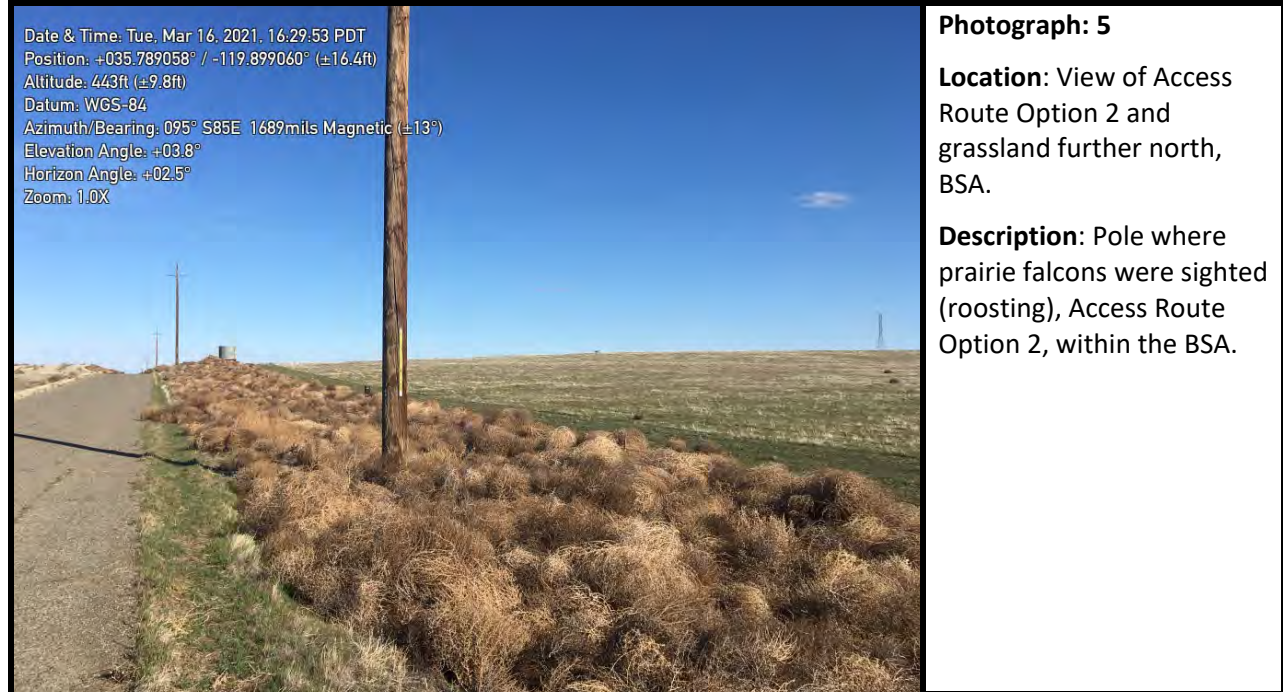


Photograph: 4

Location: Irrigation lines within the Property, BSA.

Description: Aerial photograph showing irrigation lines within the spray field area of the Property.

Representative Photographs



Representative Photographs



Photograph: 7

Species: Loggerhead shrike

Description: Loggerhead shrike observed approximately 1 mile northwest of the Property, BSA.



Photograph: 8

Species: Horned Lark

Description: Horned lark observed within irrigated area of Property.

Representative Photographs



Photograph: 9

Species: Prairie Falcon

Description: Prairie falcon, approximately 1 mile northwest of Property, within the BSA; pair was also observed east of Arco substation.



Photograph: 10

Location: Gen Tie Line Alignment, BSA.

Description: American badger, camera station along Gen tie line alignment, by the side of the dirt road west of the Property, BSA.

Representative Photographs



Photograph: 11

Location: Southern portion of Property, BSA

Description: Unidentified kangaroo rat, camera station in the southern part of Property in the vicinity of cattle containment area, BSA.



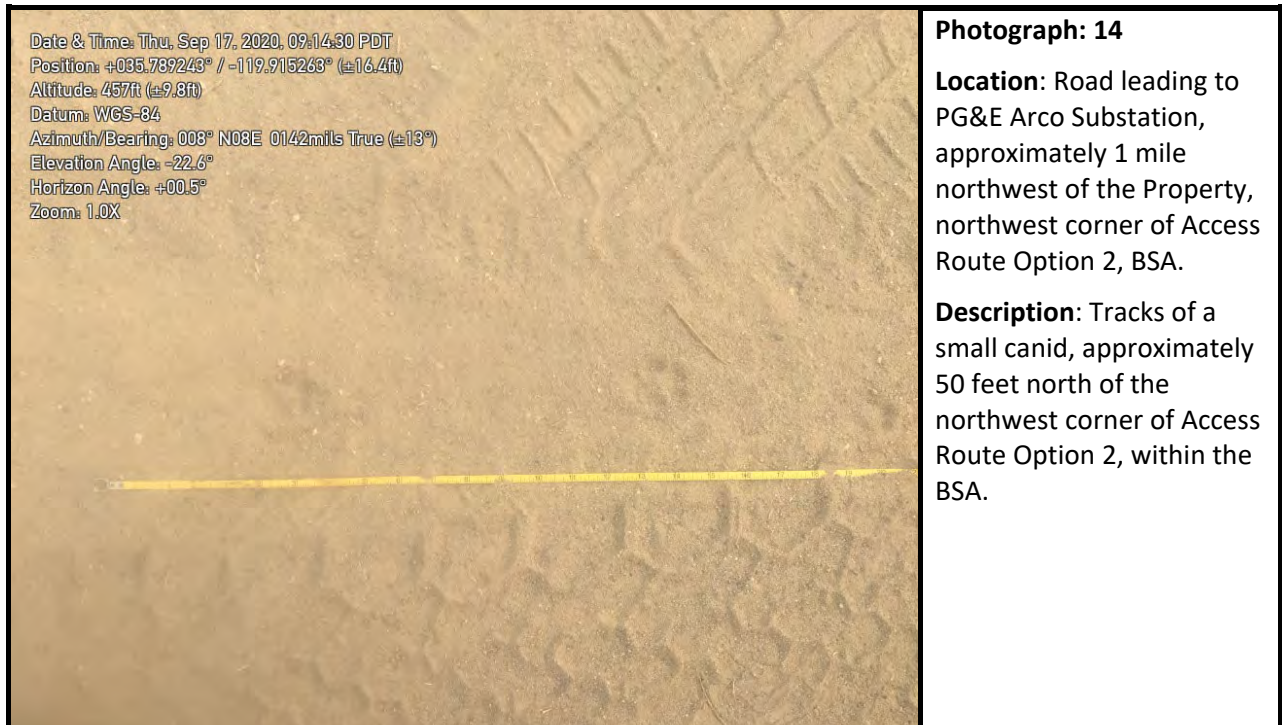
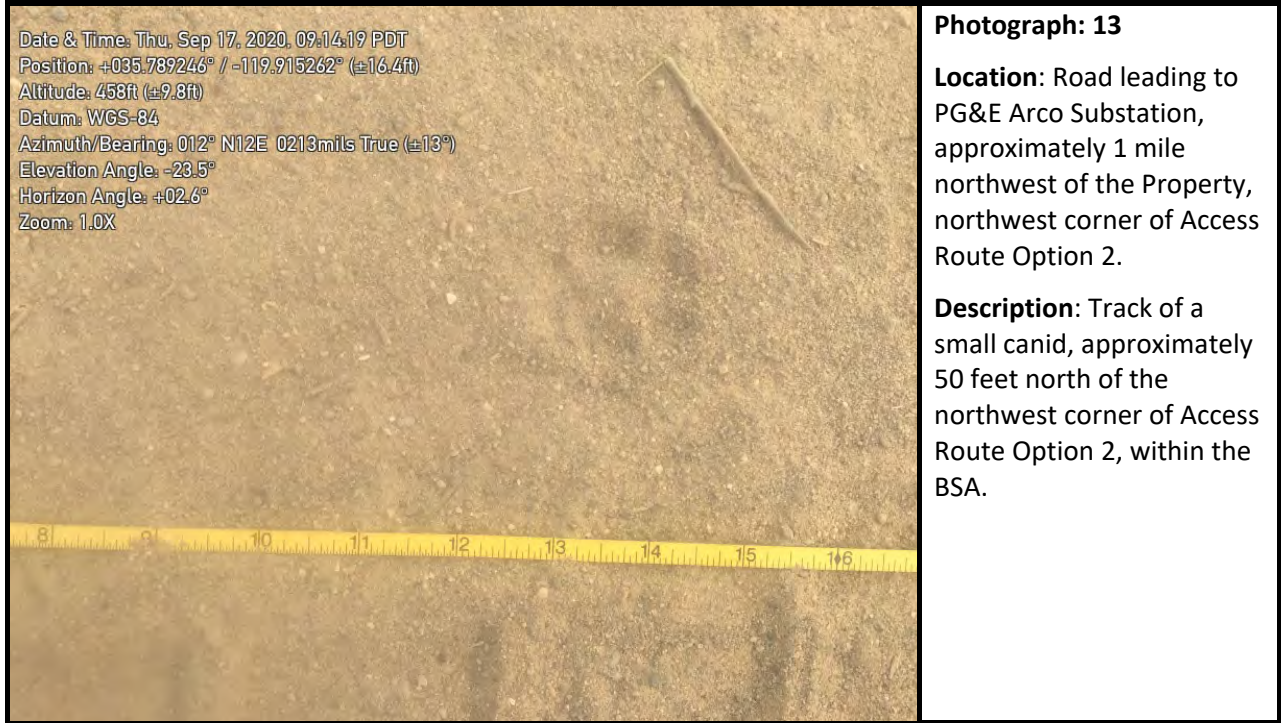
Photograph: 12

Location: Pole approximately 1 mile north of BSA

Description: Common raven and stick nest, approximately 1 mile northwest of Property, BSA.



Representative Photographs



Representative Photographs



Photograph: 15

Location: Dirt road leading along the Property northern boundary, BSA.

Description: Territorial western meadowlark, BSA.



Photograph: 16

Location: Road leading to PG&E Arco Substation, approximately 1 mile northwest of the Property, BSA.

Description: White crown sparrow, Access Route Option 2, within the BSA.



H. T. HARVEY & ASSOCIATES

Ecological Consultants

50 years of field notes, exploration, and excellence

Memorandum

Project# 4638-01

May 25, 2022

To: Christine Lan, Indemitsu Renewables

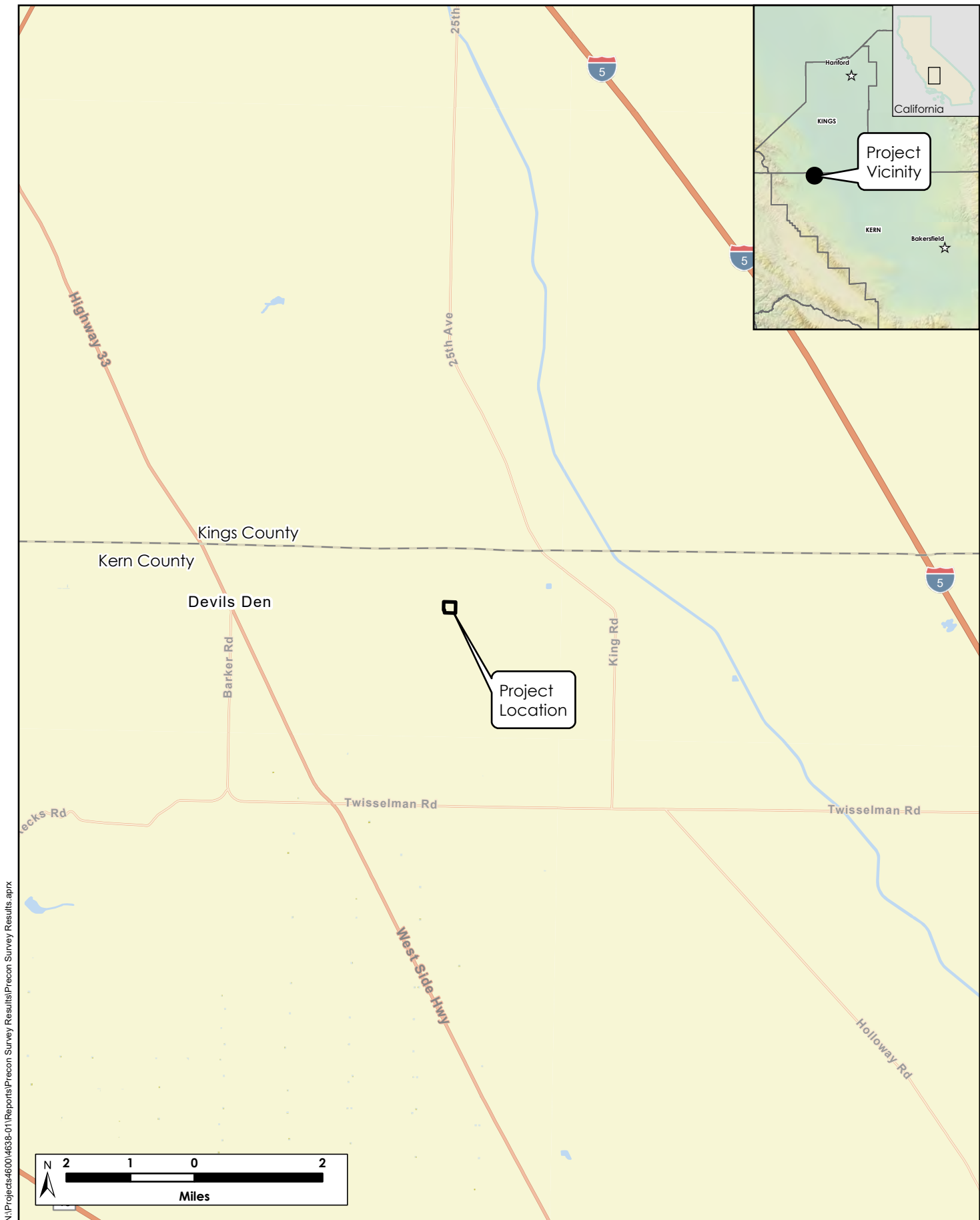
From: Marianne Huizing and Brian Boroski, H. T. Harvey & Associates

Subject: Survey Results for San Joaquin antelope squirrel and kangaroo rat burrows on the PG&E parcel at the Azalea Solar Project

On May 18, 2022, H. T. Harvey & Associates biologists Jacquelyn Maher and Mia Aguilar conducted a survey for San Joaquin antelope squirrel (*Ammospermophilus nelsonii*) and kangaroo rat (*Dipodomys* spp.) burrows on the Pacific Gas & Electric Company (PG&E) parcel, excluding the fenced Arco Substation, and within a 100-foot buffer around the parcel, at the Azalea Solar Project (project) in Kern County, California (Figure 1). The surveyed areas surrounding the PG&E Arco Substation are depicted in Figure 2.

The biologists surveyed and walked transects spaced 30 meters apart around the Arco Substation. All evidence of San Joaquin antelope squirrel and kangaroo rat occurrences within 100 feet of the proposed project footprint, including active burrows, scat, tracks, and direct observations, was recorded, and the locations were mapped and tracked using a global positioning system (GPS)–based map. In addition, biologists recorded any sightings of San Joaquin kit fox (*Vulpes macrotis mutica*) and their sign (i.e. dens, tracks, or scats), and sightings of burrowing owl (*Athene cunicularia*) and their sign (i.e. whitewash, feathers at burrow entrance) while surveying for kangaroo rat burrows and San Joaquin antelope squirrel.

The habitat conditions immediately north of the Arco Substation fence were dry grassland with gravel and rock patches scattered throughout, prior to a rocky and steep slope (Photo 1). This area north of the substation contained a fair amount of small mammal burrows (Photos 2 and 3) and California ground squirrel (*Otospermophilus beecheyi*) were observed frequently during the survey. The area north of the steep slope was disked and did not provide suitable habitat for San Joaquin antelope squirrel. Culverts filled with dried tumbleweeds were observed at the base of the south side of the substation. Habitat conditions west of the fence around the Arco Substation were similar to those



N:\Projects\4600\4638-01\Reports\Precon Survey Results\Precon Survey Results.aprx



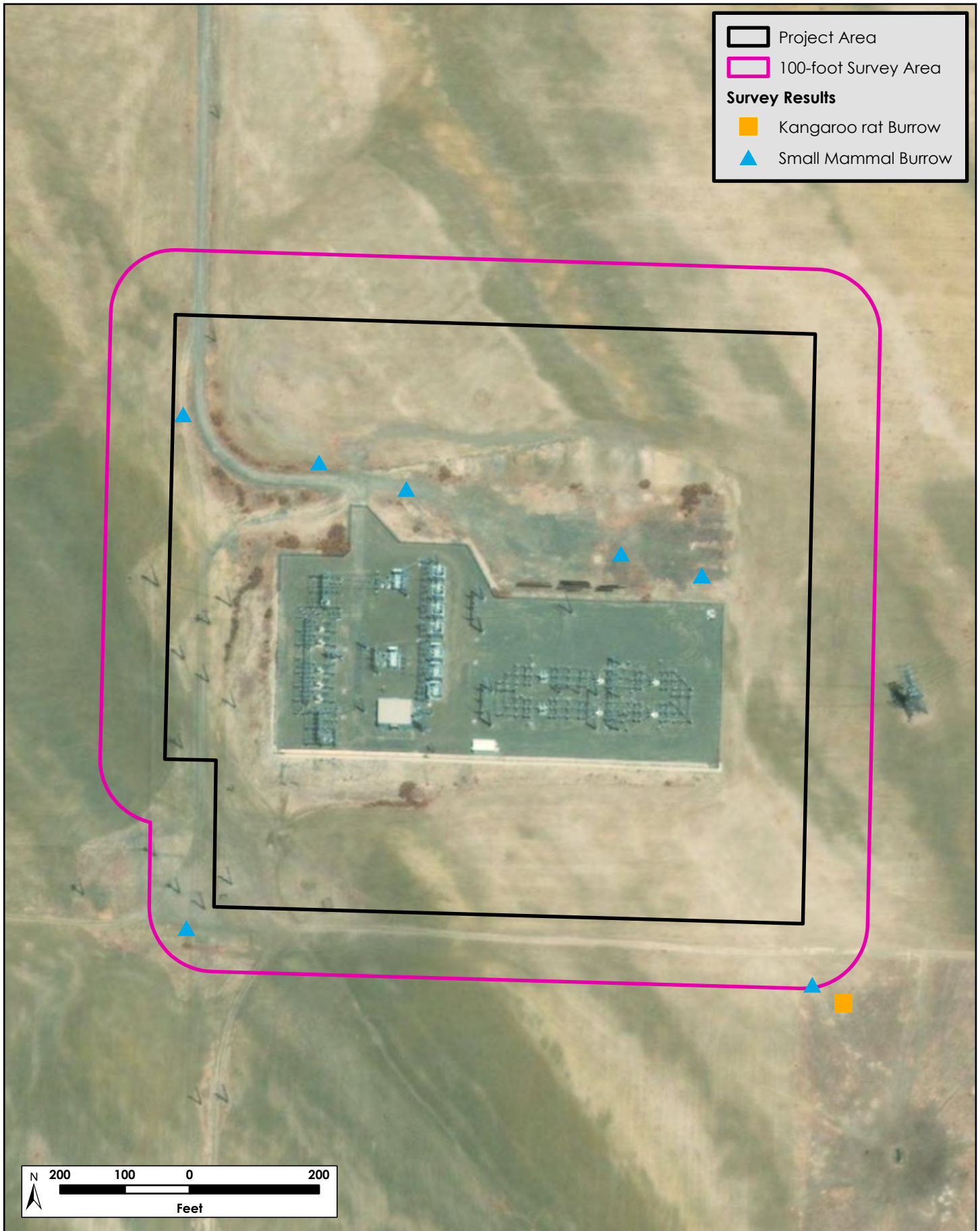
H. T. HARVEY & ASSOCIATES

Ecological Consultants

Figure 1. Vicinity Map

Azalea Solar - Survey Results (4638-01)

May 2022



H. T. HARVEY & ASSOCIATES

Ecological Consultants

Figure 2. Survey Results
Azalea Solar - Survey Results (4638-01)
May 2022

north of the substation, with grassland habitat occurring immediately adjacent to the substation fence and disked areas west of the PG&E powerline access road. A rocky and steep slope with culverts occurred south of the fence around the substation, and the land to the south of the slope was disked along a dirt access road. The area east of the fenced Arco Substation was disked (Photo 4). With the exception of the areas immediately north and west of the Arco Substation and a couple of undeveloped dirt access roads, much of the surveyed area had been disked.

No San Joaquin antelope squirrels were observed during the preconstruction survey. One kangaroo rat burrow was observed south of an access road, in grassland habitat, just outside the 100 foot survey area buffer (Figure 2). Wildlife species observed around and within the Arco Substation included California ground squirrel and western side-blotched lizard (*Uta stansburiana elegans*). No other wildlife was observed during the survey.

The burrows within the study area labeled as small mammal burrows did not contain any direct evidence of use by kangaroo rats such as tail drags. These burrows were on the smaller size for kangaroo rats; however, because confirmed kangaroo rat burrows were observed in the vicinity of the survey area and the morphology of the small mammal burrows indicate the burrows are suitable for kangaroo rats, we recommend follow-up surveys. Specifically, camera trapping is recommended for five consecutive nights at all of the observed small mammal burrows within the surveyed area. If kangaroo rats are observed on the photographic camera data, live-trapping is recommended to identify the specific species of kangaroo rat occupying the survey area.



Photo 1. Habitat conditions within the survey area immediately north of the fenced Arco Substation.



Photo 2. Small mammal burrow in the grassland immediately north of the Arco Substation.



Photo 3. Small mammal burrows along a road edge northwest of the Arco Substation.



Photo 4. Disked land east of the fenced Arco Substation.



H. T. HARVEY & ASSOCIATES

Ecological Consultants

50 years of field notes, exploration, and excellence

Memorandum

Project# 4638-01

June 21, 2022

To: Christine Lan, Indemitsu Renewables

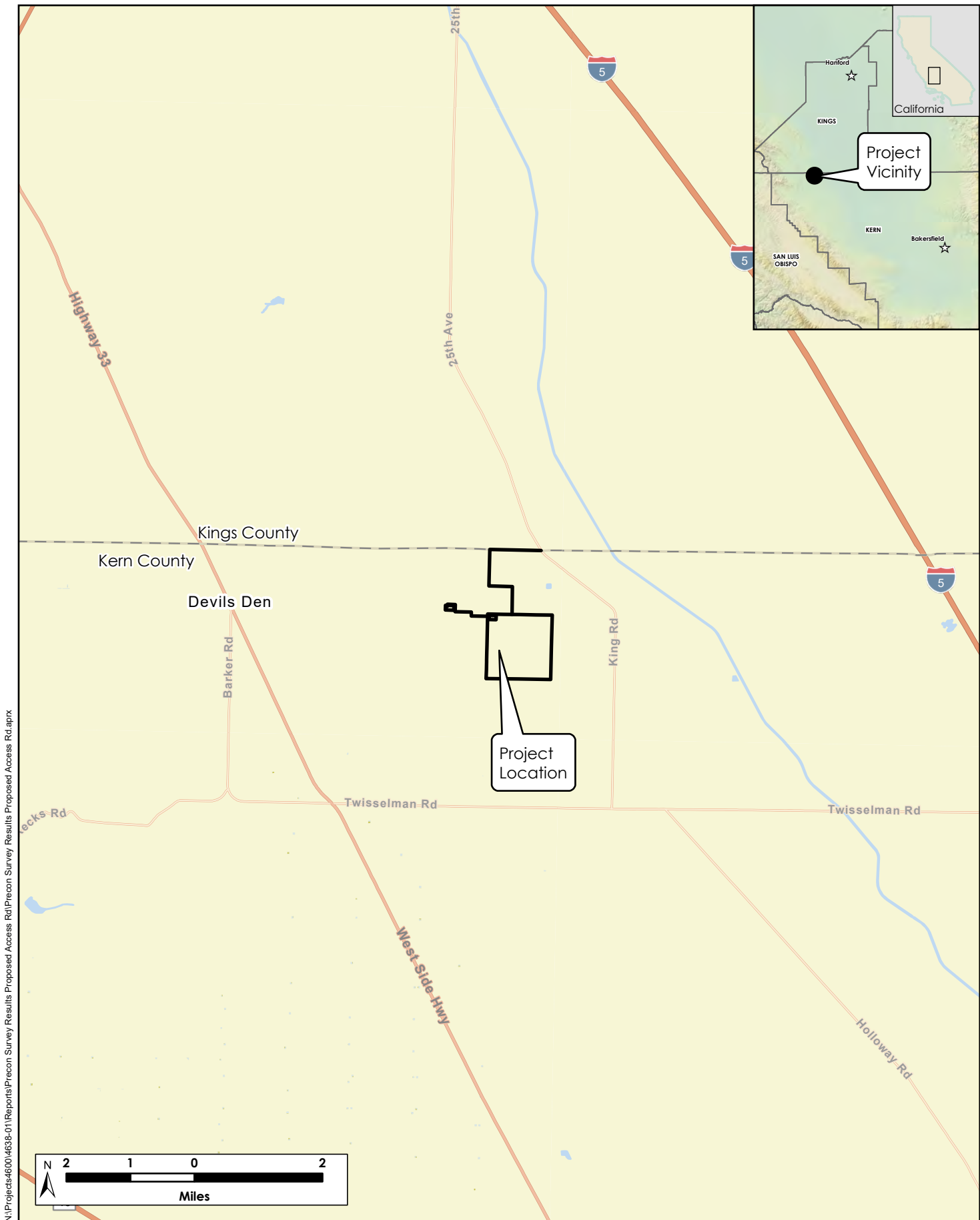
From: Marianne Huizing and Brian Boroski, H. T. Harvey & Associates

Subject: Survey results for San Joaquin antelope squirrel and kangaroo rat burrows along the proposed access road for the Azalea Solar Project

On April 28, 2022, H. T. Harvey & Associates biologists Marianne Huizing, Jacquelyn Maher, and Mia Aguilar conducted a survey for San Joaquin antelope squirrel (*Ammospermophilus nelsonii*) and kangaroo rat (*Dipodomys* spp.) for the Azalea Solar Project (project) in Kern County, California (Figure 1). The survey was conducted along the proposed access road and within a 100-foot buffer of the proposed access road (Figure 2).

The biologists surveyed and walked transects spaced 30 meters apart along the proposed access road. All evidence of San Joaquin antelope squirrel and kangaroo rat occurrences within 100 feet of the proposed access road, including active burrows, scat, tracks, and direct observations, was recorded, and the locations were mapped and tracked using a global positioning system (GPS)–based map. In addition, biologists recorded any sightings of San Joaquin kit fox (*Vulpes macrotis mutica*) and their sign (i.e. dens, tracks, or scats), and sightings of burrowing owl (*Athene cunicularia*) and their sign (i.e. whitewash, feathers at burrow entrance) while surveying for kangaroo rat burrows and San Joaquin antelope squirrel.

The length of the proposed access road is approximately 2 miles, and the initial approximately 0.8 mile is part of an existing gravel road that runs east-west off of King Road (Figure 2). Along the east-west section of the proposed access road extending west from King Road, a fire break of disked ground was present immediately north of the proposed access road and south of the proposed access road on the south side of the livestock fence (Photos 1). All other habitat within the surveyed area consisted of annual grassland (Photos 2 and 3).



N:\Projects\4600\4638-01\Reports\Precon Survey Results Proposed Access Rd.aprx



H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 1. Vicinity Map
Azalea Solar - Small Mammal Survey Results
for the Proposed Access Road (4638-01)
June 2022

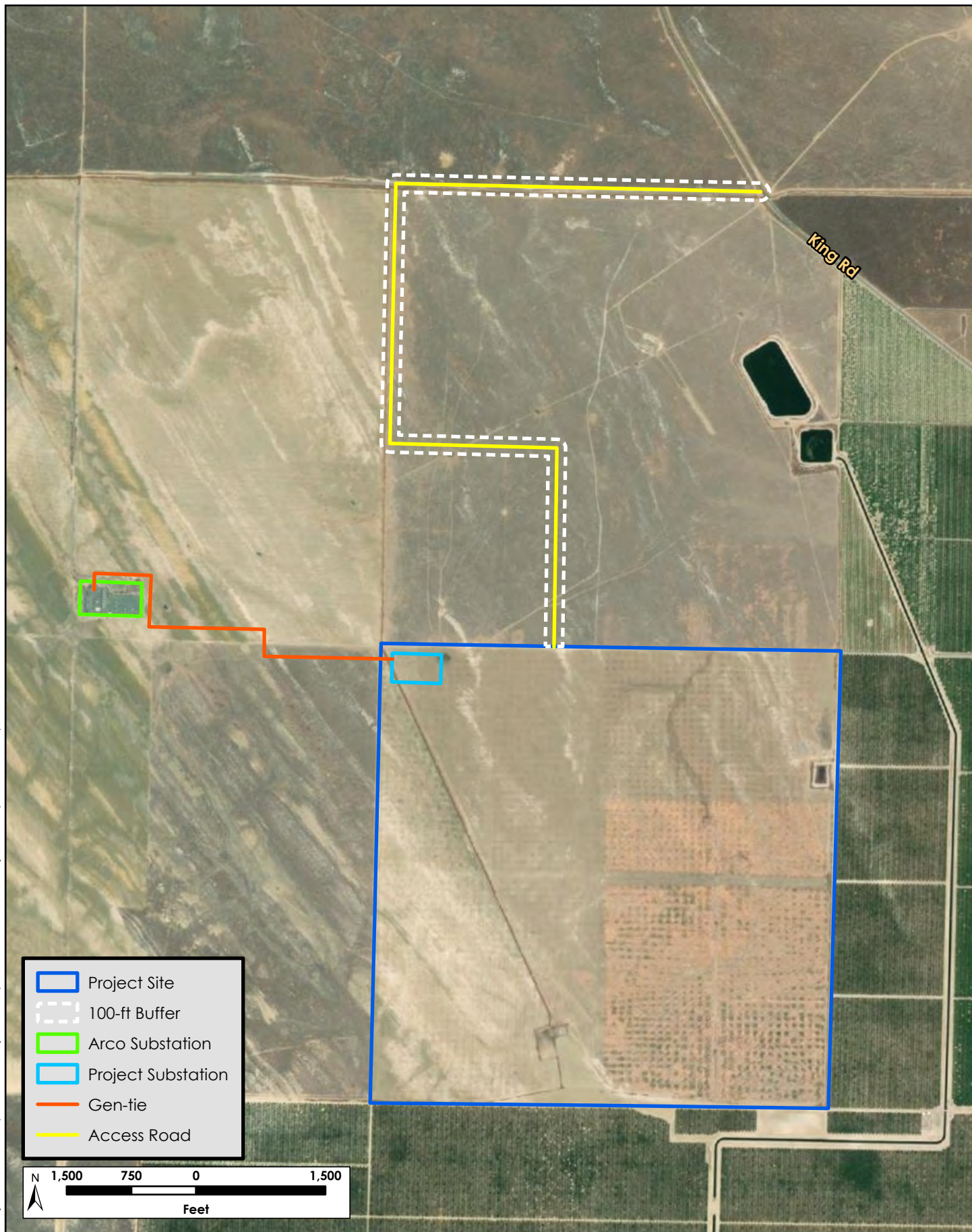


Figure 2. Azalea Sola Project Components

Azalea Solar - Small Mammal Survey Results
for the Proposed Access Road (4638-01)

June 2022



H. T. HARVEY & ASSOCIATES

Ecological Consultants



Figure 3. Preconstruction Survey Results

Azalea Solar - Small Mammal Survey Results
for the Proposed Access Road (4638-01)

June 2022



H. T. HARVEY & ASSOCIATES

Ecological Consultants

No San Joaquin antelope squirrels were observed during the preconstruction survey. Kangaroo rat burrows were observed within the 100-foot buffer of the proposed access road (Figure 3, Photos 2 and 3). Wildlife species observed within the surveyed area included San Joaquin coachwhip (*Coluber flagellum ruddocki*) (Figure 3, Photo 4) and western side-blotched lizard (*Uta stansburiana elegans*). No other wildlife, including sign of San Joaquin kit fox or burrowing owl, was observed during the survey. Trapping is recommended to identify species of kangaroo rat occupying the surveyed area along the processed access road.



Photo 1. Habitat conditions within the survey area immediately north of the proposed access road extending west from King Road.



Photo 2. Kangaroo rat burrows along the existing gravel road that would serve as the access road.



Photo 3. Kangaroo rat burrows within the surveyed area of the proposed access road north of the Project Site.



Photo 4. San Joaquin coachwhip snake.

This Page Intentionally Left Blank

Appendix F

Phase 1 Archaeological Survey Addendum Report

Phase 1 Archaeological Survey Addendum Report

For Kern County Azalea Solar Energy Project Access Roads

SF Azalea, LLC

Lost Hills, California 93249



Prepared By:

Surf to Snow Environmental Resource Management, Inc. (S2S)
2246 Camino Ramon
San Ramon, CA 94583
Brian Frantz, Chief Operating Officer
Phone: 925-718-6275/ Email: brian.frantz@s2serm.com

Bob Masuoka, S2S Principal Regulatory Specialist
Phone: 415-317-7620/ Email: bob.masuoka@S2serm.com

Date: July 2021

Submitted to:

Sam Holing
50 California Street, Suite 820
San Francisco, CA 94111
sam.holing.0170@idemitsurenrenewables.com

TABLE OF CONTENTS

1 – EXECUTIVE SUMMARY	3
2 – INTRODUCTION	3
2.0 PROJECT LOCATION.....	4
2.1 PROJECT DESCRIPTION	4
2.2 REGULATORY COMPLIANCE	4
2.3 PROJECT AREA	9
2.4 DATES OF FIELDWORK AND PERSONNEL.....	9
3 – PROJECT SETTING	10
4 – PREHISTORY AND HISTORY OF THE PROJECT AREA	10
5 – SOURCES CONSULTED.....	10
5.0 ARCHIVAL AND RECORDS SEARCH.....	10
5.1 NATIVE AMERICAN COMMUNICATION.....	11
6 – ARCHAEOLOGICAL SURVEY METHODS AND RESULTS	17
7 – STUDY FINDINGS AND CONCLUSIONS.....	17
7.0 UNANTICIPATED DISCOVERIES	17
7.1 HUMAN REMAINS	18
8 – CEQA CHECKLIST.....	18

LIST OF FIGURES

Figure 1: Project Vicinity Map.....	5
Figure 2: Project Area Map	7
Figure 3: Survey Area Map.....	20

LIST OF TABLES

Table 1: Previous Studies Conducted within a 0.25-mile Radius of the Project Area.	10
Table 2: Native American Outreach by Surf to Snow ERM	13

LIST OF ATTACHMENTS

Attachment A: Records Search Results
Attachment B: Native American Consultation

List of Abbreviations and Acronyms

amsl	above mean sea level
APN	Assessor's Parcel Number
BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CRHR	California Register of Historical Resources
CFR	Code of Federal Regulations
EIR	Project's Environmental Impact Report
FTBMI	Fernandeño Tataviam Band of Mission Indians
GIS	Geographic Information System
GPS	Global Positioning System
KCGP	Kern County General Plan
KCPNRD	Kern County Planning and Natural Resources Department
KCZO	Kern County Zoning Ordinance
MW	Megawatt
NAHC	Native American Heritage Commission
NPR	Naval Petroleum Reserve
PFYC	Potential Fossil Yield Classification
PG&E	Pacific, Gas, & Electric Company
PIR	Paleontological Inventory Report
S2S	Surf to Snow Environmental Resource Management
SSJVIC	Southern San Joaquin Valley Information Center
THPO	Tribal Historic Preservation Officer
USGS	United States Geological Survey

1 – EXECUTIVE SUMMARY

This report summarizes Phase I archaeological investigations completed for the Kern County Azalea Solar Project (Project) Access Roads. SF Azalea, LLC. proposes to construct a solar farm of approximately 800-acres across four parcels in the unincorporated area of Kern County between the communities of Kettleman City and Lost Hills, and a PG&E Substation. The solar farm will be accessed along one of two proposed routes. The Phase I archaeological investigation of the solar farm and proposed access routes assists SF Azalea, LLC. in partial compliance with the requirements of the California Environmental Quality Act (CEQA). The purpose of the investigation was to identify prehistoric or historic period resources within the Project Area that may be adversely affected by construction related activities.

Investigation of the Project access roads described herein is supplemental to the approximately 800-acre Project studied and reported on by Pacific Legacy, under separate cover. As such, the current access road study is provided here as an addendum to the primary report.

Surf to Snow's Phase I investigation of the access roads included a review of environmental, ethnographic, prehistoric, and historic period data for the Project Area, Native American outreach, and an intensive pedestrian survey. Surf to Snow requested a records search and literature review through the California Historical Resources Information System (CHRIS) at the Southern San Joaquin Valley Information Center (SSJVIC). The record search revealed no prehistoric or historic period cultural resources within the Project Area.

Surf to Snow completed a Native American Communication and Sacred Land database search. The review of the Native American Heritage Commission's (NAHC) Sacred Land database was negative. Surf to Snow reached out to 18 Native American tribal contacts identified by the NAHC via certified mail on 7/9/2021, and by email on 7/13/2021.

On June 29th, 2021, Surf to Snow personnel completed an intensive pedestrian survey of the Project Access Roads. The survey yielded negative results for the presence of cultural resources.

Based on the results of the records search, contact with the NAHC and Native American tribal representatives, the pedestrian survey, a review of archival and environmental data, the Project should not cause a substantial adverse change in the significance of a historical or archaeological resource, and should not disturb any human remains. Additional survey will be required if the Project Area changes to include areas not previously surveyed.

2 – INTRODUCTION

This report summarizes Phase I archaeological investigations completed for the Kern County Azalea Solar Project (Project) Access Roads. SF Azalea, LLC. proposes to construct a solar farm on approximately 800-acres across four parcels in the unincorporated area of Kern County between the communities of Kettleman City and Lost Hills, accessed along one of two proposed routes (Figure 1 and Figure 2). This archaeological investigation assists SF Azalea, LLC. in partial compliance with the requirements of the CEQA. Kern County is the CEQA Lead Agency for the Project. The Phase I investigation included archival research, records search, contact with the NAHC and Native American tribal representatives, and a pedestrian inventory survey of the Project Area.

2.0 PROJECT LOCATION

The Project Area is on the west side of the Southern San Joaquin Valley located south of Kettleman City, north of Lost Hills, and west of Interstate 5. It is situated approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, immediately south of the Kern County/Kings County line in the northwestern portion of an unincorporated area of Kern County. The Project Area is located within agricultural lands and the surrounding area is largely dominated by agricultural uses and undeveloped lands. The Project parcels and proposed access roads currently comprise abandoned and fallow agricultural fields. The Project Area is in Township 25 South, Range 19 East, Sections 3 and 11, MDBM (APNs 043-210-17, 043-210-18, 043-220-01, and 043-210-28). The access roads are additionally located in T25S, R19E Sections 2 and 10, and T24S, R19E Sections 33, 34, 35 (APNs 048-350-017 and 048-350-020). Figure 1 depicts the Project Vicinity on the Avenal Gap 7.5-minute USGS topographic map.

2.1 PROJECT DESCRIPTION

The proposed 60 MWac Solar Facility (proposed Facility) would be located in unincorporated land primarily in Kern County with a portion in Kings County. The proposed Facility would be located on approximately 340 acres of the 640-acre site, located approximately 2.5 miles northwest of Twisselman and King Roads, approximately 15 miles northwest of the community of Lost Hills, approximately 6 miles west of Interstate 5, and approximately 5 miles east of State Route 33 (Figure 1). The Facility will interconnect to the existing Pacific Gas and Electric (PG&E) Arco Substation (Figure 2).

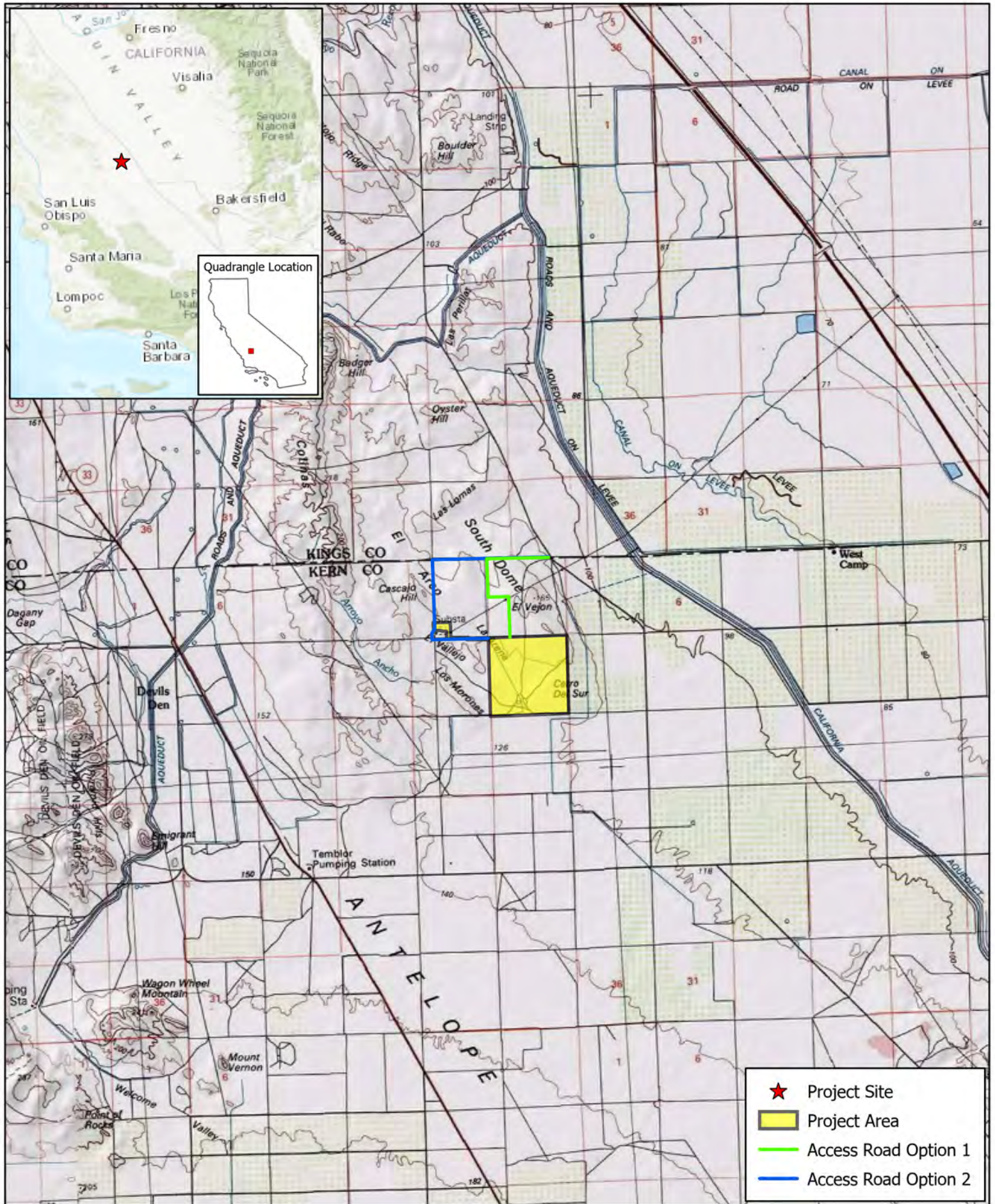
The Project would be accessed off King Rd. approximately 1 mile north of the Project Site. Interior access within the solar array area would be approximately 20-foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kings and Kern County and California Department of Forestry and Fire Protection (CalFire) requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions.

2.2 REGULATORY COMPLIANCE

The Project is subject to CEQA, as codified at *PRC §21000 et seq.*, which requires lead agencies to determine if a proposed Project would have a significant effect on archaeological resources. As defined in *PRC §21083.2*, a “unique” archaeological resource is 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:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type;
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition, the CEQA Guidelines define historical resources as: (1) a resource in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in *PRC §5020.1(k)* or identified as significant in a historical resource survey meeting the requirements of *PRC §5024.1(g)*; or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural,



This Page Intentionally Left Blank

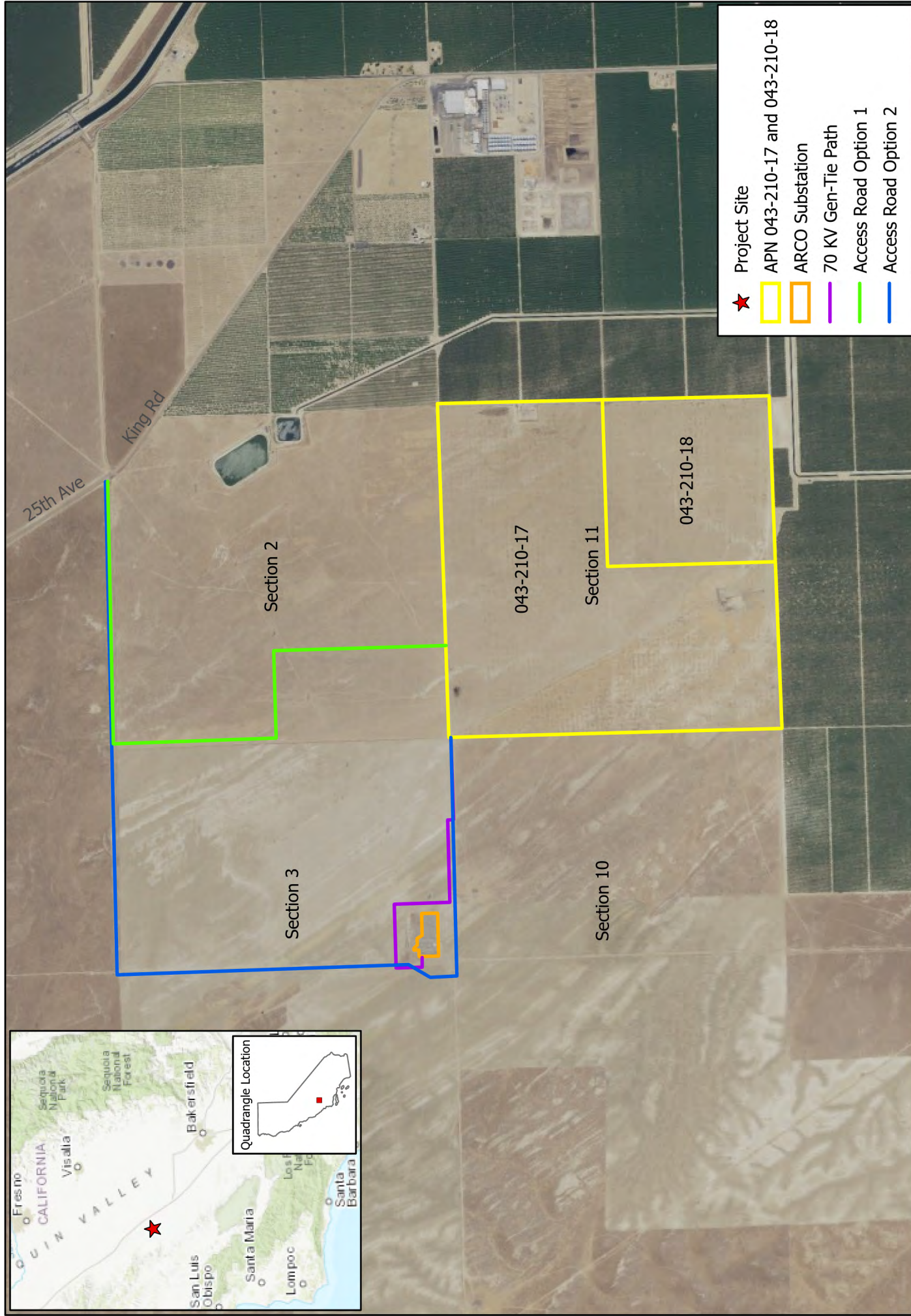


Figure 2: Azalea Project Area
Azalea Solar Energy Project
 Kern County, California

This Page Intentionally Left Blank

engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of *PRC Section 21084.1* and *CEQA Guidelines §15064.5* would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site is to be treated in accordance with the provisions of *PRC Section 21083* regarding unique archaeological resources. The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of a Project on that resource shall not be considered a significant effect on the environment (*CEQA Guidelines §15064[c][4]*).

The CRHR is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code [PRC] §5024.1[a]). The eligibility criteria for inclusion on the CRHR are based on National Register of Historic Places (NRHP) criteria (*PRC §5024.1[b]*). Certain resources are determined by the statute to be automatically included in the California CRHR, including California properties formally determined eligible for, or listed in, the NRHP.

To be eligible for the CRHR, a prehistoric or historic period property must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. It has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be eligible for the CRHR, it must also retain enough of its character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. An historic resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

2.3 PROJECT AREA

The Project Area for this supplementary effort to assess potential access road locations encompasses those areas that may be affected by access road development and use. The Project Area includes the entirety of the potential access road locations, which was surveyed by Surf to Snow personnel. Figure 2 presents the Project Area on a true color orthophoto and Figure 3 presents the archaeological survey area that was conducted by Surf to Snow for this Project.

2.4 DATES OF FIELDWORK AND PERSONNEL

On June 29, 2021, Surf to Snow Senior Archaeologist, James Mangold, completed an intensive pedestrian survey of the Project Area. The survey yielded negative results for the presence of cultural resources. Mr. Mangold additionally served as Principal Investigator, Field Director, and report author, leveraging more than 20 years of experience in cultural resources management and archaeology. Mr. Mangold meets the professional requirements of the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (Federal Register, Vol. 48, No. 190).

3 – PROJECT SETTING

Detailed descriptions of Project Area physical setting, climate, flora, and fauna are presented in the Project Phase 1 Archaeological Survey Report, and as such, are not also presented in this addendum report.

4 – PREHISTORY AND HISTORY OF THE PROJECT AREA

Detailed descriptions of Project Area prehistoric archaeology and ethnography, and historic context, are presented in the Project Phase 1 Archaeological Survey Report, and as such, are not also presented in this addendum report.

5 – SOURCES CONSULTED

5.0 ARCHIVAL AND RECORDS SEARCH

An archival and records search of the CHRIS was conducted at the SSJVIC located at California State University in Bakersfield on June 14, 2021 by SSJVIC coordinator Celeste M. Thompson (SSJVIC File No. 21-234). Records for known cultural resources as well as previous cultural resource studies within a 0.25-mile radius of the Project Area were examined. The search also included the examination of several references and databases on file at the SSJVIC. Those references included the following historic registers maintained by the State of California:

- NRHP Directory of Determinations of Eligibility (California Office of Historic Preservation, Volumes I and II 1990);
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976);
- California Office of Historic Preservation's Built Environment Resources Directory User's Guide (California Office of Historic Preservation 2019).

The archival and records search revealed that no cultural resources have been previously recorded within a 0.25-mile radius of the Project Area. However, 11 previous studies have been conducted within the 0.25-mile radius of which 10 of those studies overlaps the Project Area (see Attachment A). See Table 1 below, which provides a complete list of the previous studies.

Table 1: Previous Studies Conducted within a 0.25-mile Radius of the Project Area.

Study Number	Author(s)	Date	Title	Study Positive (?)
<i>Within 0.25-mile Radius</i>				
KE-03606	J.F. Romani	2009	Archaeological Survey Report: Improvements to King Road to County Line (approximately 4.5 miles), Unincorporated Area, Kern County, California	No
<i>Within Project Area</i>				
KE-00632	A. Macdougall	1994	Cultural Resource Investigation of PG&E's Proposed 70 kV Transmission Line to the Department of Water Resources, Devil's Den, Bluestone and Polonio Pass Pumping Plants and PG&E's Proposed 12 kV Distribution Line to the Department of Water Resources Tank 1 Water Treatment Plant	Yes
KE-01182	R.A. Schiffman,	1980	Draft - Archaeological Overview of Kern County	No

Study Number	Author(s)	Date	Title	Study Positive (?)
	A.P. Garfinkel			
KE-01183	R.A. Schiffman, A.P. Garfinkel	1981	Prehistory of Kern County - An Overview	No
KE-01960	J.H. Cleland, C.M. Woods, E.J. Skinner, M.S. Kelly, R.M. Apple	1986	Kern River Pipeline Cultural Resource Overview	No
KE-02232	Cawley	1961	Cawley Manuscript	No
KE-02873	Aspen Environmental Group	2001	Los Baños-Gates 500 kV Transmission Project: Draft Supplemental Environmental Impact Report [Cultural Resources Section]	No
KE-04435 (KI-00238)	J. Meyer, D.C. Young, J. Rosenthal	2010	Volume I: A Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9 - Cultural Resources Inventory of Caltrans District 6/9 Rural Conventional Highways - EA 06-0A7408 TEA Grant	No
KE-4435a	J. Meyer, D.C. Young, J. Rosenthal	2010	Volume II: Appendices A Geoarchaeological Overview and Assessment of Caltrans District 6 and 9 - Cultural Resources Inventory of Caltrans District 6/9 Rural Conventional Highways - EA 06-0A7408 TEA Grant	
KE-05136	D.S. Whitley, P.A. Carey	2017	Phase I Survey/Class III Inventory, Alamo Springs Solar Project, Kings and Kern Counties, California	No
KI-00071	G.S. Breschini, T. Haversat, R.P. Hampson, M. Ryan, C.R. Smith, G. Lee L.H. Shoup	1983	A Cultural Resources Overview of the Coast and Coast-Valley Study Areas	No
KI-00269	R.A. Schiffman	2015	Archaeological Evaluation of Areas Selected for Possible Nuclear Power Plants by the LADWP	No

All studies are on file with the SSJVIC at Bakersfield State University. Note that study numbers in italics represent reports associated with a larger overarching study or main report and are not considered independent of those works.

Study results indicate positive (cultural resources present) or negative (no cultural resources present) findings within a 0.25-mile radius of the Project Area. The studies above are not listed in the References section.

The records search revealed that nine prior studies had been completed in Kern County that overlapped the Project Area and all produced negative findings with the exception of one study (KE-00632). KE-00632 was conducted in 1994 by A. MacDougall of PG&E who surveyed an area west of the Arco Substation. Only a small portion in the Project Area was surveyed and yielded negative results for the presence of cultural resources; the positive findings in this study are outside of this Project Area. Five of the studies (KE-01182, 01183, 01960, 02232, and 04435 [04435a]) consist of cultural resources overviews or research only. KE-02873 is a supplemental Environmental Impact Report (EIR) of a transmission line corridor which crosses three counties and represents an update to the EIR to identify the preferred alternative project route.

5.1 NATIVE AMERICAN COMMUNICATION

Surf to Snow personnel submitted a Local Government Tribal Consultation List Request to the NAHC for a search of the Sacred Lands File as it encompasses the Project Area on June 9, 2021. Andrew Green, Cultural Resources Analyst with the NAHC, responded to the request on June 30, 2021 and noted that the search was negative and failed to reveal the presence of known Native American resources within the Project Area and he also provided a list of 18 tribal representatives or individuals with potential interest in and knowledge of Kern and Kings Counties and the Project vicinity. All individuals on that list

were contacted by Surf to Snow via certified letter on July 8, 2021, and include Ms. Danelle Gutierrez, Tribal Historic Preservation Officer (THPO) of the Big Pine Paiute Tribe of Owens Valley; Ms. Sally Manning, Environmental Director of the Big Pine Paiute Tribe of Owens Valley; Mr. James Rambeau, Sr., Chairperson of the Big Pine Paiute Tribe of Owens Valley; Mr. Julio Quair, Chairperson of the Chumash Council of Bakersfield; Ms. Brandy Kendricks, Kern Valley Indian Community; Mr. Robert Robinson, Chairperson of the Kern Valley Indian Community; Ms. Julie Turner, Secretary of the Kern Valley Indian Community; Ms. Delia Dominguez, Chairperson of the Kitanemuk & Yowlumne Tejon Indians; Patti Dutton, Tribal Administrator of the Salinan Tribe of Monterey, San Luis Obispo Counties; Mr. Leo Sisco, Chairperson of the Santa Rosa Rancheria Tachi Yokut Tribe; Mr. Octavio Escobedo III, Chairperson of the Tejon Indian Tribe; Mr. Colin Rambo, CRM Technician of the Tejon Indian Tribe; Mr. Neil Peyron, Chairperson of the Tule River Indian Tribe; Kerri Vera, Environmental Department of the Tule River Indian Tribe; Joey Garfield, Tribal Archaeologist of the Tule River Indian Tribe; Karen White, Chairperson of the Xolon-Salinan Tribe; Donna Haro, Tribal Headwoman of the Xolon-Salinan Tribe; and Ms. Mona Olivas Tucker, Chairwoman of the yak tityu yak tiñhini - Northern Chumash Tribe (see Table 2 and Attachment B).

On July 13, 2021, Mr. Mangold submitted project letters and vicinity map via email to 16 of the 18 contacts on the Native American Contact List provided by the NAHC; contact information for two individuals on the contact list did not include an email address. Of the 16 emails sent, two were undeliverable, as those email addresses were invalid. Additional details are provided below in Table 2.

On July 16, 2021, Mr. Mangold placed follow up phone calls to 16 of the 18 contacts on the Native American Contact List provided by the NAHC; phone contact was made with Ms. Vera of the Tule River Indian Tribe, who indicated she was the correct point of contact and that additional outreach to the tribal chairperson and tribal archaeologist on the NAHC contact list was unnecessary. Additional details of phone calls, contact, and project feedback, are provided below in Table 2.

All correspondence between Surf to Snow, the NAHC, Native American stakeholders, and potential Native American stakeholders, regarding the Project are included in Appendix B.

Table 2: Native American Outreach by Surf to Snow ERM

Organization	Contact	Phone/Email	Letter Sent	Follow-up	Comments
Big Pine Paiute Tribe of Owens Valley	Ms. Danelle Gutierrez, THPO PO Box 700 Big Pine, CA 93513	(760) 938-2003, ext. 228 d.gutierrez@bigpinepaiute.org	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed, and a voicemail left when no connection was made.
Big Pine Paiute Tribe of Owens Valley	Ms. Sally Manning, Environmental Director PO Box 700 Big Pine, CA 93513	(760) 938-2003 s.manning@bigpin epaiute.org	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed. The voicemail box was full and so a message could not be left.
Big Pine Paiute Tribe of the Owens Valley	Mr. James Rambeau, Sr., Chairperson P.O. Box 700 Big Pine, CA 93513	(760) 938-2003 j.rambeau@bigpin epaiute.org	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed. The voicemail box was full and so a message could not be left.
Chumash Council of Bakersfield	Mr. Julio Quair, Chairperson 729 Texas Street Bakersfield, CA 93307	(661) 322-0121 chumashtribe@sbc global.net	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. Email was undeliverable due to unfound email address. A follow up phone call was placed. The call was not answered and there was no option to leave a message.
Kern Valley Indian Community	Ms. Brandy Kendricks 30741 Foxridge Court Tehachapi, CA 93561	krazykendricks@h otmail.com (661) 821-1733 (661) 972-0445	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed, and a voicemail left when no connection was made.

Organization	Contact	Phone/Email	Letter Sent	Follow-up	Comments
Kern Valley Indian Community	Mr. Robert Robinson, Chairperson P.O. Box 1010 Lake Isabella, CA 93240	(760) 378-2915 Cell bbutterbredt@gmail.com	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed, and a voicemail left when no connection was made.
Kern Valley Indian Community	Ms. Julie Turner, Secretary P.O. Box 1010 Lake Isabella, CA 93240	(661) 340-0032 Cell	7/9/2021	7/16/2021 (phone)	No Email address provided by NAHC. A follow up phone call was placed, and a voicemail left when no connection was made.
Kitanemuk & Yowlumne Tejon Indians	Ms. Delia Dominguez, Chairperson 115 Radio Street Bakersfield, CA 93305	2deedominguez@gmail.com (626) 339-6785	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed, and a voicemail left when no connection was made.
Salinan Tribe of Monterey, San Luis Obispo Counties	Patti Dutton, Tribal Administrator 7070 Morro Road, Suite A Atascadero, CA, 93422	(805) 464 - 2650 info@salinantribe.com	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed. A message played, but no message could be left.
Santa Rosa Rancheria Tachi Yokut Tribe	Mr. Leo Sisco, Chairperson P.O. Box 8 Lemoore, CA 93245	(559) 924-1278	7/9/2021	7/16/2021 (phone)	No Email address provided by NAHC. A follow up phone call was placed, and a voicemail left when no connection was made. Phone call was returned by Leland McGee, who communicated that Cultural Director Shayna Powers was the appropriate contact at the tribe. A phone call to Ms. Powers was placed, and voicemail was left when contact was not made.
Tejon Indian Tribe	Mr. Octavio Escobedo III, Chairperson P.O Box 640	(661) 834-8566 oescobedo@tejoni ndiantribe-nsn.gov	7/9/2021	7/13/2021 (email) 7/16/2021	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any

Organization	Contact	Phone/Email	Letter Sent	Follow-up	Comments
	Arvin, CA 93203			(phone)	questions. A follow up phone call was placed. The call was not answered and there was no option to leave a message.
Tejon Indian Tribe	Mr. Colin Rambo, CRM Technician PO Box 640 Arvin, CA 93203	(661) 834-8566 (484) 515-4790 cell colin.rambo@tejon indiantribe-nsn.gov	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed, and a voicemail left when no connection was made. Mr. Rambo followed up via email and requested that we talk on the phone the following week.
Tule River Indian Tribe	Mr. Neil Peyron, Chairperson PO Box 589 Porterville, CA 93258	(559) 781-4271 neil.peyron@tuleri vertribe-nsn.gov	7/9/2021	7/13/2021 (email)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. No follow up phone call was made, per guidance from Ms. Vera, as described below.
Tule River Indian Tribe	Kerri Vera, Environmental Department P. O. Box 589 Porterville, CA, 93258	(559) 783 - 8892 kerri.vera@tulerive rtribe-nsn.gov	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call connected with Ms. Vera, who confirmed that she had received the email and would review in the next few days. She also confirmed that she was the best point of contact for the project, and there was no need to follow up with the Chairperson or others at the Tribe.
Tule River Indian Tribe	Joey Garfield, Tribal Archaeologist P. O. Box 589 Porterville, CA, 93258	(559) 783 - 8892 joey.garfield@tuler ivertribensn.gov	7/9/2021	7/13/2021 (email)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. Email was undeliverable due to unfound email address. No

Organization	Contact	Phone/Email	Letter Sent	Follow-up	Comments
					follow up phone call was made, per guidance from Ms. Vera, as described above.
Xolon-Salinan Tribe	Karen White, Chairperson P. O. Box 7045 Spreckels, CA, 93962	(831) 238 - 1488 xolon.salinan.heritage@gmail.com	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed, and a voicemail left when no connection was made.
Xolon-Salinan Tribe	Donna Haro, Tribal Headwoman P. O. Box 7045 Spreckels, CA, 93962	(925) 470 - 5019 dhxolonaakletse@gmail.com	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. A follow up phone call was placed to Ms. Haro, who shared that Chairperson White would in time formally respond via email or letter, and that the content of that response would confirm that the project area is within the Tribe's aboriginal territory, along a boundary between their Tribe and the Yokuts. Further, they are no known sensitive sites in the vicinity, but would appreciate being notified if any prehistoric sites are discovered through project implementation.
yak tityu tityu yak tiñhini – Northern Chumash Tribe	Mona Tucker, Chairperson 660 Camino Del Rey Arroyo Grande, CA, 93420	(805) 748 - 2121 olivas.mona@gmail.com	7/9/2021	7/13/2021 (email) 7/16/2021 (phone)	Surf to Snow (S2S) sent a follow-up email to digitally share the letter and to request feedback/solicit any questions. Placed a follow up phone call, during which Ms. Tucker indicated this project was too far from their ancestral territory to provide information about resources in the area, and the Tejon Tribe should be contacted instead.

6 – ARCHAEOLOGICAL SURVEY METHODS AND RESULTS

On June 29, 2021, Surf to Snow Senior Archaeologist James Mangold completed an intensive pedestrian Phase I archaeological inventory survey of the Project Area in Kern and Kings Counties (see Figure 1). The purpose of the archaeological survey was to identify any previously unrecorded cultural resources within the Project Area that may be affected by the proposed Project. The survey yielded negative results for the presence of cultural resources.

The survey was completed by walking 15-meter wide transects along the length of both proposed access roads. Option 1 traverses west from King Road for .75 miles along an existing paved road, before turning south, east, then south again through open, unimproved ranchland to the solar farm. Option 2 similarly starts at King Road but travels west for 1.5 miles along a paved road, then turns south for .9 miles to the Arco Substation. The remainder of the Option 2 access road then travels east for 0.7 mile along an unimproved, native-surface, two-track road.

The Project Area landform ranges from flats to gently rolling hills, and valleys with sparsely scattered tumbleweed, grasses, datura, and other unidentified low-standing flowering bushes. In all surveyed areas there is evidence of cattle grazing as noted by the presence of cattle wallows, hoof prints, urine-saturated soil, and dried cow dung. Animal burrows are also present throughout the survey area with some extensive and deep burrows observed.

Surface visibility was 100% for almost all the areas surveyed. The few exceptions were along fences and road cuts where tumbleweeds gathered head-high, making visibility 0%.

No signs of prehistoric or historic period deposits, features, or artifacts were observed during the pedestrian survey.

7 – STUDY FINDINGS AND CONCLUSIONS

The records search revealed that no previously recorded archaeological sites overlap the Project Area or are within a 0.25-mile radius. The Native American Consultation and Sacred Land database search was negative and failed to reveal the presence of known Native American resources within the Project Area. The Phase I intensive pedestrian survey yielded negative results for the presence of cultural resources.

Based on the results of the records search, contact with the NAHC and Native American tribal representatives, the pedestrian survey, a review of archival and environmental data, the Project should have no effect on cultural resources or historic period properties. No historic period properties will be affected by the proposed undertaking, and no known prehistoric or historic period resources will be impacted by the Project. Additional survey will be required if the Project Area changes to include areas not previously surveyed. If cultural resources are identified during Project construction activities, the procedures listed below should be followed.

7.0 UNANTICIPATED DISCOVERIES

If any confirmed or suspected cultural resources are located during Project activities, all work in the vicinity of the discovery must cease. The location of the discovery should be secured, and a qualified archaeologist should be notified immediately, if not already present, to assess the find. Archeological materials may include flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, or cryptocrystalline silicate; whole or fragmentary groundstone tools (mortars, pestles, handstones, milling slabs, etc.); faunal bones; fire-affected rock; dark, midden soil; house pit depressions; and human remains. Historic period resources may include, but are not limited to, small

cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled lumber, earthworks, feature or structure remains, debris deposits, and hollow-fill features such as pits or privies.

7.1 HUMAN REMAINS

Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb human remains interred outside a dedicated cemetery. Public Resources Code Section 5097.98 more specifically addresses the discovery of Native American human remains. If human remains are encountered (or are suspected) during any Project-related activities, construction personnel should be advised to

- Stop all work within 25-feet of the discovery;
- Immediately contact a Pacific Legacy Cultural Resource Specialist, if not already present, who will notify the county coroner;
- Secure the discovery location without touching or removing the remains or any associated artifacts;
- Secure any associated spoils and leave them undisturbed so that they can be examined;
- Record the location of the find and keep notes of all calls and events; and
- Treat the find as confidential and do not publicly disclose the location.

If the coroner determines that the human remains are Native American, the coroner must notify the NAHC within 24 hours per Public Resources Code Section 5097.98.

8 – CEQA CHECKLIST

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

Would the project:

- a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?**

No historical resources were previously identified within the Project Area or identified as a result of the investigation reported herein. The Project would therefore result in **No Impact**.

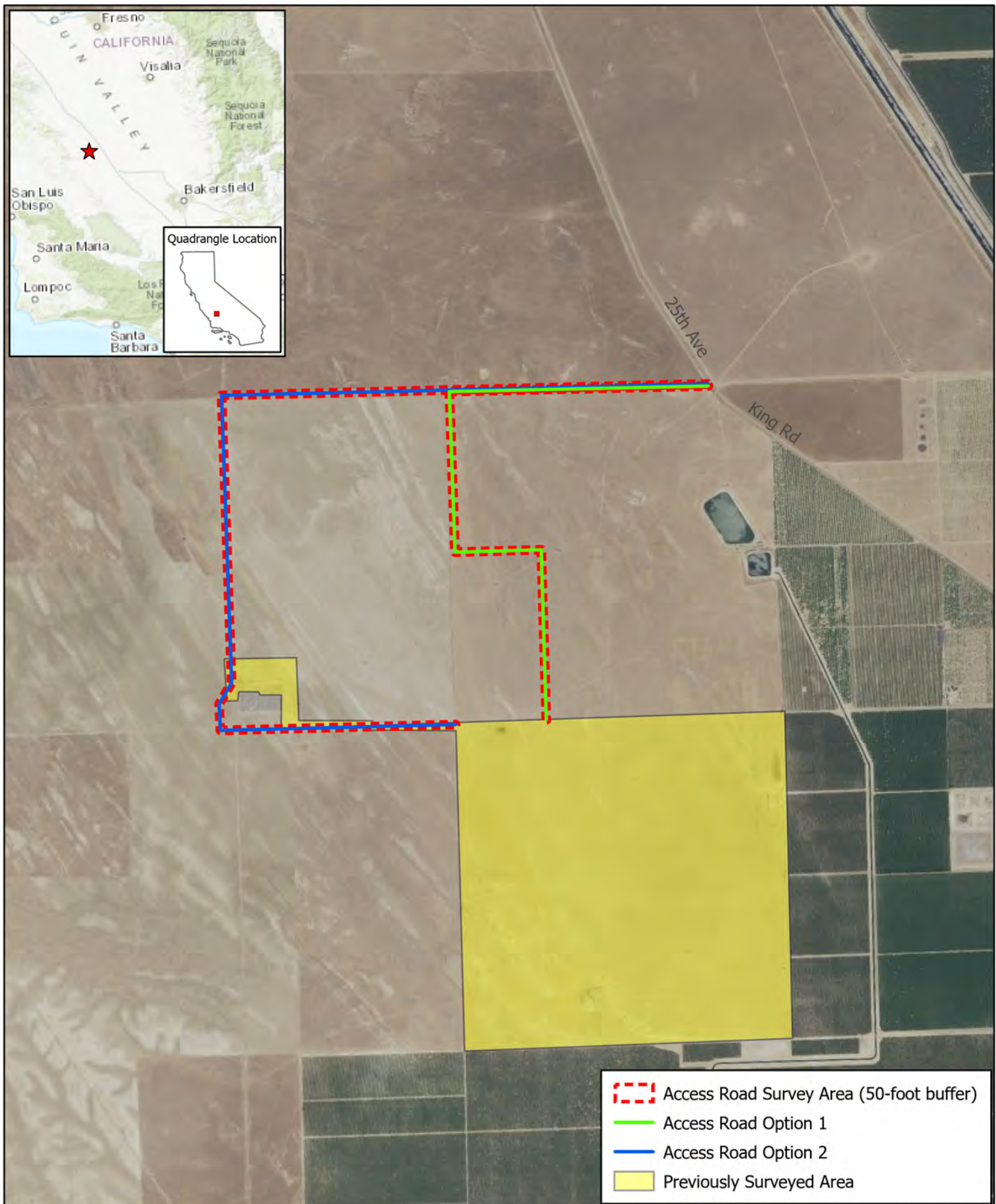
- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?**

No archaeological resources were previously identified within the Project Area or identified as a result of the investigation reported herein. The Project would therefore result in **No Impact**.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

No human remains within or beyond dedicated cemetery boundaries were previously identified within the Project Area or identified as a result of the investigation reported herein. The Project would therefore result in **No Impact**.

This Page Intentionally Left Blank



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

N
1:24,000

0 0.5 1 Mile
0 0.5 1 Kilometer

Figure 3: Azalea Survey Area
Azalea Solar Energy Project
Kern County, California

This Page Intentionally Left Blank

Attachment A: Records Search Results

This Page Intentionally Left Blank

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: _____ **IC FILE NO.:** _____

To: _____ Information Center

Print Name: _____ Date: _____

Affiliation: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

Billing Address (if different than above): _____

Billing Email: _____ Billing Phone: _____

Project Name / Reference: _____

Project Street Address: _____

County or Counties: _____

Township/Range/UTMs: _____

USGS 7.5' Quad(s): _____

PRIORITY RESPONSE (Additional Fee): yes / no

TOTAL FEE NOT TO EXCEED: \$ _____

(If blank, the Information Center will contact you if the fee is expected to exceed \$1,000.00)

Special Instructions:

Information Center Use Only

Date of CHRIS Data Provided for this Request: _____

Confidential Data Included in Response: yes / no

Notes: _____

CHRIS Data Request Form

Mark the request form as needed. Attach a PDF of your project area (with the radius if applicable) mapped on a 7.5' USGS topographic quadrangle to scale 1:24000 ratio 1:1 neither enlarged nor reduced and include a shapefile of your project area, if available. Shapefiles are the current CHRIS standard for submitting digital spatial data for your project area or radius. **Check with the appropriate IC for current availability of digital data products.**

- Documents will be provided in PDF format. Paper copies will only be provided if PDFs are not available at the time of the request or under specially arranged circumstances.
- Location information will be provided as a digital map product (Custom Maps or GIS data) unless the area has not yet been digitized. In such circumstances, the IC may provide hand drawn maps.
- In addition to the \$150/hr. staff time fee, client will be charged the Custom Map fee when GIS is required to complete the request [e.g., a map printout or map image/PDF is requested and no GIS Data is requested, or an electronic product is requested (derived from GIS data) but no mapping is requested].

For product fees, see the CHRIS IC Fee Structure on the [OHP website](#).

1. Map Format Choice:

Select One: Custom GIS Maps ☐ GIS Data ☐ Custom GIS Maps and GIS Data ☐ No Maps ☐

Any selection below left unmarked will be considered a "no."

Location Information:

	Within project area	Within _____	radius
ARCHAEOLOGICAL Resource Locations ¹	yes / no	yes / no	
NON-ARCHAEOLOGICAL Resource Locations	yes / no	yes / no	
Report Locations ¹	yes / no	yes / no	
"Other" Report Locations ²	yes / no	yes / no	

3. Database Information:

(contact the IC for product examples, or visit the [SSJVIC website](#) for examples)

	Within project area	Within _____	radius
ARCHAEOLOGICAL Resource Database¹			
List (PDF format)	yes / no	yes / no	
Detail (PDF format)	yes / no	yes / no	
Excel Spreadsheet	yes / no	yes / no	
NON-ARCHAEOLOGICAL Resource Database			
List (PDF format)	yes / no	yes / no	
Detail (PDF format)	yes / no	yes / no	
Excel Spreadsheet	yes / no	yes / no	
Report Database¹			
List (PDF format)	yes / no	yes / no	
Detail (PDF format)	yes / no	yes / no	
Excel Spreadsheet	yes / no	yes / no	
Include "Other" Reports ²	yes / no	yes / no	

4. Document PDFs (paper copy only upon request):

	Within project area	Within _____	radius
ARCHAEOLOGICAL Resource Records ¹	yes / no	yes / no	
NON-ARCHAEOLOGICAL Resource Records	yes / no	yes / no	
Reports ¹	yes / no	yes / no	
"Other" Reports ²	yes / no	yes / no	

CHRIS Data Request Form

5. Eligibility Listings and Documentation:

	Within project area	Within _____	radius
OHP Built Environment Resources Directory³:			
Directory listing only (Excel format)	yes / no	yes / no	
Associated documentation ⁴	yes / no	yes / no	
OHP Archaeological Resources Directory^{1,5}:			
Directory listing only (Excel format)	yes / no	yes / no	
Associated documentation ⁴	yes / no	yes / no	
California Inventory of Historic Resources (1976):			
Directory listing only (PDF format)	yes / no	yes / no	
Associated documentation ⁴	yes / no	yes / no	

6. Additional Information:

The following sources of information may be available through the Information Center. However, several of these sources are now available on the [OHP website](#) and can be accessed directly. The Office of Historic Preservation makes no guarantees about the availability, completeness, or accuracy of the information provided through these sources. Indicate below if the Information Center should review and provide documentation (if available) of any of the following sources as part of this request.

Caltrans Bridge Survey	yes / no
Ethnographic Information	yes / no
Historical Literature	yes / no
Historical Maps	yes / no
Local Inventories	yes / no
GLO and/or Rancho Plat Maps	yes / no
Shipwreck Inventory	yes / no
Soil Survey Maps	yes / no

¹ In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual and be identified as an Authorized User or Conditional User under an active CHRIS Access and Use Agreement.

² "Other" Reports GIS layer consists of report study areas for which the report content is almost entirely non-fieldwork related (e.g., local/regional history, or overview) and/or for which the presentation of the study area boundary may or may not add value to a record search.

³ Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Includes, but not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys. Previously known as the HRI and then as the HPD, it is now known as the Built Environment Resources Directory (BERD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

⁴ Associated documentation will vary by resource. Contact the IC for further details.

⁵ Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Previously known as the Archaeological Determinations of Eligibility, now it is known as the Archaeological Resources Directory (ARD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

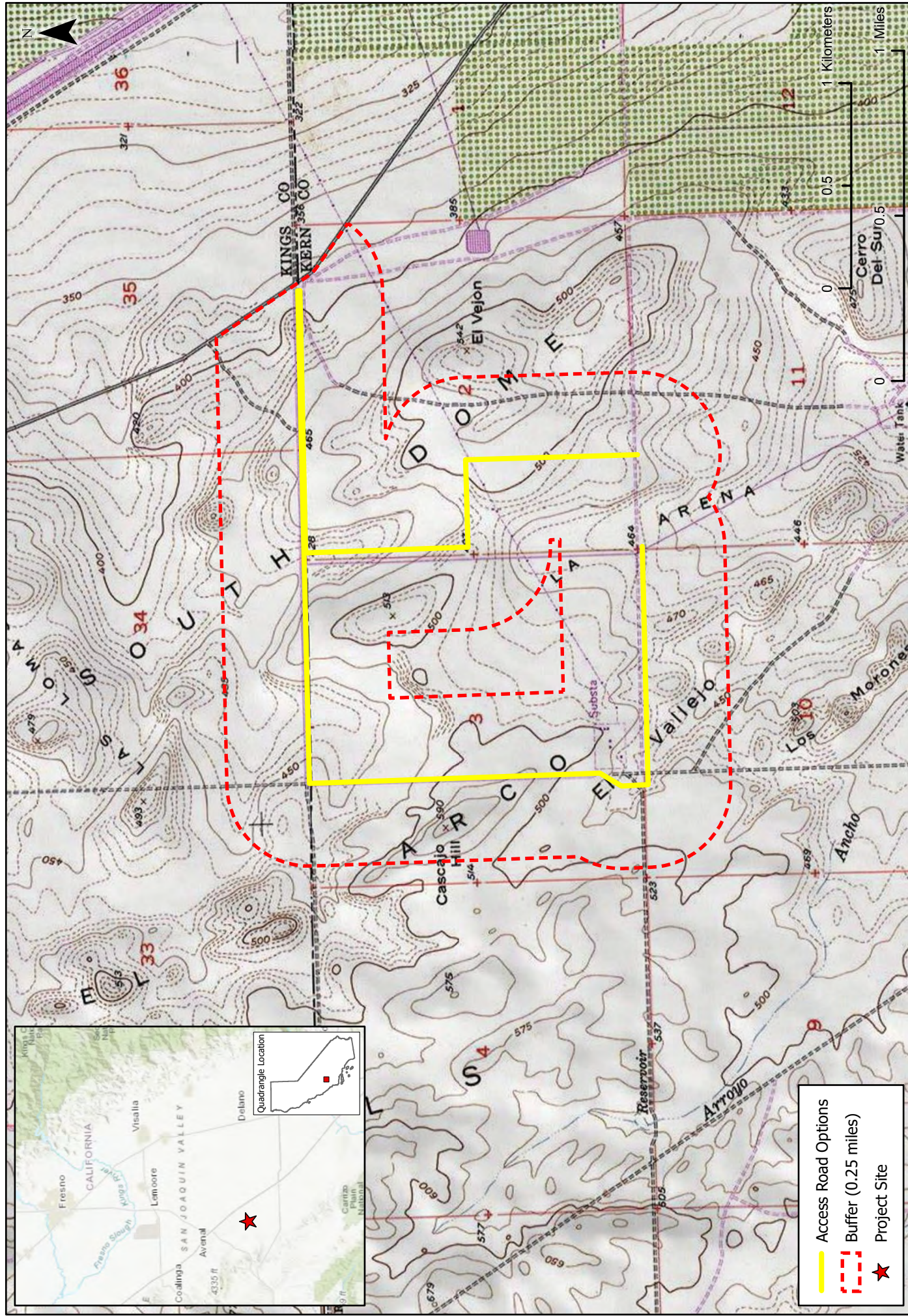


Figure 1: Azalea Solar Project Access Roads Map
Azalea Solar Energy Project
Kern County, California



6/14/2021

James Mangold
Surf to Snow Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583

Re: Azalea Solar Access Road
Records Search File No.: 21-234

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on the Avenal Gap USGS 7.5' quad. The following reflects the results of the records search for the project area and the 0.25 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ GIS data

Resources within project area:	None
Resources within 0.25 mile radius:	None
Reports within project area:	KE-00632, KE-01182, KE-01183, KE-01960, KE-02232, KE-02873, KE-04435 (KI-00238), KE-05136, KI-00071, KI-00269
Reports within 0.25 mile radius:	KE-03606

Resource Database Printout (list): ☐ enclosed ☒ not requested ☐ nothing listed

Resource Database Printout (details): ☐ enclosed ☐ not requested ☒ nothing listed

Resource Digital Database Records: ☐ enclosed ☐ not requested ☒ nothing listed

Report Database Printout (list): ☐ enclosed ☒ not requested ☐ nothing listed

Report Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed

Report Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Resource Record Copies: ☐ enclosed ☐ not requested ☒ nothing listed

Report Copies: ☒ enclosed ☐ not requested ☐ nothing listed

OHP Built Environment Resources Directory: ☐ enclosed ☐ not requested ☒ nothing listed

Archaeological Determinations of Eligibility: ☐ enclosed ☐ not requested ☒ nothing listed

CA Inventory of Historic Resources (1976): ☐ enclosed ☐ not requested ☒ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see
<https://dot.ca.gov/programs/environmental-analysis/cultural-studies/california-historical-bridges-tunnels>

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see
<http://historicalmaps.arcgis.com/usgs/>

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see
<http://www.glorerecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1> and/or
<http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items>

Shipwreck Inventory: Not available at SSJVIC; please see
<https://www.slc.ca.gov/shipwrecks/>

Soil Survey Maps: Not available at SSJVIC; please see
<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Celeste M. Thomson
Coordinator

Attachment B: Native American Consultation

This Page Intentionally Left Blank

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission

1550 Harbor Blvd, Suite 100

West Sacramento, CA 95691

916-373-3710

916-373-5471 – Fax

nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Azalea Solar Project Access Roads

County: Kern

USGS Quadrangle Name: Avenal Gap

Township: 25S **Range:** 19E **Section(s):** 2, 3, 10, 11

Township: 24S **Range:** 19E **Section(s):** 33, 34, 35

Company/Firm/Agency: Surf to Snow Environmental Resource Management

Street Address: 2246 Camino Ramon

City: San Ramon **Zip:** 94583

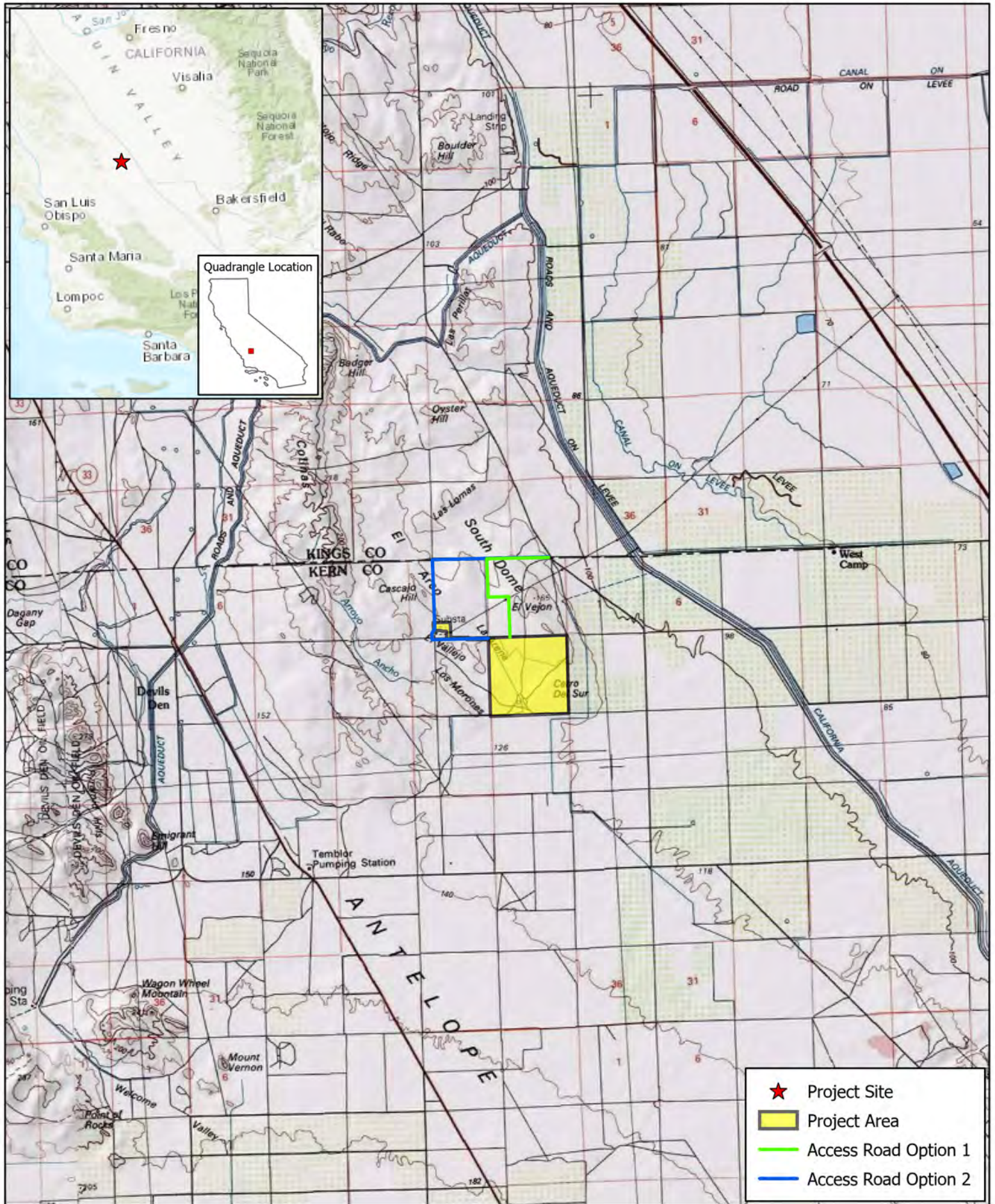
Phone: (530) 321-9307

Fax:

Email: James.Mangold@s2serm.com

Project Description:

A solar farm is planned near King Road in northern Kern County, California. A Sacred Lands File & Native American Contacts List Request was formerly submitted for that 650 acre parcel. The current request is for two potential access roads to the proposed solar farm. The design will not be finalized until after cultural, paleontological, and biological resources are identified, so that the solar farm and access roads can avoid potential impacts to resources.



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

N
1:100,000

0 2 4 Miles
0 2 4 Kilometers

Figure 1: Azalea Location
Azalea Solar Energy Project
Kern County, California



NATIVE AMERICAN HERITAGE COMMISSION

June 30, 2021

James Mangold
Surf to Snow Environmental Resource Management

Via Email to: James.Mangold@s2serm.com

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain
Apache

COMMISSIONER
Julie Tumamait-
Stenslie
Chumash

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

Re: Azalea Solar Project Access Roads Project, Kern County

Dear Mr. Mangold:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green
Cultural Resources Analyst

Attachment

**Native American Heritage Commission
Native American Contact List
Kern County
6/30/2021**

Big Pine Paiute Tribe of the Owens Valley

James Rambeau, Chairperson
P. O. Box 700
Big Pine, CA, 93513
Phone: (760) 938 - 2003
Fax: (760) 938-2942
j.rambeau@bigpinepaiute.org

Paiute-Shoshone

Kern Valley Indian Community

Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella, CA, 93283
Phone: (760) 378 - 2915
bbutterbredt@gmail.com

Kawaiisu
Tubatulabal
Koso

Big Pine Paiute Tribe of the Owens Valley

Danelle Gutierrez, Tribal Historic Preservation Officer
P.O. Box 700
Big Pine, CA, 93513
Phone: (760) 938 - 2003
Fax: (760) 938-2942
d.gutierrez@bigpinepaiute.org

Paiute-Shoshone

Kitanemuk & Yowlumne Tejon Indians

Delia Dominguez, Chairperson
115 Radio Street
Bakersfield, CA, 93305
Phone: (626) 339 - 6785
2deedominguez@gmail.com

Kitanemuk
Southern Valley
Yokut

Salinan Tribe of Monterey, San Luis Obispo Counties

Patti Dutton, Tribal Administrator
7070 Morro Road, Suite A
Atascadero, CA, 93422
Phone: (805) 464 - 2650
info@salinatribes.com

Salinan

Big Pine Paiute Tribe of Owens Valley

Sally Manning, Environmental Director
P. O. Box 700
Big Pine, CA, 93513
Phone: (760) 938 - 2003
s.manning@bigpinepaiute.org

Paiute-Shoshone

Santa Rosa Rancheria Tachi Yokut Tribe

Leo Sisco, Chairperson
P.O. Box 8
Lemoore, CA, 93245
Phone: (559) 924 - 1278
Fax: (559) 924-3583

Southern Valley
Yokut

Chumash Council of Bakersfield

Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA, 93307
Phone: (661) 322 - 0121
chumashtribe@sbcglobal.net

Chumash

Tejon Indian Tribe

Colin Rambo,
P.O. Box 640
Arvin, CA, 93203
Phone: (661) 834 - 8566
colin.rambo@tejonindiantribe-nsn.gov

Kitanemuk

Kern Valley Indian Community

Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA, 93240
Phone: (661) 340 - 0032

Kawaiisu
Tubatulabal
Koso

Tejon Indian Tribe

Octavio Escobedo, Chairperson
P.O. Box 640
Arvin, CA, 93203
Phone: (661) 834 - 8566
oescobedo@tejonindiantribe-nsn.gov

Kitanemuk

Kern Valley Indian Community

Brandy Kendricks,
30741 Foxridge Court
Tehachapi, CA, 93561
Phone: (661) 821 - 1733
krazykendricks@hotmail.com

Kawaiisu
Tubatulabal
Koso

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Azalea Solar Project Access Roads Project, Kern County.

**Native American Heritage Commission
Native American Contact List
Kern County
6/30/2021**

Tule River Indian Tribe

Neil Peyron, Chairperson
P.O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 781 - 4271
Fax: (559) 781-4610
neil.peyron@tulerivertribe-nsn.gov

Tule River Indian Tribe

Kerri Vera, Environmental
Department
P. O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
kerri.vera@tulerivertribe-nsn.gov

Tule River Indian Tribe

Joey Garfield, Tribal Archaeologist
P. O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
joey.garfield@tulerivertribe-nsn.gov

Xolon-Salinan Tribe

Karen White, Chairperson
P. O. Box 7045 Salinan
Spreckels, CA, 93962
Phone: (831) 238 - 1488
xolon.salinan.heritage@gmail.com

Xolon-Salinan Tribe

Donna Haro, Tribal Headwoman
P. O. Box 7045 Salinan
Spreckels, CA, 93962
Phone: (925) 470 - 5019
dhxolonaakletse@gmail.com

***yak tityu tityu yak tilhini –
Northern Chumash Tribe***

Mona Tucker, Chairperson
660 Camino Del Rey Chumash
Arroyo Grande, CA, 93420
Phone: (805) 748 - 2121
olivas.mona@gmail.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Azalea Solar Project Access Roads Project, Kern County.



Delia Dominguez, Chairperson
Kitanemuk & Yowlumne Tejon
Indians
115 Radio Street
Bakersfield, CA, 93305

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Dominguez,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Patti Dutton, Tribal Administrator
Salinan Tribe of Monterey, San
Luis Obispo Counties
7070 Morro Road, Suite A
Atascadero, CA, 93422

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Dutton,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Octavio Escobedo, Chairperson
Tejon Indian Tribe
P.O. Box 640
Arvin, CA, 93203

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Escobedo,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Joey Garfield, Tribal Archaeologist
Tule River Indian Tribe
P.O. Box 589
Porterville, CA, 93258

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Garfield,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Danelle Gutierrez, Tribal Historic
Preservation Officer
Big Pine Paiute Tribe of the
Owens Valley
P.O. Box 700
Big Pine, CA, 93513

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Gutierrez,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Donna Haro, Tribal Headwoman
Xolon-Salinan Tribe
P. O. Box 7045
Spreckels, CA, 93962

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Haro,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Brandy Kendricks
Kern Valley Indian Community
30741 Foxridge Court
Tehachapi, CA, 93561

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Kendricks,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Sally Manning, Environmental
Director
Big Pine Paiute Tribe of Owens
Valley
P. O. Box 700
Big Pine, CA, 93513

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Manning,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Neil Peyron, Chairperson
Tule River Indian Tribe
P.O. Box 589
Porterville, CA, 93258

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Peyron,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Julio Quair, Chairperson
Chumash Council of
Bakersfield
729 Texas Street
Bakersfield, CA, 93307

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Quair,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



James Rambeau, Chairperson
Big Pine Paiute Tribe of the
Owens Valley
P. O. Box 700
Big Pine, CA, 93513

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Rambeau,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Colin Rambo
Tejon Indian Tribe
P.O. Box 640
Arvin, CA, 93203

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Rambo,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Robert Robinson, Chairperson
Kern Valley Indian Community
P.O. Box 1010
Lake Isabella, CA, 93283

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Robinson,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Leo Sisco, Chairperson
Santa Rosa Rancheria Tachi
Yokut Tribe
P.O. Box 8
Lemoore, CA, 93245

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Mr. Sisco,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utilityscale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Mona Tucker, Chairperson
yak tityu tityu yak tilhini –
Northern Chumash Tribe
660 Camino Del Rey
Arroyo Grande, CA, 93420

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Tucker,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an “environmentally sensitive area.” At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Julie Turner, Secretary
Kern Valley Indian Community
P.O. Box 1010
Lake Isabella, CA, 93240

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Turner,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Kerri Vera, Environmental
Department
Tule River Indian Tribe
P.O. Box 589
Porterville, CA, 93258

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. Vera,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utilityscale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map



Karen White, Chairperson
Xolon-Salinan Tribe
P. O. Box 7045
Spreckels, CA, 93962

July 19, 2021

RE: Azalea Solar Project Access Roads

Dear Ms. White,

Surf to Snow has been retained to assist with CEQA compliance for the proposed Azalea Solar Project (Project), in Kern County, California. The Project proposes to develop a 60-Megawatt (MW) utility-scale solar farm on approximately 640 acres across two (2) agricultural parcels, which will include: solar panels, security fencing, energy storage battery systems, and gen-tie lines to connect the solar farm to the existing PG&E substation adjacent to the agricultural parcels. These facilities will be constructed and maintained using one of two proposed access routes. The Project has been the subject of previous study and consultation, but the proposed access routes have not, and these access routes are therefore the sole subject of this letter. The access route will not be finalized until after cultural, paleontological, and biological resources are identified, so that the access route can avoid potential impacts to resources.

The Project would be accessed off King Rd. approximately one-mile north of the Project site, at the Kings/Kern County line. Proposed access routes are in Township 25 South, Range 19 East, Sections 2, 3, 10, and 11, and in Township 24 South, Range 19 East, Sections 33, 34 and 35. The Project area is depicted in the attached figure on the Avenal Gap, California, 7.5-minute USGS topographic map.

A request for a search of the Sacred Lands Inventory has been submitted to the Native American Heritage Commission (NAHC). Their review failed to indicate the presence of cultural resources in the immediate project area. The NAHC provided your name to us and indicated that you may have knowledge of or concerns about the current Project vicinity. If appropriate, please provide us with any information you may have regarding locations of concern to local Native American groups within the Project area. This information will be used for Project planning and will be kept confidential. If you do not feel it is appropriate to divulge the type of resource, it can be noted as an "environmentally sensitive area." At present, there is no fixed start date for construction. You may respond by mail, email, or phone. We look forward to receiving your reply within 30 days. If you have any questions, please contact me at James.Mangold@s2serm.com. Thank you for your kind attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "James Mangold".

James Mangold
Senior Archaeologist
(530) 321-9307
James.Mangold@s2serm.com

Attachment: Figure 1. Project Location Map

This Page Intentionally Left Blank

Appendix G

Energy Technical Report

Energy Technical Report

For Kern County Azalea Solar Energy Project

SF Azalea, LLC

Lost Hills, California 93249



Prepared By:

Surf to Snow Environmental Resource Management, Inc. (S2S)
2246 Camino Ramon
San Ramon, CA 94583
Brian Frantz, Chief Operating Officer
Phone: 925-718-6275/ Email: brian.frantz@s2serm.com

Bob Masuoka, S2S Principal Regulatory Specialist
Phone: 415-317-7620/ Email: bob.masuoka@S2serm.com

Date: August 2021

Submitted to:

Sam Holing
50 California Street, Suite 820
San Francisco, CA 94111
sam.holing.0170@idemitsurenrenewables.com

TABLE OF CONTENTS

1 – INTRODUCTION.....	1
1.0 Summary of Findings.....	1
1.1 Methodology.....	1
2 – REGULATORY SETTING	2
2.0 Federal Regulatory Setting	2
2.1 State and Regional Regulatory Setting	5
3 – ENVIRONMENTAL SETTING	9
3.0 Site Features and Surrounding Land Uses	9
3.1 Project Construction	10
4 – ENERGY USE.....	10
4.0 Project Construction Energy Use	10
4.1 Project Operation Energy Use	12
5 – ENVIRONMENTAL ANALYSIS.....	13
5.0 Significance Criteria	13
5.1 CEQA Checklist – Impacts and Mitigation Measures.....	14
5.2 Cumulative Effects	18
6 – REFERENCES.....	19

LIST OF FIGURES

Figure 1: Project Vicinity and APN Map.....	3
---	---

LIST OF TABLES

Table 1: Summary of Construction Activity Durations	10
Table 2: Equipment Per Phase	11
Table 3: Operations and Maintenance Commuter Annual Fuel Use.....	13
Table 4: Summary of Construction Energy Use	15
Table 5: Summary of Operational Energy Use.....	17

LIST OF ATTACHMENTS

Attachment A: Energy Data and Calculations
Attachment B: Emission Calculations and CalEEMod Results

Acronyms and Abbreviations

AB	Assembly Bill
amsl	Above Mean Sea Level
AC	Alternating Current
BMP	Best Management Practices
CEQA	California Environmental Quality Act
CUP	Conditional Use Permit
DC	direct current
EIR	Environmental Impact Report
GHG	greenhouse gas
kV	Kilovolt
MW	Megawatts
PV	photovoltaic
SB	Senate Bill
AB	Assembly Bill
amsl	Above Mean Sea Level
AC	Alternating Current
BMP	Best Management Practices
CEQA	California Environmental Quality Act
CUP	Conditional Use Permit
DC	direct current
EIR	Environmental Impact Report

1 – INTRODUCTION

1.0 SUMMARY OF FINDINGS

This report presents the results of an evaluation of the use of energy resources associated with the Azalea Solar Project, a 60 MW solar photovoltaic (PV) project located primarily in northern Kern County, with a portion in Kings County, California (see Figure 1). The Energy Technical Report was prepared as a study in support of the Azalea Solar Project Environmental Impact Report (EIR).

The Azalea Solar Farm Facility (project) is a photovoltaic (PV) solar generating facility that will provide up to 60 megawatts (MW) of clean, renewable energy. The proposed project consists of a utility-scale solar farm on approximately 340 acres of a 640 acre site, across two parcels, which will include: solar panels, security fencing, and energy storage battery systems. The project study area also includes an additional two parcels for the proposed gen-tie lines and crosses additional parcels for an access road to the project site. Located in the unincorporated northwest area of Kern County, the solar construction site is approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, and directly south of the Kern County/Kings County line. The project site is situated on agricultural lands, and the surrounding area is largely dominated by agricultural uses and undeveloped lands.

The clean, renewable energy generated by the project will help California's utilities meet the renewable portfolio standard per Senate Bill (SB) 100. Signed into law in September 2018, SB 100 requires California utilities to procure higher percentages of renewable energy sold to retail customers than previously. The new targets are for 50 percent renewable resources by December 31, 2026, 60 percent by December 31, 2030, and 100 percent from eligible renewable energy resources and zero- carbon resources by 2045.

The project will also include energy battery storage to help the California Independent System Operator manage the intermittent nature of solar generation by storing excess energy during times of peak generation for release during times of peak demand. Construction of this project is expected to include grading, trenching to accommodate underground electric work, and installation of foundation piers, PV racking, modules, and electrical equipment. Construction is expected to last an estimated 12 to 14 months, beginning in 2022.

This report describes existing environmental and regulatory conditions, potential project-related impacts, and best management practices (BMPs) related to energy in the project area. Federal, state, and regional regulations are discussed, followed by BMPs and an evaluation of impacts, organized by the significance criteria identified. With the implementation of relevant Mitigation Measures the project would result in less-than-significant energy impacts.

1.1 METHODOLOGY

The study has been developed pursuant to Section 15126.2(b) of the 2019 California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). The CEQA checklist questions related to energy were used to evaluate the potential impacts of the project. Section 5 of this report addresses the screening thresholds set forth in Appendix G of the CEQA Guidelines to evaluate energy impacts. Section 5 further provides an evaluation of potential impacts for each checklist question. Appendix A contains the project construction and operation calculations related to energy use that were used to prepare the energy checklist responses. Appendix B provides the Emissions and CalModEE calculations used to prepare the project air quality and greenhouse gas report.

2 – REGULATORY SETTING

2.0 FEDERAL REGULATORY SETTING

2.0.0 Corporate Average Fuel Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and United States Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy. Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA, 2012b).

2.0.1 National Energy Policy and Conservation Act

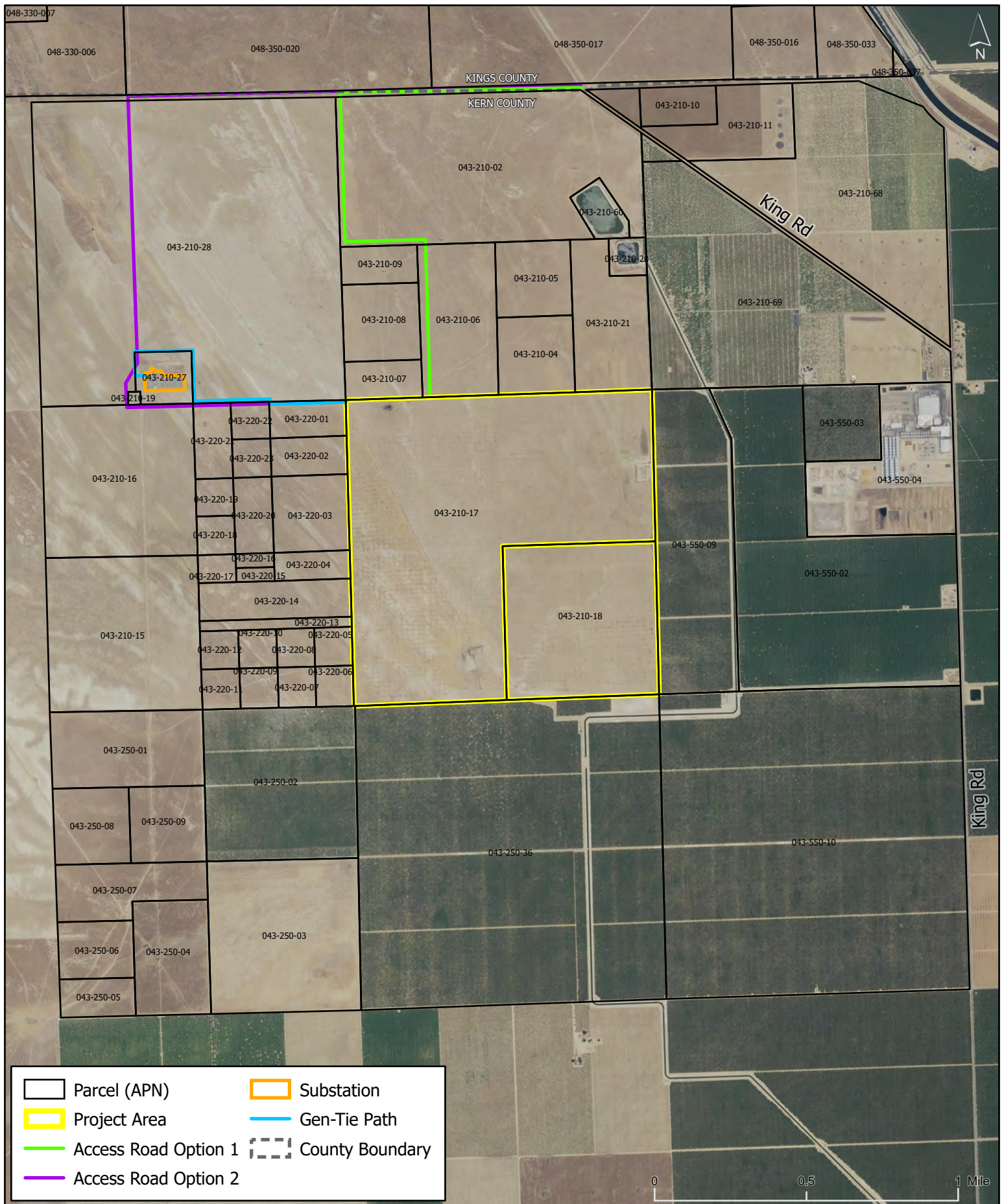
The National Energy Conservation Policy Act serves as the underlying authority for Federal energy management goals and requirements. Signed into law in 1975, it has been regularly updated and amended by subsequent laws and regulations. Pursuant to the Act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer’s average fuel economy for the fleet of vehicles available for sale in the United States.

2.0.2 Energy Policy Act of 2005

The Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can attain Federal tax credits for purchasing fuel efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary micro-turbine power plants, and solar power equipment.

2.0.3 Energy and Independence Security Act

The Energy and Independence Security Act of 2007 (EISA) sets Federal energy management requirements in several areas, including energy reduction goals for Federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use and increase in alternative fuel use. This Act also amends portions of the National Energy Policy and Conservation Act. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following provisions: Renewable Fuel Standard (RFS); Appliance and Lighting Efficiency Standards; and Building Energy Efficiency Standards.



2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 1: Project Vicinity and APN Map
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249

This Page Intentionally Left Blank

2.1 STATE AND REGIONAL REGULATORY SETTING

2.1.0 State Assembly Bill (AB)/Senate Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006." AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05) and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Reductions in overall energy consumption have been implemented to reduce emissions.

In September 2016, the Governor signed into legislation SB 32, which builds on AB 32 and requires the state to cut GHG emissions to 40 percent. With SB 32, the Legislature also passed AB 197, which provides additional direction for updating the Scoping Plan to meet the 2030 GHG reduction target codified in SB 32.

During June 2021, CARB in collaboration with other State agencies, held a three-day public workshop series to initiate the development of the update to the AB 32 Climate Change Scoping Plan, which is due in 2022 and will reflect California's goal to achieve carbon neutrality by 2045. Part of the effort in meeting California's long-term reduction goals include reducing petroleum use in cars and trucks by 50 percent, increasing from one-third to more than one-half of California's electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner; reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands so they can store carbon.

2.1.1 California Energy Action Plan Update

The 2008 Energy Action Plan Update provides a status update to the 2005 Energy Action Plan II, which is the State's principal energy planning and policy document (CPUC and CEC, 2008). The plan continues the goals of the original Energy Action Plan, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil-fired generation.

2.1.2 California Buildings Standards Senate Bill 1078 and 107; Executive Order S-14-08, S-21-09, and SB 2X

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2 (2011) codified the 33 percent by 2020 goal.

2.1.3 Executive Order B-30-15; Senate Bill 100 and 350

In April 2015, the Governor issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. SB 350 (Chapter 547, Statutes of 2015) advanced these goals through two measures. First, the law increases the renewable power goal from 33 percent renewables by 2020 to 50 percent by 2030. Second, the law requires the CEC to establish annual targets to double energy efficiency in buildings by 2030. The law also requires the California Public Utilities Commission (CPUC) to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal. In 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

2.1.4 Senate Bill 1389

Senate Bill (SB) 1389 (Public Resources Code Sections 25300–25323; SB 1389) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state’s electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protects the environment; ensures reliable, secure, and diverse energy supplies; enhances the state’s economy; and protects public health and safety (Public Resources Code Section 25301[a]). The 2016 Integrated Energy Policy Report provides the results of the CEC’s assessments of a variety of energy issues facing California, including energy efficiency, strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California’s energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, update on electricity infrastructure in Southern California, update on trends in California’s sources of crude oil, update on California’s nuclear plants, and other energy issues.

2.1.5 California’s Renewables Portfolio Standard

First established in 2002 under SB 1078, California’s Renewables Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent by 2020 and 50 percent by 2030 (CPUC, 2018).

In 2018, SB 100 further increased California’s RPS and required retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and that the California Air Resources Board (CARB) should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. The California Public Utilities Commission (CPUC) and the CEC jointly implement the RPS program. The CPUC’s responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility’s renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy. The project would be an RPS-eligible facility.

2.1.6 California Assembly Bill 1493 (AB 1493, Pavley)

In response to the transportation sector accounting for more than half of California's CO₂ emissions, Assembly Bill (AB) 1493 (commonly referred to as CARB's Pavley regulations), enacted in 2002, requires CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009–2016 and Phase II established standards for model years 2017–2025.

2.1.7 California Health and Safety Code (HSC), Division 25.5/California

Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32 (codified in the California HSC, Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. Under HSC Division 25.5, CARB has the primary responsibility for reducing the state's GHG emissions; however, AB 32 also tasked the CEC and the CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector. In 2016, SB 32 and its companion bill AB 197 amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and included provisions to ensure that the benefits of state climate policies reach into disadvantaged communities.

Low-Carbon Fuel Standard

The Low-Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of the products, starting with 0.25 percent in 2011 and culminating in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low-carbon fuel products, or buy LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

2.1.8 California Air Resources Board

CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the Zero-Emissions Vehicle (ZEV) regulations to require manufacturers to produce an increasing number of pure ZEVs (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEVs) between 2018 and 2025.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the

regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles

In addition to limiting exhaust from idling trucks, in 2008 CARB approved the Truck and Bus regulation to reduce NOX, PM10, and PM2.5 emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. The phasing of this regulation has full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower, such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

2.1.9 California Environmental Quality Act

In late 2018, the California Natural Resources Agency finalized updates to the 2018 CEQA Guidelines (California Natural Resources Agency, 2018). Appendix G was amended to include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and for conflicts with state or local energy efficiency plans (California Natural Resources Agency, 2018). Appendix F did not describe or require significance thresholds for determining the significance of impacts related to energy. According to the updated the Appendix G Checklist, Energy, a project would have a significant impact on energy and energy resources if it would:

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. In accordance with CEQA and Appendix F, Energy Conservation, of the 2018 CEQA Guidelines, and to ensure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

Appendix F of the CEQA Guidelines provides a list of energy-related topics to be analyzed in the EIR. In addition, while not described or required as significance thresholds for determining the significance of impacts related to energy, Section 5 of this Energy Report provides additional discussion of project-related CEQA effects.

2.1.10 Regional

Kern County General Plan

The project is located in Kern County, California, known for its extensive geographic area and robust energy-related economy. The county's General Plan guides the County's development. The Kern County General Plan Energy Element primarily discusses the County's wealth of existing and potential energy resources which include oil, natural gas, and electricity producer. The goals, policies, and implementation measures in the Energy Element of the Kern County General Plan applicable to the proposed project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the proposed project. Those measures are not listed below.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal: Goal 1: Encourage safe and orderly commercial solar development.

Policies:

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

3 – ENVIRONMENTAL SETTING

3.0 SITE FEATURES AND SURROUNDING LAND USES

The proposed 60 MW Solar Facility (proposed Facility) would be located in unincorporated land primarily in Kern County with a portion in Kings County. The proposed Facility would be located on approximately 340 acres of the 640-acre site, located approximately 2.5 miles northwest of Twisselman and King Roads, approximately 15 miles northwest of the community of Lost Hills, approximately 6 miles west of Interstate 5, and approximately 5 miles east of State Route 33, within California's San Joaquin Valley. The climate of northwestern Kern County is predominantly affected by the San Joaquin Valley, which is considered to be a Mediterranean climate area. Mediterranean climate zones are characterized by sparse rainfall, which occurs mainly in winter, and hot and dry summers (SJVAPCD, 2015).

The solar development site is located in an agricultural area in Northeast Kern County and is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (figs, pistachios, and almonds). Research into historical land use of the area indicates that from the early 1900s through the early 2000s, the site was largely open area periodically used for livestock grazing. In the late 1960s or early 1970s, a PG&E power substation and associated transmission lines were constructed on two of the proposed site's parcels (Assessor's Parcel Number (APN) 043-210-27 and -28). Orchards were planted east and south of the site in the late 1960s/early 1970s. By the 2000s, and through to the current time, the site is also used for occasional dry farming.

The project site consists of relatively flat to gently sloping open grassland that is currently used for grazing. The properties proposed for solar development are otherwise undeveloped with the exception of unpaved access roads running through the project area. Figure 1 shows the project site's location in its larger regional setting.

3.1 PROJECT 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, SF Azalea, LLC.

Because the site is flat to gently sloping and has a relatively even surface, minimal grading and filling will be required over most of the site. The road areas to be developed as access corridors will be smoothed and compacted during the site preparation phase. Grading and compaction will also be required at the inverter, energy storage, and substation sites to provide stable bases for the installation of equipment. It is assumed that construction of the project would commence in 2022 and would last 12 to 14 months, ending in 2023. The estimated duration of the construction phases are shown in Table 1, below.

Table 1 depicts the periods during which construction activities could occur. It is expected that construction activities will actually occur intermittently within the identified periods, over a 5-day work week. The final project construction schedule can only be determined when issued a full Notice to Proceed, all applicant-proposed measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and are ready for installation, and Azalea Solar's contractors have mobilized and are ready to initiate work.

Table 1: Summary of Construction Activity Durations

Construction Phase	Duration (Days) ¹
Demolition	7
Site Prep/Survey/Grading/Fencing/Staging	60
PV Array Mechanical Installation	180
PV Array Electrical Installation	100
Substation and Transmission Line Installation	120
Battery Storage Installation	90
Construction Project Management	350

4 – ENERGY USE

This analysis addresses the project's potential energy usage, focusing upon electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is assessed. Specific analysis methodologies are discussed below. The energy-related information discussed below, is based on Energy Data and Calculations provided in Appendix A of this report.

Project Construction Energy Use

Electricity is not expected to be consumed in large quantity during project construction, as construction equipment and vehicles are not electric (diesel- or gas-powered). Although electrical service will be

¹ Duration days provided by SF Azalea, LLC. Schedule is assumed to be in 2022 – 2023.

established to serve construction, the amount of electricity that will be used is likely to be small. In addition, as water would be purchased from existing water purveyors and would be supplied from irrigation supply turnouts near the project site during construction of the project, minimal electricity use would be consumed by water pumping.

The analysis of energy usage during construction is limited to transportation fuels (i.e., petroleum). Regarding transportation-related fuel consumption during construction, the project construction equipment and haul trucks would likely be diesel-fueled, while the construction worker commute vehicles would primarily be gasoline-fueled. Natural gas is not expected to be consumed during project construction (i.e., no natural gas-powered equipment or vehicles).

Construction activity durations, off-road equipment, horsepower ratings, hours of use, and load factors were used to calculate construction-related fuel use, provided by the project applicant (Azalea, 2021) and using default assumptions from California Emissions Estimator Model (CalEEMod), version 2016.3.2. The estimated fuel economy for haul trucks and worker commute vehicles is based on fuel consumption factors from the CARB EMFAC emissions model, which is a state-approved model for estimating emissions on-road vehicles and trucks. Both OFFROAD and EMFAC are incorporated into CalEEMod, which is a state approved emissions model used for the Project's air quality and GHG emissions assessment (S2S, 2021).

Total fuel consumption (i.e., gallons of diesel fuel used) from construction equipment was estimated by using the horsepower rating, number of equipment used, usage hours, load factor, horsepower hours per day (see Table 2). Consumption figures assume an average of 17.33 miles per gallon (diesel) (S2S, 2021a). Fuel consumption (i.e., gallons of gasoline used) from worker and vendor trips was estimated by using the number of workers, the total commute days, an average of 70 miles for the worker commute, and an average of 24.7 miles per gallon (gasoline) (S2S, 2021a). Additional construction equipment and vehicle trips data and calculations are found in Attachment A of this report.

Table 2: Equipment Per Phase

Equipment/Vehicle List ^a	Horsepower	Load Factor	Quantity	Number of Days Used	Hours per Day
Demolition					
Off-road Forklift	110	0.20	1	10	10
Backhoe/Loader	97	0.35	1	10	10
15 Yard Dump Truck	550	0.15	1	10	10
Site Prep/Survey/Grading/Fencing/Staging					
Excavator	159	0.38	1	20	10
Dozer	247	0.40	1	30	10
Grader/Maintainer	187	0.41	3	30	10
15 Yard Dump Truck	550	0.15	2	35	10
Scraper	367	0.48	2	25	10
T655 Trencher	250	0.60	1	20	10
Backhoe/Loader	97	0.37	2	30	10
Off-road Forklift	110	0.20	2	30	10
Flatbed Truck	220	0.15	1	35	10
Pickup Truck	105	0.10	2	35	10
6-Passenger Crew Cart	22	0.10	2	35	10
PV Array Mechanical Installation					
PD10 Pile Driving Machine	49	0.75	5	130	10

Equipment/Vehicle List ^a	Horsepower	Load Factor	Quantity	Number of Days Used	Hours per Day
Flatbed Truck	220	0.15	3	150	10
6-Passenger Crew Cart	22	0.10	20	150	10
Pickup Truck	105	0.10	6	150	10
Off-road Forklift	110	0.30	4	150	10
Skid Steer Loader	97	0.40	4	130	10
PV Array Electrical Installation					
Bobcat S450 Skid Steer Loader	49	0.30	2	80	10
Excavator	159	0.30	2	80	10
Backhoe/Loader	97	0.37	2	80	10
RT120 Trenching Machine	121	0.40	3	70	10
Flatbed Truck	220	0.15	2	90	10
Skytrak 8042 Off-road Forklift	110	0.20	2	90	10
Compactor Equipment	5	0.15	4	70	10
6-Passenger Crew Cart	22	0.10	6	90	10
Pickup Truck	105	0.10	3	90	10
Substation and Transmission Line Installation					
Bobcat S450 Skid Steer Loader	49	0.30	1	120	10
Excavator	159	0.30	1	120	10
Backhoe/Loader	97	0.37	1	120	10
RT120 Trenching Machine	121	0.40	1	120	10
Flatbed Truck	220	0.15	1	120	10
Skytrak 8042 Off-road Forklift	110	0.20	1	120	10
Compactor Equipment	5	0.10	1	120	10
6 Passenger Crew Cart	22	0.10	2	120	10
Pickup Truck	105	0.10	2	120	10
40T Offsite Crane	450	0.60	2	15	10
Battery Storage Installation					
Bobcat S450 Skid Steer Loader	49	0.30	1	40	10
Excavator	159	0.30	1	10	10
Backhoe/Loader	97	0.37	1	10	10
RT120 Trenching Machine	121	0.40	1	10	10
Flatbed Truck	220	0.15	1	40	10
Skytrak 8042 Off-road Forklift	110	0.20	1	35	10
Compactor Equipment	5	0.10	1	10	10
6 Passenger Crew Cart	22	0.10	1	40	10
Pickup Truck	105	0.10	1	40	10
40T Offsite Crane	450	0.60	1	2	10
Construction Project Management					
6-Passenger Crew Cart	22	0.1	2	125	10
Pickup Truck	105	0.1	3	125	10

4.0 PROJECT OPERATION ENERGY USE

The project would operate unattended with minimal maintenance needs and so the use of energy resources during operations will be minor. A small amount of electricity will be needed to operate the project such as emergency lighting for the substation and battery area. Retail service to serve operations will be provided by PG&E, the local electricity provider.

During project operation, the facility will be generating renewable energy for the grid. A small amount of electricity will be needed to operate the project (emergency lights for the substation and battery area) and will be provided directly from the grid. There would also be the relatively insignificant electric energy use for equipment (computer consoles, etc.) needed to operate the facility from a remote location. There will be no on-site operations building requiring lighting for personnel and parking areas, etc. The project would not use natural gas for operations and also would not create demand for natural gas in other locations.

Transportation fuel use for the project would primarily be associated with motor vehicles (automobiles and light-duty trucks) traveling to and from the project site for periodic maintenance including panel washing. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Based on conservative estimates for vehicular travel, the project is anticipated to have up to 240 trips per year during operation, accounting for the commutes and performance of regular inspection and maintenance activities by up to eight employees (see Table 3, below).

Assuming (very conservatively) that all eight workers commute from the Bakersfield area for up to 240 commuter-days per year totaling 54,000 miles per year, operations would involve the use of an additional 2,186 gallons of gasoline from worker commutes (54,000 miles per year / 24.7 miles per gallon of gasoline). This is a relatively small amount of fuel use, and necessary to ensure the reliable operations of the facility. Therefore, there would be no wasteful, inefficient, or unnecessary consumption of energy resources during operations.

Table 3: Operations and Maintenance Commuter Annual Fuel Use

Operations Personnel ^f	Number	Work Days	Hours per Day	Hours per Year	Miles per Day	Miles per Year
Foreman	1	240	10	2,400	60	14,400
Journeyman	1	240	10	2,400	60	14,400
Apprentice	1	120	10	1,200	60	7,200
Laborer	5	60	10	3,000	300	18,000
^f Per SF Azalea, LLC.				9,000	480	54,000

5 – ENVIRONMENTAL ANALYSIS

The following section addresses the screening thresholds set forth in Appendix G of the CEQA Guidelines to evaluate energy impacts. With incorporation of the above BMPs into the project design, and implementation of recommended Mitigation Measures identified in Appendix A, potential impacts from project construction will be less than significant. Operation-related impacts are not expected to be associated with this project as there is no stationary combustion equipment proposed for installation and no measurable changes in traffic associated with development of solar upon the project site. However, operation-related impacts were estimated as the emissions associated with intermittent operation and maintenance personnel.

5.0 SIGNIFICANCE CRITERIA

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the potential significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines (2019), the “Environmental

Checklist Form”. The Environmental Checklist Form is a screening tool used to determine whether an effect may be significant.

In late 2018, the California Natural Resources Agency finalized updates to the 2018 CEQA Guidelines (California Natural Resources Agency, 2018). Appendix G was amended to include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and for conflicts with state or local energy efficiency plans (California Natural Resources Agency, 2018). Appendix F did not describe or require significance thresholds for determining the significance of impacts related to energy. According to the updated the Appendix G Checklist, Energy, a project would have a significant impact on energy and energy resources if it would:

- a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In accordance with CEQA and Appendix F, Energy Conservation, of the 2018 CEQA Guidelines, and to ensure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides a list of energy-related topics to be analyzed in the EIR. In addition, while not described or required as significance thresholds for determining the significance of impacts related to energy,

CEQA Guidelines Appendix F provides the following topics for consideration in the discussion of energy use in an EIR, to the extent the topics are applicable or relevant to the proposed project:

- The project’s energy requirements and its energy use efficiencies by amount and fuel type for each stage of the proposed project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the proposed project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the proposed project on peak and base period demands for electricity and other forms of energy.
- The degree to which the proposed project complies with existing energy standards.
- The effects of the proposed project on energy resources.
- The project’s projected transportation energy use requirements and its overall use of efficient transportation alternatives

5.1 CEQA CHECKLIST – IMPACTS AND MITIGATION MEASURES

The following information is provided to support a CEQA Initial Study for the Azalea Solar Project, based on information assessed in the Energy Study. This has been prepared solely for the purpose of informing the County and its consultants and should not be construed as a formal CEQA analysis. Accordingly, the discussion provided is for guidance purposes only and should not be relied upon without further assessment. As we understand, the County has hired an environmental consultant that will review this

technical study as well as project and other related information to prepare the CEQA analysis for the planned Azalea Solar Project.

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

5.1.0 Impacts

IMPACT VI a: The Project could result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Construction and 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 4, construction activities are expected to consume approximately 70,667 gallons of diesel and 13,466 gallons of gasoline during the estimated 12 to 14 - month construction period. This fuel consumption would be approximately 9,007.22 MMBTU from the diesel and 1,478.15 MMBTU from the gasoline. As shown on Attachment A, Table 3 construction of the proposed project would consume the equivalent of approximately 10,485.37 MMBTU per year.

Table 4: Summary of Construction Energy Use

Energy Source	Fuel Consumption (gallons)	Energy Use MMBTU
Off-Road Equipment Fuel (Diesel)	70,667	9,007.22
On-Road Vehicle Fuel (Gasoline)	13,466	1,478.15
	Total Energy Consumed	10,485.37
<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. kWh=Kilowatt Hour MMBTU=Million British Thermal Units Refer to Appendix A for modeling assumptions and results.</i>		

Commercial scale solar projects in Kern County are estimated to have a 35-year lifespan before decommissioning would be expected. 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. However, with the implementation of these control measures, impacts are anticipated to be less than significant.

Mitigation Measure

The following mitigation measure (MM) 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:

MM VI-1: The project shall continuously comply with the following: The project proponent and/or its contractor(s) shall implement the following measures during project construction and decommissioning:

- a. Off-road equipment shall be maintained and properly tuned in accordance with the 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 fuel use 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. 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 VI-1 would require the use of energy-efficient and alternatively-fueled equipment. Implementation of Mitigation Measure VI-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, therefore this impact would be **less than significant**.

Operations

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. The panel washing and similar maintenance activities would use diesel pumps, which are estimated to use about 270 gallons of diesel fuel. Energy use associated with long-term operational activities is summarized in Table 5.

As shown in Table 5, operation of the proposed project would consume an estimated 270 gallons of diesel fuel and 2,186 gallons of gasoline per year (see Table 3). In total, operation of the proposed project would consume the equivalent of approximately 274.37 MMBTU per year. Natural gas would not be used during long-term operations.

Table 5: Summary of Operational Energy Use

Energy Source	Fuel Consumption (gallons)	Energy Use MMBTU
Off-Road Equipment Fuel (Diesel)	270	34.41
On-Road Vehicle Fuel (Gasoline)	2,186	239.96
Annual Energy Consumed		274.37
Annual Renewable Energy Produced		614,309
New Renewable Energy Produced		614,034.63
<i>Includes fuel use associated with on-road vehicles and off-road equipment. kWh=Kilowatt Hour MMBTU=Million British Thermal Units Refer to Appendix A for modeling assumptions and results.</i>		

The proposed project would produce approximately 60 MW of renewable solar energy per year, which would equate to approximately 614,309 MMBTU generated 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 VI b: Will the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project is consistent with state and local plans to develop renewable energy because it is a project that will generate clean, renewable solar energy. It would not conflict with the federal or state plans and policies for energy efficiency. It would support the Kern County General Plan Energy Element policies for energy efficiency.

The project would contribute to the State's mandate under SB 100, signed into law in September 2018, for California utilities to procure higher percentages of renewable energy sold to retail customers than previously required. The new targets are for 50 percent renewable resources by December 31, 2026, 60 percent by December 31, 2030, and 100 percent from eligible renewable energy resources and zero-carbon resources by 2045. To meet this target, new renewable generation sources, such as those provided by the Azalea Solar project, will be needed.

California's most important statewide energy planning document is the California Energy Commission's biennial Integrated Energy Policy Report (IEPR). A 2021 *Integrated Energy Policy Report Update* is underway and is expected to be completed during 2021 (<https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>). The current report was adopted in August of 2018 (California Energy Commission 2018) and titled "Toward a Clean Energy Future: 2018 Integrated Energy Policy Report". The 2018 IEPR Update highlights in particular the importance of California "leading the way" to reducing the reliance on fossil fuels by increasing the use of clean, renewable energy, consistent with the utility renewable portfolio standards. It notes that California utilities delivered 32 percent of their power to retail customers from renewable resources and cites a 78 percent decrease in the cost of solar power since 2010 and the fact that California's 86,400 jobs in the solar industry leads the nation and constitutes one-third of the total solar jobs in the United States.

In addition, the 2018 IEPR update singles out Kern County as a "Profile of Success", noting:

Kern County has more renewable energy capacity than any other county in the United States and is home to some of the nation's largest wind and solar plants. To date, the county has installed nearly 6 GW of renewable energy projects, ranging from rooftop solar to utility-scale wind and solar. More than \$50 billion has been invested in the county's renewable energy projects, creating thousands of local jobs and raising millions in annual tax proceeds.

On a regional level, the Kern County General Plan Energy Element includes the following goal (Kern County 2004):

The County should encourage the development of renewable energy industries to diversify the energy economy in Kern County.

The Kern County Planning and Natural Resource Department initiated a 2040 General Plan update in 2017 (<https://kern2040.com/>). The County has drafted an Energy Element for the 2040 update, which states the following:

The County's overall energy economy is strong because Kern County has continued to diversify the Energy portfolio since the last General Plan update. The County has made it a priority to respond to critical energy issues timely, effectively, and in full compliance with California law. The Energy Element Update will continue to focus on four key issues:

1. Improve and streamline energy regulations
2. Increase county monitoring and involvement in State and Federal energy legislation
3. Plan for future energy resource diversification
4. Anticipate new opportunities for development of Kern County's energy resources including oil, natural gas, geothermal, wind, and solar power.

Level of Significance

The proposed project does not conflict with or obstruct the key federal, state or regional plans for renewable energy and energy efficiency. As a clean, renewable energy project, the project actively contributes to the achievement of federal, state and County goals. Therefore, the project would cause **no impact**.

5.2 CUMULATIVE EFFECTS

As defined in Section 15355 of the CEQA Guidelines, a cumulative impact occurs where there are "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

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 of solar energy production. 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**.

6 – REFERENCES

- Aurora Solar, 2020. Energy Storage Electricity Usage Estimate for the Camino Solar Project. May 2020.
- California Energy Commission (CEC). 2018. Toward a Clean Energy Future: 2018 Integrated Energy Policy Report. August.
- EIA. 2019a. U.S. Energy Information Administration. Frequently Asked Questions. <https://www.eia.gov/tools/faqs/faq.php?id=97&t=3>. Accessed May 2019.
- EIA 2019b. U.S. Energy Information Administration. Energy Units and Calculators, Explained. https://www.eia.gov/energyexplained/index.php?page=about_energy_units. Accessed May 2019.
- EIA 2019c. U.S. Energy Information Administration. Electric Power Monthly. Table 6.7.B. Capacity Factors for Utility Scale Generators Not Primarily Using Fossil Fuels, January 2013-March 2019. https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_07_b Accessed May 2019.
- San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. *Guidance for Assessing and Mitigating Air Quality Impacts*. March. Online: http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.
- Surf to Snow (S2S). 2021a. Azalea Solar Project Air Quality and GHG Study, July.
- Surf to Snow (S2S). 2021b. Azalea Solar Project Traffic Study, June.
- U.S. Energy Information Administration, 2019. Frequently Asked Questions, How Much Electricity Does an American Home Use? Accessed at: <https://www.eia.gov/tools/faqs/faq.php?id=97&t=3>. Accessed on June 21, 2021.

Attachment A: Energy Data and Calculations

Attachment A: Energy Data and Calculations

Azalea Solar Facility Air Quality/ GHG/ Energy Study Assumptions

Project to be Constructed - Assumptions

- Single Axis Tracker: Soltec SF7 (0.33 GCR)
- PV String Size: 28 PV Modules Per 1500 V-DC String
 - (20) 3 MW-AC Power Blocks
 - (117) Tracker Rows per 3 MW-AC Power Block
 - (115) Tracker rows of 84 PV Modules
 - (2) Tracker Rows of 28 PV Modules
 - (9,716) PV Modules per Power Block
 - 3,886,400 W-DC Per Power Block
 - (2,340) Total Tracker Rows
 - (2,300) Total Tracker Rows of 84 PV Modules
 - (40) Total Tracker Rows of 28 PV Modules
 - (194,320) Total PV Modules
 - Traditional C-SI 400W = 77,728,000 W-DC
 - PV AC Capacity = 60,000,000 W-AC
 - DC-AC Ratio = 1.30%

General Assumptions:

339 acres on 640 acres

Schedule is 12-months elapsed, 260 workdays, typically 5 workdays per week aside from rare instances where weekend work is required for schedule or to meet certain criteria

Detailed phase schedule (*Note: phases overlap*):

Azalea Solar

7 days	Mobilization
60 days	Site prep/grading/fencing
160 days	PV array [ground mounts &] mechanical installation
100 days	PV array electrical installation
120 days	Substation & transmission line
90 days	Battery storage
260 days	Project management

Ground-mount steel support alternatives

Ground-mounting of solar panels uses steel supports with corrosion protection if required, often custom designed and fabricated off site. Standard ground mounts or pole mounts may be used depending on soil conditions, expected lateral (*e.g.*, wind) loads, and engineering. Alternatively, installation of the ground mounts may use foundations such as ballasted, driven piers, or helical piles. The assumed ground mount is Driven Piers, which are pile-driven poles that are driven deep into the ground using specialized equipment.

Construction Season: Year Round

Construction year: 2022

Table 1: Summary of Construction Activity Durations

Construction Phases	2020 Duration (Days)
<i>PV Array Construction</i>	
Demolition	7
Site Prep/Survey/Grading/Fencing/Staging	7
PV Array Mechanical Installation	60
PV Array Electrical Installation	160
Substation and Transmission Line Installation	100
Battery Storage Installation	120
Construction Project Management	90
2020 Construction Total	260

Table 2: Equipment Per Phase

Equipment / Vehicle List ^a	Horsepower	Load Factor	Quantity	Number of Days Used	Hours per Day
Demolition					
Off-road Forklift	110	0.20	1	10	10
Backhoe/Loader	97	0.35	1	10	10
15 Yard Dump Truck	550	0.15	1	10	10
Site Prep/Survey/Grading/Fencing/Staging Area Preparation					
Excavator	159	0.38	1	20	10
Dozer	247	0.40	1	30	10
Grader/Maintainer	187	0.41	3	30	10
15 Yard Dump Truck	550	0.15	2	35	10
Scraper	367	0.48	2	25	10
T655 Trencher	250	0.60	1	20	10
Backhoe/Loader	97	0.37	2	30	10
Off-road Forklift	110	0.20	2	30	10
Flatbed Truck	220	0.15	1	35	10
Pickup Truck	105	0.10	2	35	10
6-Passenger Crew Cart	22	0.10	2	35	10
PV Array Mechanical Installation					
PD10 Pile Driving Machine	49	0.75	5	130	10
Flatbed Truck	220	0.15	3	150	10
6-Passenger Crew Cart	22	0.10	20	150	10
Pickup Truck	105	0.10	6	150	10
Off-road Forklift	110	0.30	4	150	10
Skid Steer Loader	97	0.40	4	130	10
PV Array Electrical Installation					
Bobcat S450 Skid Steer Loader	49	0.30	2	80	10
Excavator	159	0.30	2	80	10
Backhoe/Loader	97	0.37	2	80	10
RT120 Trenching Machine	121	0.40	3	70	10
Flatbed Truck	220	0.15	2	90	10
Skytrak 8042 Off-road Forklift	110	0.20	2	90	10
Compactor Equipment	5	0.15	4	70	10
6-Passenger Crew Cart	22	0.10	6	90	10
Pickup Truck	105	0.10	3	90	10
Substation and Transmission Line Installation					
Bobcat S450 Skid Steer Loader	49	0.30	1	120	10
Excavator	159	0.30	1	120	10
Backhoe/Loader	97	0.37	1	120	10
RT120 Trenching Machine	121	0.40	1	120	10
Flatbed Truck	220	0.15	1	120	10
Skytrak 8042 Off-road Forklift	110	0.20	1	120	10

Equipment / Vehicle List ^a	Horsepower	Load Factor	Quantity	Number of Days Used	Hours per Day
Compactor Equipment	5	0.10	1	120	10
6 Passenger Crew Cart	22	0.10	2	120	10
Pickup Truck	105	0.10	2	120	10
40T Offsite Crane	450	0.60	2	15	10
Battery Storage Installation					
Bobcat S450 Skid Steer Loader	49	0.30	1	40	10
Excavator	159	0.30	1	10	10
Backhoe/Loader	97	0.37	1	10	10
RT120 Trenching Machine	121	0.40	1	10	10
Flatbed Truck	220	0.15	1	40	10
Skytrak 8042 Off-road Forklift	110	0.20	1	35	10
Compactor Equipment	5	0.10	1	10	10
6 Passenger Crew Cart	22	0.10	1	40	10
Pickup Truck	105	0.10	1	40	10
40T Offsite Crane	450	0.60	1	2	10
Construction Project Management					
6-Passenger Crew Cart	22	0.1	2	125	10
Pickup Truck	105	0.1	3	125	10

Notes:

^a Equipment for each phase, including horsepower, load factor, quantity, and duration, was provided by Azalea Solar.

This Page Intentionally Left Blank

Attachment B: Emission Calculations and CalEEMod Results

This Page Intentionally Left Blank

Table 1: Construction Summary – Annual Criteria Pollutant Emissions

Project Construction	Maximum Annual Emissions (tons/yr) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	PM ₁₀ ^b	PM _{2.5} ^b
Construction Year 2022 ^a	0.14	1.11	1.14	0.0	0.05	0.18	0.14
Maximum Annual Emissions (tons/yr)	0.14	1.11	1.14	0.0	0.05	0.18	0.14
SJVAPCD Significance Threshold (tons/yr)^c	10	100	10	27	N/A	15	15
Exceeds Threshold (Y/N)?	N	N	N	N	N	N	N

Construction Phases	Emissions by Phase (tons/phase) ^d							2022 Duration (Days)
PV Array Construction								
Demolition	0.012	0.108	0.128	0.000	0.005	0.011	0.006	7
Site Prep/Survey/Grading/Fencing/Staging	0.034	0.229	0.313	0.001	0.012	0.057	0.082	60
PV Array Mechanical Installation	0.033	0.280	0.222	0.001	0.010	0.038	0.017	180
PV Array Electrical Installation	0.021	0.190	0.167	0.001	0.007	0.030	0.013	100
Substation and Transmission Line Installation	0.020	0.172	0.168	0.001	0.006	0.029	0.012	120
Battery Storage Installation	0.015	0.135	0.138	0.000	0.005	0.019	0.009	90
Construction Project Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	350
2022 Construction Total	0.14	1.11	1.14	0.00	0.05	0.18	0.14	350

N/A = Not Available (i.e., no significance threshold exists)

^a Emissions were calculated using the CalEEMod Model, version 2016.3.2. Calculation details are provided in the attached CalEEMod output file. Maximum annual emissions for the project are assumed to occur over a single calendar year and are compared to the SJVAPCD Significance Thresholds.

^b Total PM₁₀ and PM_{2.5} emissions represent both exhaust and fugitive dust emissions.

^c Significance thresholds for SJVAPCD are from 2015 *Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.

^d Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

Table 2: Construction Summary – Annual Criteria Pollutant Emissions with Mitigations

Project Construction	Mitigated Maximum Annual Emissions (tons/yr) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀ ^b	PM _{2.5} ^b
Construction Year 2022 - Mitigated ^c	1.45	12.19	9.40	0.03	0.46	1.89	1.06
Maximum Annual Emissions (tons/yr)	1.45	12.19	9.40	0.03	0.46	1.89	1.06
SJVAPCD Significance Threshold (tons/yr)^d	10	100	10	27	N/A	15	15
Exceeds Threshold (Y/N)?	N	N	N	N	N	N	N

Construction Phases	Mitigated Emissions by Phase (tons/phase) ^e							2022 Duration (Days)
PV Array Construction								
Demolition	0.012	0.108	0.109	0.000	0.005	0.011	0.006	7
Site Prep/Survey/Grading/Fencing/Staging	0.145	0.964	1.123	0.003	0.051	0.239	0.345	60
PV Array Mechanical Installation	0.676	5.732	3.865	0.014	0.212	0.775	0.348	180
PV Array Electrical Installation	0.252	2.231	1.670	0.007	0.080	0.350	0.147	100
Substation and Transmission Line Installation	0.312	2.696	2.235	0.009	0.094	0.453	0.184	120
Battery Storage Installation	0.051	0.458	0.398	0.001	0.017	0.064	0.029	90
Construction Project Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	350
2022 Construction Total	1.45	12.19	9.40	0.03	0.46	1.89	1.06	350

N/A = Not Available (i.e., no significance threshold exists)

^a Emissions were calculated using the CalEEMod Model, version 2016.3.2. Calculation details are provided in the attached CalEEMod output file. Maximum annual emissions for the project are assumed to occur over a single calendar year and are compared to SJVAPCD Significance Thresholds.

^b Total PM₁₀ and PM_{2.5} emissions represent both exhaust and fugitive dust emissions.

^c Construction off-road mitigation measures include 1) Dust suppressant material which yields 84% PM10 control efficiency and 2) limiting vehicle speed to 15 mph 44% PM10 control efficiency, per WRAP Fugitive Dust Handbook, Sept 2006. Applying water to the roadways twice daily will yield 55% fugitive dust control, per the CalEEMod mitigation measures defaults. Off-road Mitigation Measures also include use of engine controls, late model engines and low emission diesel products for 15% NOx reduction, per CARB "Strategies for Reducing Emissions from Off-Road Construction Equipment," January 2021.

^d Significance thresholds for SJVAPCD are from 2015 Guidance for Assessing and Mitigating Air Quality Impacts, dated March 19, 2015.

^e Emissions presented are the sum of all emissions occurring within the construction phase, regardless of whether an activity is occurring sequentially or concurrently.

Table 3: Construction Summary – Maximum Daily Criteria Pollutant Emissions

2022 Seasonal Construction (Max Day)	Maximum Daily Emissions (lb/day) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀ ^b	PM _{2.5} ^b
Summer Season Construction	21.29	183.51	159.29	0.52	6.64	92.10	28.20
Winter Season Construction	21.59	172.42	161.28	0.49	6.64	92.10	28.20
Maximum Daily Emissions (lb/day)	21.59	183.51	161.28	0.52	6.64	92.10	28.20

2022 Seasonal Construction - Mitigated (Max Day)	Mitigated Maximum Daily Emissions (lb/day) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀ ^b	PM _{2.5} ^b
Summer Season Construction	21.29	183.51	159.29	0.52	6.64	12.68	28.20
Winter Season Construction	21.59	172.42	161.28	0.49	6.64	12.68	28.20
Maximum Daily Emissions (lb/day)	21.59	183.51	161.28	0.52	6.64	12.68	28.20

Table 4: Construction Summary – Average Daily Criteria Pollutant Emissions

Average Daily Construction Emissions - Mitigated	Mitigated Average Daily Emissions (lb/day) ^a						
	ROG	CO	NOx	SOx	DPM PM ₁₀	Total PM ₁₀ ^b	PM _{2.5} ^b
Project Emissions							
Construction Year 2022	11.43	95.29	89	0.27	3.66	15.07	9.34
Maximum Daily Emissions (lb/day)	11.43	95.29	89	0.27	3.66	15.07	9.34
SJVAPCD Screening Level (lb/day)^d	100	100	100	100	100	100	100
Exceeds Screening Level (Y/N)?	N	N	N	N	N	N	N

Notes:

^a Emissions were calculated using the CalEEMod Model, version 2016.3.2. Calculation details are provided in the attached CalEEMod output file. Maximum Daily Emissions taken as the maximum emissions from either the summer or winter season.

^b Total PM and PM emissions represent both exhaust and fugitive dust emissions.

^c Average daily emissions based on the total tons per year for each pollutant, divided by the total number of days, per SJVAPCD Ambient Air Quality Analysis - Project Daily Emissions. <http://www.valleyair.org/transportation/CEQA%20Rules/Ambient-Air-Quality-Analysis-Project-Daily-Emissions-Assessment.pdf>

^d Impacts are considered insignificant when on-site emission increases from construction activities or operational activities do not exceed the 100 pounds per day screening level of any criteria pollutant after implementation of all enforceable mitigation measures. Page 93 of Guidance for Assessing and Mitigating Air Quality Impacts, dated March 19, 2015.

Table 5: Construction Summary – Annual GHG Emissions

Project Construction	Maximum Annual Emissions (MT/yr) ^a			2020 Duration (Days)
	CO ₂	CH ₄	CO ₂ e	
Construction Year 2022	4747.90	0.65	4764.13	
Maximum Annual Emissions (MT/yr)	4747.90	0.65	4764.13	
SJVAPCD Significance Threshold ^b	N/A	N/A	Implement BPS ^c	
Construction Phase	Emissions by Phase (MT/phase)			
<i>PV Array Construction</i>				
Demolition	30.14	0.01	30.27	7
Site Prep/Survey/Grading/Fencing/Staging	644.70	0.11	647.36	60
PV Array Mechanical Installation	1,765.79	0.24	1,771.91	180
PV Array Electrical Installation	792.11	0.09	794.47	100
Substation and Transmission Line Installation	962.39	0.13	965.64	120
Battery Storage Installation	552.76	0.07	554.47	90
Construction Project Management	0.00	0.00	0.00	350
2020 Construction Total	4747.90	0.65	4764.13	350

Notes:

N/A = Not Available (i.e., no significance threshold exists)

^a GHG emissions are evaluated on an annual basis, using the CalEEMod model. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.^b Significance thresholds for SJVAPCD are from *2015 Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.^c Best performance standards (BPS) are mitigation methods for greenhouse gases. Since solar panels will offset the electricity generation (MWh) from fossil fuel fired electricity generation, solar panels are considered best performance standards for electricity generation.

Table 6: Construction Summary – Annual GHG Emissions with Mitigation

Project Construction	Mitigated Maximum Annual Emissions (MT/yr) ^{a,e}			
	CO ₂	CH ₄	CO ₂ e	
Construction Year 2022	4747.90	0.65	4764.13	
Maximum Annual Emissions (MT/yr)	4747.90	0.65	4764.13	
SJVAPCD Significance Threshold ^b	N/A	N/A	Implement BPS ^d	
Kern County APCD Significance Threshold (MT/yr) ^c	N/A	N/A	25,000	
Construction Phase	Mitigated Emissions by Phase (MT/phase)			2022 Duration (Days)
<i>PV Array Construction</i>				
Demolition	30.14	0.01	30.27	7
Site Prep/Survey/Grading/Fencing/Staging	644.70	0.11	647.36	60
PV Array Mechanical Installation	1,765.79	0.24	1,771.91	180
PV Array Electrical Installation	792.11	0.09	794.47	100
Substation and Transmission Line Installation	962.39	0.13	965.64	120
Battery Storage Installation	552.76	0.07	554.47	90
Construction Project Management	0.00	0.00	0.00	350
2022 Construction Total	4747.90	0.65	4764.13	350

N/A = Not Available (i.e., no significance threshold exists)

^a GHG emissions are evaluated on an annual basis, using the CalEEMod model. Therefore, emissions presented are the sum of all emissions occurring within a given year, regardless of whether an activity is occurring sequentially or concurrently during that year.

^b Significance thresholds for SJVAPCD are from 2015 *Guidance for Assessing and Mitigating Air Quality Impacts*, dated March 19, 2015.

^d Best performance standards (BPS) are mitigation methods for greenhouse gases. Since solar panels will offset the electricity generation (MWh) from fossil fuel fired electricity generation, solar panels are considered best performance standards for electricity generation.

^e Construction off-road mitigation measures include 1) Dust suppressant material which yields 84% PM10 control efficiency and 2) limiting vehicle speed to 15 mph 44% PM10 control efficiency, per WRAP Fugitive Dust Handbook, Sept 2006. Watering exposed areas twice daily will yield 55% fugitive dust control, per the CalEEMod mitigation measures defaults. Off-road Mitigation Measures also include use of engine controls, late model engines and low emission diesel products for 15% NOx reduction, per CARB “Strategies for Reducing Emissions from Off-Road Construction Equipment,” January 2021. These provide minimal GHG reduction.

Table 7: Preliminary Construction Schedule^a

Construction Phase	Duration (Days) ^b												
		1	2	3	4	5	6	7	8	9	10	11	12
Demolition	7												
Site Prep/Survey/Grading/Fencing/Staging	60												
PV Array Mechanical Installation	180												
PV Array Electrical Installation	100												
Substation and Transmission Line Installation	120												
Battery Storage Installation	90												
Construction Project Management	350												

^a This schedule depicts the periods during which construction activities could occur. It is expected that construction activities will actually occur intermittently within the identified periods, over a 5-day work week. The final project construction schedule can only be determined when issued a full Notice to Proceed, all applicant-proposed measures and any other environmental mitigation measures have been taken into account, materials needed for construction have been delivered and are ready for installation, and Azalea Solar's contractors have mobilized and are ready to initiate

^b Duration days provided by SF Azalea, LLC. Schedule is assumed to be in 2022.

Table 8: Operations Summary – Annual Emissions

Operational Sources ^a	Maximum Annual Emissions (tons/yr) ^b						Maximum Annual Emissions (MT/yr) ^b			
	ROG	CO	NOx	SOx	(DPM) Exhaust PM ₁₀	Exhaust PM _{2.5}	CO ₂	CH ₄	SF ₆	CO ₂ e
Emergency Generator - Diesel (300 – 600 HP)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

^a Equipment for operation and maintenance, as well as duration, was provided by Azalea Solar. Sources include equipment exhaust emissions. Worker trip emissions associated with operation and maintenance are assumed to be negligible and incorporated into the off-road mobile source emissions, conservatively estimated at 10 hours per day.

^b Emissions were calculated using the CalEEMod model.

^c Per the RFI, 5/3/19, Two SF₆ devices will be used, 270-pounds each, with a 0.5% leak rate. SF₆ has a GW potential of 23,900, per SJVAPCD CCAP-Nov2008.

^d Pickup truck emissions updated per the EMFAC 2017 (v1.0.2) Web Database factors.

Operational Sources	Maximum Daily Emissions (lb/day) ^e					
	ROG	CO	NOx	SOx	(DPM) Exhaust PM ₁₀	Exhaust PM _{2.5}
Emergency Generator - Diesel (300 – 600 HP)	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.000	0.000	0.000	0.000

Notes:

^e Daily emissions were calculated using the CalEEMod model, reported at the maximum for the winter season.

^e Pickup truck emissions updated per the EMFAC 2017 (v1.0.2) Web Database factors.

Operations Personnel ^f	Number	Workdays	Hours per Day	Hours per Year	Miles per Day	Miles per Year
Foreman	1	240	10	2,400	60	14,400
Journeyman	1	240	10	2,400	60	14,400
Apprentice	1	120	10	1,200	60	7,200
Laborer	5	60	10	3,000	300	18,000
				9,000	480	54,000

^f Per SF Azalea, LLC.

Table 9: Vehicle Emission Factors

Vehicle	Vehicle Class ^a	Exhaust and Road Emission Factors (g/mile) ^b						
		ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂
Pickup Truck (Onsite, 15 mph)	Light-Duty Truck	0.099	2.593	0.222	0.006	0.006	0.006	557.771
Dump Truck (Onsite, 15 mph)	Heavy-Duty Diesel	0.469	1.527	8.894	0.023	0.070	0.067	2,453.694
Flat Bed Truck (Onsite, 15 mph)	Heavy-Duty Diesel	0.469	1.527	8.894	0.023	0.070	0.067	2,453.694
Vendor/Haul Trips (On-road, 45 mph)	Heavy-Duty Diesel	0.097	0.406	3.567	0.012	0.051	0.049	1,308.394
Worker Commutes (Off-road, 45 mph)	Light-Duty Auto/Truck	0.069	1.942	0.149	0.005	0.005	0.005	504.878

Notes: A speed of 45 miles per hour (mph) was assumed for on-road vehicles, which is consistent with the CalEEMod default. A speed of 15 mph was for onsite (Off-road) vehicles.

^a The vehicle classes are represented as follows:

Light-Duty Truck: Assumed to be 50% LDT1 Gas and 50% LDT2 Gas values.

Heavy-Duty Diesel: Assumed to be 100% HHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Breeze Software, 2017).

Light-Duty Auto/Truck: 50% LDA Gas, 25% LDT1 Gas, and 25% LDT2 Gas values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (Breeze Software, 2017).

^b Exhaust Emission Factors in grams per mile (g/mile) from EMFAC2017 for the San Joaquin Valley Air Basin, calendar year 2022.

Appendix H-1

Geotechnical Engineering Investigation Report



GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
AZALEA SOLAR PROJECT
KERN COUNTY, CALIFORNIA

BSK PROJECT G20-267-10F

PREPARED FOR:

IDEMITSU RENEWABLES
50 CALIFORNIA STREET, SUITE 820
SAN FRANCISCO, CA 94111

February 8, 2021

GEOTECHNICAL ENGINEERING INVESTIGATION REPORT
AZALEA SOLAR PROJECT
KERN COUNTY, CALIFORNIA

Prepared for:

Mr. Diego Osnaya
Idemitsu Renewables
50 California Street, Suite 280
San Francisco, CA 94111

Fresno Project: G20-267-10F

February 8, 2021

Prepared by:



Corinne Goodwin, PE
Project Engineer



On Man Lau, PE, GE
South Valley Regional Manager



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
(559) 497-2880
(559) 497-2886 FAX

Distribution: Email: diego.osnaya.0220@idemitsuren Renewables.com



Table of Contents

1.	Introduction	1
1.1.	Planned Construction	1
1.2.	Purpose and Scope of Services	1
2.	Field Investigation and Laboratory Testing	1
2.1.	Field Exploration	1
2.1.1	Drilling.....	1
2.1.2	Load Testing	2
2.2	Laboratory Testing	2
2.2.1	Thermal Resistivity	2
2.3	Percolation Testing	3
2.4	Field Resistivity Testing	3
3.	Site and Geology/Seismicity Conditions	3
3.1	Site Description and Surface Conditions	3
3.2	Regional Geology and Seismic Hazards Assessment.....	3
3.2.1	Regional Geology.....	4
3.2.2	Seismic Hazards Assessment.....	4
3.3	Subsurface Conditions.....	4
3.4	Groundwater Conditions	5
4.	Conclusions and Recommendations.....	5
4.1	Seismic Design Criteria	5
4.2	Soil Corrosivity	6
4.3	Site Preparation Recommendations	7
4.4	Foundations	8
4.4.1	Mat Foundations	8
4.4.2	Pole Type Foundations	8
4.5	Lateral Earth Pressures and Frictional Resistance	9
4.6	Access Road Recommendations	10
4.7	Excavation Stability	10
4.8	Trench Backfill and Compaction	10
4.9	Drainage Considerations	11
5.	Plans and Specifications Review.....	11



6. Construction Testing and Observations.....	11
7. Limitations.....	11
8. References.....	12

Tables

Table 1: Summary of Percolation Test Results

Table 2: Seismic Design Parameters

Table 3: LPILE Input Parameters

Table 4: Recommended Static Lateral Earth Pressures for Footings

Figures

Figure 1: Site Vicinity Map

Figure 2: Boring and Test Location Map

Appendices

Appendix A: Field Exploration

Table A-1:	Consistency of Coarse-Grained Soil by Sampler Blow Count
Table A-2:	Apparent Relative Density of Fine-Grained Soil by Sampler Blow Count
Figure A-1:	Soil Classification Chart and Log Key
Boring Logs:	Borings B-1 through B-36
Figures A-2 through B-4:	Field Resistivity Test Results
Figures A-5 through B-8:	Percolation Test Results

Appendix B: Laboratory Test Results

Table B-1:	Summary of Plasticity Index Test Results
Table B-2:	Summary of Corrosion Test Results
Figures B-1 through B-6:	Direct Shear Test Results
Figure B-7:	Moisture-Density Relationship Test Results
Figures B-8 through B-11:	Collapse Potential Test Results
Figure B-12:	Plasticity Index Test Results
Figure B-13:	CBR Test Results

Appendix C: Pile Load Test Results

Appendix D: Thermal Resistivity Test Results



1. INTRODUCTION

This report presents the results of a Draft Geotechnical Engineering Investigation Report conducted by BSK Associates (BSK), for the proposed ground mount solar PV system in the Lost Hills area of Kern County, California (Site). The Site is located northwest of King Road and Twisselman Road in Kern County, California as shown on the Site Vicinity Map, Figure 1. The geotechnical engineering investigation was conducted in accordance with BSK Proposal GB20-20912A, dated November 6, 2020.

This report provides a description of the geotechnical conditions at the Site and provides specific recommendations for earthwork and foundation design with respect to the planned structures. In the event that changes occur in the design of the project, this report's conclusions and recommendations will not be considered valid unless the changes are reviewed with BSK and the conclusions and recommendations are modified or verified in writing. Examples of such changes would include location, size of structures, foundation loads, etc.

1.1. Planned Construction

BSK understands that the proposed improvements at the site consist of ground mounted solar panels supported on pole-type foundations, such as driven steel H-piles. AC electrical equipment will be supported on driven piles, shallow foundations or mat foundations.

In the event that significant changes occur in the design of the proposed improvements, this report's conclusions and recommendations will not be considered valid unless the changes are reviewed with BSK and the conclusions and recommendations are modified or verified in writing.

1.2. Purpose and Scope of Services

The objective of the geotechnical investigation is to assess soil conditions and to provide an assessment of the bearing conditions at the site. In general, the geotechnical investigation will consist of a field exploration, laboratory testing, engineering analysis, and preparation of a separate report summarizing our findings and recommendations.

2. FIELD INVESTIGATION AND LABORATORY TESTING

2.1. Field Exploration

2.1.1 Drilling

The field exploration for this investigation was conducted under the oversight of a BSK engineer. Thirty-six (36) borings were drilled at the Site on December 15 and 16, 2020 using a CME 75 drill rig and Mobile B-61 drill rig equipped with hollow stem augers and an auto-hammer provided by Baja Exploration of Escondido, California. The borings were drilled to a maximum depth of 6.5 to 36.5 feet beneath the existing ground surface (bgs) and backfilled with the soil cuttings and surrounding soil.

The soil materials encountered in the Boring were visually classified in the field, and the log was recorded during the drilling and sampling operations. Visual classification of the materials encountered in the boring



was made in general accordance with the Unified Soil Classification System (ASTM D 2488). A soil classification chart is presented in Appendix A.

The boring log is presented in Appendix A and should be consulted for more details concerning subsurface conditions. Stratification lines were approximated by the field staff based on observations made at the time of drilling, while the actual boundaries between soil types may be gradual and soil conditions may vary at other locations.

2.1.2 Load Testing

On November 30 and 31, 2020, Renewable Solar conducted the pile driving for twenty-six (26) W6x9 piles measuring a maximum of approximately 10 feet in length. There were ten (10) locations and two (2) piles were driven at each location. These piles were driven into the ground approximately 6 feet into the ground for testing. The piles were spaced at least 10 feet apart at each location. An axial (uplift/tension) test was performed on one pile and a lateral (strong axis) test was performed on the other pile in each test location. Pile load testing locations are shown in Figure 2.

On December 3 and 4, 2020, BSK Associates performed pile load testing, and assisted by Renewable Solar. All testing was conducted using an 8,000-lb capacity Sunbelt forklift, tow straps, digital distance micrometer (accuracy within 0.01-in), 10,000-lb capacity dynamometer, bubble level, and extra shackles/d-rings. The acceptance criterion for the at-grade horizontal deflection of each pile is ¾-inch for lateral and 1-inch for axial.

One pile was tested in uplift (axial tension). A clamp was placed on the top of the pile which was then connected with the load cell, a ratcheting chain, and a tow strap that then connected to the forklift boom. The digital distance meter was placed on a leveled surface and attached to the pile to read the displacement in the axial direction. Loads were applied in load increments in pounds (lbs). The pile was subjected to tension up to 5,000-lb and then to a maximum load up to 1-inch deflection.

The piles were removed by Golden Excavation on December 15, 2020 using an excavator.

2.2 Laboratory Testing

Laboratory tests were performed on selected soil samples to evaluate moisture content, dry density, shear strength, expansion index, California Bearing Ratio (CBR), and corrosion characteristics. A description of the laboratory test methods and results are presented in Appendix B.

2.2.1 Thermal Resistivity

Six (6) relatively undisturbed soil samples were evaluated for thermal resistivity of soil using accepted test methods. The thermal resistivity testing was performed by DBS&A of Albuquerque, New Mexico. This laboratory testing is presented in Appendix D.



2.3 Percolation Testing

The percolation testing was conducted by a BSK staff member on December 16 and 17, 2020. Four (4) percolation tests were performed at the locations shown on Figure 2. Because percolation tests incorporate both downward and horizontal fluxes of water, where infiltration accounts only for downward flux, the percolation test rates were converted to estimate infiltration rates using the Porchet Method (a.k.a. Inverse Borehole Method). The percolation test results and determined infiltration rates are presented Table 1 and Appendix A.

Table 1: Summary of Percolation Test Results		
Test Location	Soil Description	Percolation Rate (minute/inch)
P-1	Silty Sand	3.5
P-2	Silty Sand	32.1
P-3	Clay	5.5
P-4	Sandy Clay	0.5

2.4 Field Resistivity Testing

Ten (10) field resistivity tests were conducted at the Site on December 22 and 23, 2020 using the Wenner 4-pin method in the array and substation areas as shown in Figure 2. A summary of the field electrical resistivity tests results is provided in Appendix A.

3. SITE AND GEOLOGY/SEISMICITY CONDITIONS

The following sections address the Site descriptions and surface conditions, regional geology and seismic hazards, subsurface conditions, and groundwater conditions at the Site. This information is based on BSK's field exploration and published maps and reports.

3.1 Site Description and Surface Conditions

The Site is located in a vacant field bounded by agricultural land and King Road one mile to the east, Twisselman Road two miles to the south, a canal to the south and east and a PG&E substation one mile east from the northwest corner of the array location. The Site is located along the south edge of Section 3 and all of Section 11, Township 25 South, and Range 19 East of the Mount Diablo Meridian. The NAD 83 GPS coordinates for the center of the Site are 35.7673 degrees North latitude and 119.8944 degrees West longitude.

The surface conditions at the time of the field exploration was an actively watered alfalfa field on the south side of the site and a vacant field on the north side of the site.

3.2 Regional Geology and Seismic Hazards Assessment

Our Scope of services included a review of published maps and reports to assess the regional geology and potential for seismic hazards.



3.2.1 Regional Geology

The Site is located in Great Valley geomorphic province. The Great Valley is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor.

3.2.2 Seismic Hazards Assessment

The types of geologic and seismic hazards assessed include surface ground fault rupture, liquefaction, and slope failure.

The purpose of the Alquist-Priolo Geologic Hazards Zones Act, as summarized in CDMG Special Publication 42 (SP 42), is to "prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." As indicated by SP 42, "the State Geologist is required to delineate "earthquake fault zones" (EFZs) along known active faults in California. Cities and counties affected by the zones must regulate certain development 'projects' within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting.

The Site is not located in a Fault-Rupture Hazard Zone. The closest fault zone is associated with the 1952 earthquake fractures on the east side of the Site and the Wheeler Ridge fault zone 6.5 miles south of the site.

Zones of Required Investigation referred to as "Seismic Hazard Zones" in CCR Article 10, Section 3722, are areas shown on Seismic Hazard Zone Maps where Site investigations are required to determine the need for mitigation of potential liquefaction and/or earthquake-induced landslide ground displacements. There are no mapped areas that have Seismic Hazard Zones in the project area and liquefaction potential is low.

3.3 Subsurface Conditions

The subsurface material in the future substation area generally consists of silty and poorly graded sands to the maximum depths of exploration (21.5 to 36.5 feet bgs). The subsurface material in the array areas generally consists of hard sandy clay in the triangle shaped area on the southwest side of the site and cemented silty and clayey sands in the remaining areas to the maximum depths of exploration (6.5 to 21.5 feet bgs).

The boring logs in Appendix A provide a more detailed description of the materials encountered, including the applicable Unified Soil Classification System symbols.



3.4 Groundwater Conditions

Groundwater was not encountered at the Site on December 7 through 9, 2020. Based on the groundwater elevation data from the California Department of Water Resources (DWR), the historic high groundwater depth in the vicinity was recorded to be greater than 100 feet bgs.

Please note that the groundwater level may fluctuate both seasonally and from year to year due to variations in rainfall, temperature, pumping from wells and possibly as the result of other factors such as irrigation, that were not evident at the time of our investigation.

4. CONCLUSIONS AND RECOMMENDATIONS

Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the soil conditions would not preclude the construction of the proposed improvements. However difficult pile driving and possibly predrilling may be required for pile depths below 5 feet. BSK recommends a pile indicator program prior to production piles to evaluate the pile installation process.

The proposed improvements may be supported on shallow foundations, mat foundations or driven piles if the recommendations presented herein are incorporated into the design and construction of the project.

4.1 Seismic Design Criteria

Based on Section 1613.3.2 of the 2019 California Building Code (CBC), the Site shall be classified as Site Class A, B, C, D, E or F based on the Site soil properties and in accordance with Chapter 20 of ASCE 7-16.

The 2019 CBC utilizes ground motion based on the Risk-Targeted Maximum Considered Earthquake (MCER) that is defined in the 2019 CBC as the most severe earthquake effects considered by this code, determined for the orientation that results in the largest maximum response to horizontal ground motions and with adjustment for targeted risk. Ground motion parameters in the 2019 CBC are based on ASCE 7-16, Chapter 11.

The Structural Engineers Associates of California (SEAOC) has prepared maps presenting the Risk-Targeted MCE spectral acceleration (5 percent damping) for periods of 0.2 seconds (S_s) and 1.0 seconds (S_1). The values of S_s and S_1 can be obtained from the Occupational Safety Health Planning and Development (OSHPD) Seismic Design Maps Tool at: <https://seismicmaps.org/>.

The OSHPD Seismic Design Maps Tool and Chapter 16 of the 2019 CBC based on ASCE 7-16 produced the spectral acceleration parameters risk targeted maximum considered earthquake values in Table 1 based on Site Class D conditions.

As per Section 1803.5.12 of the 2019 CBC, peak ground acceleration (PGA) utilized for dynamic lateral earth pressures and liquefaction, shall be based on a site-specific study (ASCE 7-16, Section 21.5) or ASCE



7-16, Section 11.8.3. The OSHPD Seismic Design Maps Tool and based on ASCE 7-16, Section 11.8.3 produced the Geometric Mean PGA value in Table 2 based on Site Class D conditions.

Table 2: Seismic Design Parameters			
Seismic Design Parameter	2019 CBC Value		Reference
MCE Mapped Spectral Acceleration (g)	$S_S = 1.407$	$S_1 = 0.505$	USGS Mapped Value
Amplification Factors (Site Class D)	$F_a = 1.000$	$F_v = \text{null}^1(1.795)^2$	ASCE Table 11.4
Site Adjusted MCE Spectral Acceleration (g)	$S_{MS} = 1.407$	$S_{M1} = \text{null}^1(0.906)^2$	ASCE Equations 11.4.1-2
Design Spectral Acceleration (g)	$S_{DS} = 0.938$	$S_{D1} = \text{null}^1(0.604)^2$	ASCE Equations 11.4.1-4
Geometric Mean PGA (g)	$PGA_M = 0.674$		Section 11.8.3, ASCE 7-16
Site Short Period – T_s (seconds)	$T_s = 0.644$		$T_s = S_{D1} / S_{DS}$
Site Long Period – T_L (seconds)	$T_L = 12$		USGS Mapped Value

Notes: ¹ Requires site-specific ground motion procedure or exception as per ASCE 7-16 Section 11.48

² Values from ASCE 7-16 supplement, shall only be used to calculate T_s

4.2 Soil Corrosivity

Surface soil samples were obtained from the Site to provide a preliminary screening of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts. Twenty-six (26) soil samples were collected for corrosion testing to evaluate minimum resistivity, pH, soluble sulfates, soluble chlorides, and redox potential was performed by Sunland Analytical Laboratories of Rancho Cordova, CA. The corrosion tests were performed using ASTM G51, G187, G200, C1580, and D5212. This laboratory testing is summarized in Table B-1 in Appendix B.

The water-soluble sulfate content severity class is considered not severe to very severe to concrete (Exposure Category S0 to S3 per Table 4.2.1 of ACI 318-11). Therefore, Type “V” cement and a maximum water/cement ratio of 0.45 are recommended for concrete in contact with the near-surface soils.

The site soils minimum resistivity is considered moderately severely to very severely corrosive to buried metal. Therefore, buried metal conduits, ferrous metal pipes, and exposed steel should have a protective coating in accordance with the manufacturer’s specification. The above are general discussions. A more detailed investigation may include more or fewer concerns and should be directed by a corrosion expert. BSK does not practice corrosion engineering.



4.3 Site Preparation Recommendations

The following procedures must be implemented during site preparation for the proposed site improvements. References to maximum dry density, optimum moisture content, and relative compaction are based on ASTM D 1557 (latest test revision) laboratory test procedures.

1. The areas of proposed improvements must be cleared of surface vegetation and debris. Materials resulting from the clearing and stripping operations must be removed and properly disposed of off-site. In addition, all undocumented fills must be removed where encountered and where fills or structural improvements will be placed. BSK recommends one foot of non-expansive ($EL < 20$) engineered fill below shallow foundations. Over excavation should extend laterally five feet beyond the edge of foundations. Yielding areas should be observed by the geotechnical consultant and removed and recompacted if necessary.
2. Following the required stripping and over excavation, the exposed ground surface must be inspected by the Geotechnical Engineer to evaluate if loose or soft zones are present that will require additional over excavation.
3. Imported soil ($EL < 20$), free of organic materials or deleterious substances, may be placed as compacted engineered fill. The material must be free of oversized fragments greater than 3-inches in greatest dimension. Engineered fill underneath and extending 5 feet beyond the building foundation and must be placed in uniform layers not exceeding 8-inches in loose thickness, moisture conditioned at or above optimum moisture content and compacted to at least 90 percent of maximum dry density.
4. If possible, earthwork operations should be scheduled during a dry, warm period of the year. Should these operations be performed during or shortly following periods of inclement weather, unstable soil conditions may result in the soils exhibiting a “pumping” condition. This condition is caused by excess moisture in combination with moving construction equipment, resulting in saturation and zero air voids in the soils. If this condition occurs, the adverse soils will need to be over-excavated to the depth at which stable soils are encountered and replaced with suitable soils compacted as engineered fill. Alternatively, the Contractor may proceed with grading operations after utilizing a method to stabilize the soil subgrade, which should be subject to review and approval by BSK prior to implementation.
5. Import fill materials must be free from organic materials or deleterious substances. The project specifications must require the contractor to contact BSK to review the proposed import fill materials for conformance with these recommendations at least one week prior to importing to the Site, whether from on-site or off-site borrow areas. Imported fill soils must be non-hazardous and derived from a single, consistent soil type source conforming to the following criteria:

Plasticity Index:	< 12
Expansion Index:	< 20 (Very Low Expansion Potential)
Maximum Particle Size:	3 inches
Percent Passing #4 Sieve:	65 - 100



Percent Passing #200 Sieve:	20 - 45
Low Corrosion Potential:	Soluble Sulfates < 1,500 ppm Soluble Chlorides < 150 ppm Minimum Resistivity > 3,000 ohm-cm

4.4 Foundations

Provided the recommendations contained in this report are implemented during design and construction, it is our opinion that the structures can be supported on mat foundations and driven piles. A structural engineer must evaluate reinforcement, embedment depth based on the requirements for the structural loadings, shrinkage and temperature stresses. However difficult pile driving and possibly predrilling may be required for pile depths below 5 feet. BSK recommends an pile indicator program prior to production piles to evaluate the pile installation process.

4.4.1 Mat Foundations

We understand that the structure may be supported on a concrete mat foundation. The mat foundation may be designed to impose a maximum allowable pressure of 3,000 pounds per square foot (psf) due to dead plus live loads. The concrete mat foundation must be at least 8 inches thick and satisfy structural considerations.

Settlements: Based on the results of our laboratory tests and analyses, total static settlements of the mat foundation under the allowable bearing pressure are expected to be less than 1-inch, and maximum differential settlements are expected to be about 0.5-inch.

4.4.2 Pole Type Foundations

It is anticipated that the structures will be supported on driven piles. The values included in this section are based on our laboratory test results. This type of foundation should be designed in accordance with Section 1807.3.2 of the 2019 CBC. However, it is recommended that an allowable lateral soil bearing pressure of 160 psf per foot of embedment be used to develop parameters S_1 and S_3 rather than one of the values given in Table 1806.2. This value includes a factor of safety of 2. The upper foot of soil should be ignored when calculating the minimum embedment depth. If the pier foundation is in the asphalt concrete pavement, the upper one foot can be used for design.

The allowable lateral bearing pressure includes a factor of 2 and may be doubled according to the CBC Section 1806.3.4 for pole type foundations not adversely affected by ½ inch of movement at the ground surface. The lateral bearing pressure is permitted to be increased by 1/3 where used with the alternative basic load combinations of CBC Section 1605A.3.2 that include wind or earthquake loads. The lateral bearing pressure shall be permitted to be increased for each additional foot of embedment up to a maximum of 8 times the allowable bearing pressure.

Pole-type foundations may be designed for an allowable end bearing pressure of 6,000 psf (includes a factor of safety of 3) for a minimum pier length of 6 feet. To support vertical loads applied to the pile



foundations, an allowable static downward skin friction value of 400 psf may be used, which includes a factor of safety of 1.5, per the 2019 CBC. End bearing and skin friction may be increased by 1/3 for short term loading. The total settlement of pole foundations designed in accordance with these recommendations should not exceed one-half inch.

Where uplift is due to wind or seismic loading, an allowable skin friction of 400 psf may be used, which includes a factor of safety of 1.5, to resist transient uplift loads, per the 2019 CBC. Skin friction may be increased by 1/3 to 533 psf for short term loading. The weight of the pile may be taken into consideration when determining resistance to uplift loads.

Please note, the outside perimeter of the pile may be used in skin friction calculation and the upper 1 (one) foot of soil should be neglected.

We have provided the modulus of subgrade reaction, 225 pci, for the structural designers to use in their LPILE analysis. We recommend using the Reese et al., 1975 option for the p-y curve soil model in the Soil Layers dialog box for site. The following soil parameters may be used in the analysis:

Table 3: LPILE Input Parameters	
Soil Type	Silty and Clayey Sands
p-y curve model	Reese et al., 1975
Effective Unit Weight, pcf	120
Subgrade Reaction, pci	225
Effective Friction Angle, degrees	28

4.5 Lateral Earth Pressures and Frictional Resistance

Provided the Site is prepared as recommended above, the following earth pressure parameters for footings may be used for design purposes. The parameters shown in the table below are for drained conditions of select engineered fill or undisturbed native soil.

Table 4: Recommended Static Lateral Earth Pressures for Footings	
Lateral Pressure Condition	Ultimate Equivalent Fluid Density (pcf) Drained Condition
Active Pressure	40
At Rest Pressure	60
Passive Pressure	320

The lateral earth pressures listed herein are obtained by the conventional equation for active, at rest, and passive conditions assuming level backfill and a bulk unit weight of 120 pcf for the Site soils. A coefficient of friction of 0.25 may be used between soil sub-grade and the bottom of footings.



The coefficient of friction and passive earth pressure values given above represent ultimate soil strength values. BSK recommends that a safety factor consistent with the design conditions be included in their usage in accordance with Sections 1806.3.1 through 1806.3.3 of the 2019 CBC. For stability against lateral sliding that is resisted solely by the passive earth pressure against footings or friction along the bottom of footings, a minimum safety factor of 1.5 is recommended. For stability against lateral sliding that is resisted by combined passive pressure and frictional resistance, a minimum safety factor of 2.0 is recommended. For lateral stability against seismic loading conditions, a minimum safety factor of 1.2 is recommended.

4.6 Access Road Recommendations

BSK recommends the proposed on-site all-weather fire access roadway be constructed with a minimum 8-inches of compacted aggregate base (minimum 92 percent per ASTM D1557) over a minimum 12-inches of compacted native soil (minimum 92 percent per ASTM D1557). It is our professional opinion that the proposed on-site all-weather fire access roadway, if constructed per the recommendations above, will be adequate to support the weight of a 75,000-lb fire engine apparatus.

4.7 Excavation Stability

Soils encountered within the depth explored are generally classified as Type C soils in accordance with OSHA (Occupational Safety and Health Administration). The slopes surrounding or along temporary excavations may be vertical for excavations that are less than five feet deep and exhibit no indication of potential caving, but should be no steeper than 1.5H:1V for excavations that are deeper than five feet, up to a maximum depth of 15 feet. Certified trench shields or boxes may also be used to protect workers during construction in excavations that have vertical sidewalls and are greater than 5 feet deep. Temporary excavations for the project construction should be left open for as short a time as possible and should be protected from water runoff. In addition, equipment and/or soil stockpiles must be maintained at least 10 feet away from the top of the excavations. Because of variability in soils, BSK must be afforded the opportunity to observe and document sloping and shoring conditions at the time of construction. Slope height, slope inclination, and excavation depths (including utility trench excavations) must in no case exceed those specified in local, state, or federal safety regulations, (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations).

4.8 Trench Backfill and Compaction

Processed on-Site soils, which are free of organic material, are suitable for use as general trench backfill above the pipe envelope. Native soil with particles less than three inches in the greatest dimension may be incorporated into the backfill and compacted as specified above, provided they are properly mixed into a matrix of friable soils. The backfill must be placed in thin layers not exceeding 12 inches in loose thickness, be well-blended and consistent texture, moisture conditioned to at least optimum moisture content, and compacted to at least 90 percent of the maximum dry density as determined by the ASTM D1557. The uppermost 12 inches of trench backfill below pavement sections must be compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557. Moisture content within two percent of optimum must be maintained while compacting this upper 12 inch trench backfill zone.



We recommend that trench backfill be tested for compliance with the recommended Relative Compaction and moisture conditions. Field density testing should conform to ASTM Test Methods D1556 or D6938. We recommend that field density tests be performed in the utility trench bedding, envelope and backfill for every vertical lift, at an approximate longitudinal spacing of not greater than 150 feet. Backfill that does not conform to the criteria specified in this section should be removed or reworked, as applicable over the trench length represented by the failing test so as to conform to BSK recommendations.

4.9 Drainage Considerations

The control surface drainage in the project areas is an important design consideration. BSK recommends that final grading around shallow foundations must provide for positive and enduring drainage away from buildings and similar structures, and ponding of water must not be allowed around, or near the shallow foundations. Ground surface profiles next to the shallow foundations must have at least a 2 percent gradient away from the structures.

5. PLANS AND SPECIFICATIONS REVIEW

BSK recommends that it be retained to review the draft plans and specifications for the project, with regard to foundations and earthwork, prior to their being finalized and issued for construction bidding.

6. CONSTRUCTION TESTING AND OBSERVATIONS

Geotechnical testing and observation during construction is a vital extension of this geotechnical investigation. BSK recommends that it be retained for those services. Field review during Site preparation and grading allows for evaluation of the exposed soil conditions and confirmation or revision of the assumptions and extrapolations made in formulating the design parameters and recommendations. BSK's observations must be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. BSK must also be called to the Site to observe foundation excavations, prior to placement of reinforcing steel or concrete, in order to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report. BSK must also be called to the Site to observe placement of foundation and slab concrete.

If a firm other than BSK is retained for these services during construction, then that firm must notify the owner, project designers, governmental building officials, and BSK that the firm has assumed the responsibility for all phases (i.e., both design and construction) of the project within the purview of the Geotechnical Engineer. Notification must indicate that the firm has reviewed this report and any subsequent addenda, and that it either agrees with BSK's conclusions and recommendations, or that it will provide independent recommendations.

7. LIMITATIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the Boring performed at the location shown on the Boring and Test Location Map, Figure 2. The report does not reflect variations which may occur between or beyond the Boring. The nature and extent of such variations may not become evident until construction is initiated. If variations then appear, a re-evaluation



of the recommendations of this report will be necessary after performing on-Site observations during the excavation period and noting the characteristics of the variations.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observation program during the construction phase. BSK assumes no responsibility for construction compliance with the design concepts or recommendations unless it has been retained to perform the testing and observation services during construction as described above.

The findings of this report are valid as of the present. However, changes in the conditions of the Site can occur with the passage of time, whether caused by natural processes or the work of man, on this property or adjacent property. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation, governmental policy or the broadening of knowledge.

BSK has prepared this report for the exclusive use of the Client and members of the project design team. The report has been prepared in accordance with generally accepted geotechnical engineering practices which existed in Kern County at the time the report was written. No other warranties either expressed or implied are made as to the professional advice provided under the terms of BSK's agreement with Client and included in this report.

8. REFERENCES

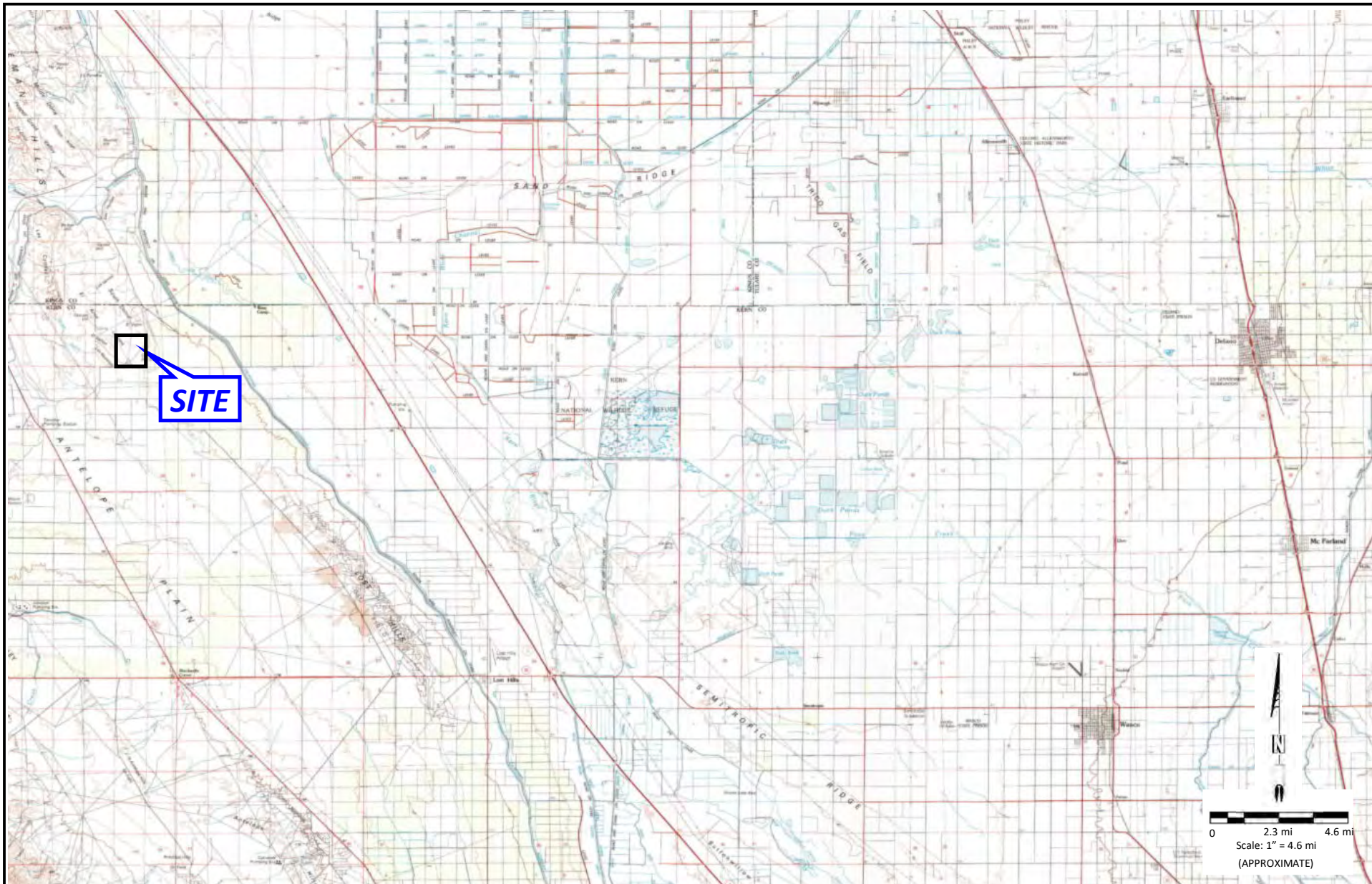
Department of Water Resources. <http://www.water.ca.gov/waterdatalibrary/>, Water Data Library, 2020.

Earth Point. <http://earthpoint.us/townships.aspx>, Public Land Survey System, Google Earth, 2020.

"U.S. Seismic Design Maps." U.S. Seismic Design Maps, 2020, seismicmaps.org/.



FIGURES



REFERENCE IMAGE: USGS Topographic Map

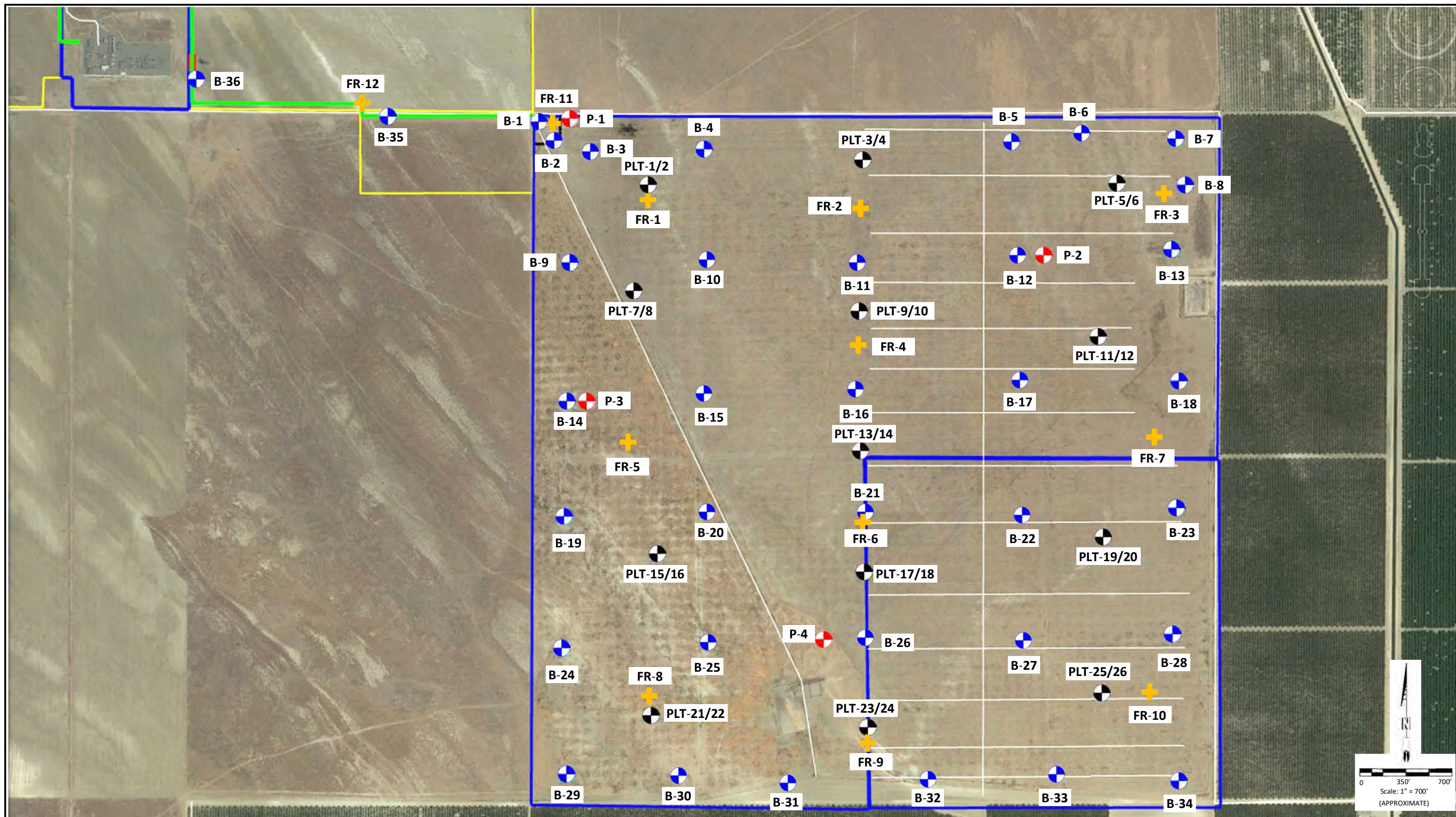
ESK
ASSOCIATES
 550 W Locust Avenue
 Fresno, CA 93650
 Tel. (559) 497-2880

SITE VICINITY MAP

Azalea Solar
 King Road & Twisselman Road
 Lost Hills, California

FIGURE 1

JOB NO.	G20-267-10F
DATE	December 2020
DR. BY CG	SHEET NO. 1 OF 2 SHEETS
CH. BY OML	
SCALE AS SHOWN	



LEGEND:

- APPROXIMATE BORING LOCATIONS
- APPROXIMATE PERCOLATION TEST LOCATIONS
- APPROXIMATE PILE LOAD TEST LOCATIONS
- APPROXIMATE FIELD RESISTIVITY TEST LOCATIONS

REFERENCE IMAGE: Google Earth 2020

ESK
ASSOCIATES
550 W Locust Ave
Fresno, CA 93650
Tel. (559) 497-2880

BORING AND TEST LOCATION MAP

Azalea Solar
King Road & Twisselman Road
Lost Hills, California

FIGURE 2

JOB NO.	G20-267-10F
DATE	December 2020
DR. BY	CG
CH. BY	OML
SHEET NO.	2
OF	2 SHEETS

APPENDIX A

FIELD EXPLORATION



APPENDIX A FIELD EXPLORATION

The field exploration for this investigation was conducted under the oversight of a BSK engineer. Thirty-six (36) borings were drilled at the Site on December 15 and 16, 2020 using a CME 75 drill rig and Mobile B-61 drill rig equipped with hollow stem augers and an auto-hammer provided by Baja Exploration of Escondido, California. The borings were drilled to a maximum depth of 6.5 to 36.5 feet beneath the existing ground surface (bgs) and backfilled with the soil cuttings and surrounding soil.

The soil materials encountered in the test boring was visually classified in the field, and the log was recorded during the drilling and sampling operations. Visual classification of the materials encountered in the test boring was made in general accordance with the Unified Soil Classification System (ASTM D 2488). A soil classification chart is presented herein. Boring log is presented herein and should be consulted for more details concerning subsurface conditions. Stratification lines were approximated by the field staff based on observations made at the time of drilling, while the actual boundaries between soil types may be gradual and soil conditions may vary at other locations.
















Subsurface samples were obtained at the successive depths shown on the boring logs by driving samplers which consisted of a 2.5-inch inside diameter (I.D.) California Sampler and a 1.4-inch I.D. Standard Penetration Test (SPT) Sampler. The samplers were driven 18 inches using a 140-pound hammer dropped from a height of 30 inches by means of either an automatic hammer or a down-hole safety hammer. The number of blows required to drive the last 12 inches was recorded as the blow count (blows/foot) on the boring logs. The relatively undisturbed soil core samples were capped at both ends to preserve the samples at their natural moisture content. Soil samples were also obtained using the SPT Sampler lined with metal tubes or unlined in which case the samples were placed and sealed in polyethylene bags. At the completion of the field exploration, the test borings were backfilled with the excavated soil cuttings.

It should be noted that the use of terms such as “loose”, “medium dense”, “dense” or “very dense” to describe the consistency of a soil is based on sampler blow count and is not necessarily reflective of the in-place density or unit weight of the soils being sampled. The relationship between sampler blow count and consistency is provided in the following Tables A-1 and A-2 for coarse-grained (sandy and gravelly) soils and fine grained (silty and clayey) soils, respectively.



Table A-1: Consistency of Coarse-Grained Soil by Sampler Blow Count		
Consistency Descriptor	SPT Blow Count (#Blows / Foot)	2.5" I.D. California Sampler Blow Count (#Blows / Foot)
Very Loose	<4	<6
Loose	4 – 10	6 – 15
Medium Dense	10 – 30	15 – 45
Dense	30 – 50	45 – 80
Very Dense	>50	>80

Table A-2: Apparent Relative Density of Fine-Grained Soil by Sampler Blow Count		
Consistency Descriptor	SPT Blow Count (#Blows / Foot)	2.5" I.D. California Sampler Blow Count (#Blows / Foot)
Very Soft	<2	<3
Soft	2 – 4	3 – 6
Stiff	4 – 8	6 – 12
Very Stiff	8 – 15	12 – 24
Hard	15 – 30	24 – 45
Very Hard	>30	>45

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS More than Half >#200	GRAVELS MORE THAN HALF COARSE FRACTION IS <u>LARGER THAN NO. 4 SIEVE</u>	<u>CLEAN</u> GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL- SAND MIXTURES
		GRAVELS WITH <u>OVER 15% FINES</u>	GM		SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS <u>SMALLER THAN NO. 4 SIEVE</u>	<u>CLEAN</u> SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS
			SP		POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH <u>OVER 15% FINES</u>	SM		SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS More than Half <#200 sieve	SILTS AND CLAYS LIQUID LIMIT <u>LESS THAN 50</u>		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT <u>GREATER THAN 50</u>		MH		INORGANIC SILTS , MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

Note: Dual symbols are used to indicate borderline soil classifications.

	Pushed Shelby Tube		Water Level measured <u>at time of Drilling</u> (with date noted)
	Standard Penetration Test (2-inch outside diameter)		Water Level measured <u>after Drilling</u> (with date noted)
	Modified California (3-inch outside diameter)		Hand Auger Cuttings
	Split Barrel Sampler (2 1/2-inch outside diameter)		Grab Sample
	Undisturbed Sample		Sample Attempt with No Recovery
	Continuous Core Sample		

SOIL CLASSIFICATION CHART AND LOG KEY
Unified Soil Classification System (ASTM D 2487)
Figure A-1





BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 2

Boring: B-1

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to coarse grained sand	
2										
3			26	107.9	4.8					
4										
5										
6			45						... weakly cemented	
7										
8										
9										
10										
11			50						... trace subangular gravel	
12										
13										
14										
15										
16			73					SP-SM	Poorly Graded SAND with Silt - brown, moist, fine to coarse grained sand	
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 36.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 2 of 2

Boring: B-1

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
21			50						Poorly Graded SAND with Silt - brown, moist, fine to coarse grained sand (<i>continued</i>)	
22										
23										
24										
25			93							
26										
27										
28										
29										
30			50							
31										
32										
33										
34										
35			50							
36										
37									Boring terminated at approximately 36.5 feet bgs. Auger refusal due to hard augering. No groundwater encountered. Boring backfilled with soil cuttings.	
38										
39										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 36.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 2

Boring: B- 2

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SP	Poorly Graded SAND - brown, moist, fine to medium grained sand	
2										
3			23	95.7	6.9					
4										
5										
6			50							
7										
8										
9										
10										
11			50	86.5	11.2				... fine to coarse grained sand, strongly cemented material	
12										
13										
14										
15										
16			84						... moderately cemented	
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar

Location: Lost Hills, CA

Project No.: G20-267-10F

Logged By: J. Leu

Checked By: O. Lau

Page 2 of 2

Boring: B- 2

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
21			50	100.8	10.8			SC	Clayey SAND - brown, moist, fine to coarse grained sand, moderately cemented	
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										

GEO BORING LOGS.GPJ BSK.GDT 1/11/21

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B- 3

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			10					SM	Silty SAND - brown, moist, fine to medium grained sand	
2										
3			10	97.3	9.5				... trace large gravel	
4										
5			19						... darker brown, fine to coarse grained sand	
6										
7										
8										
9										
10										
11			50					SP	Poorly Graded SAND - brown, moist, fine to coarse grained sand	
12										
13										
14										
15										
16			67						... moderately cemented, trace orange striations	
17									Boring terminated at approximately 21.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B- 4

Depth (Feet)	Samples	Bulk Samples Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1							SM	Silty SAND - brown, moist, fine to medium grained sand, strong cemented	
2									
3		50	92.6	15.9					
4									
5									
6		50	97.9	21.5			SC	Clayey SAND - pale brown, moist, fine to medium grained sand	
7									
8									
9									
10									
11		50	93.8	24.3				... strongly cemented	
12									
13								Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14									
15									
16									
17									
18									
19									

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B- 5

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			67					SM	Silty SAND with Gravel - very pale brown to brown, strongly cemented	
2									... dense	
3			50/4					SC	Clayey SAND - brown, moist, dense, fine grained sand	
4										
5			50/3							
6			50/2					CL	Sandy Lean CLAY - olive, moist, hard, fine grained sand	
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
									Boring terminated at approximately 6.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 6.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B- 6

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - very pale brown, dry to moist, fine grained sand, weakly cemented	
2										
3			24						... medium dense	
4										
5										
6			27	109.3	3.2					Figure B-2: Direct Shear Test: $\phi = 32^\circ$, $c = 40$ psf
7										
8										
9										
10										
11			50/ 5"	84.2	25.6				... dense to very dense, strongly cemented mottlings	
12									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-7

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			50/6					SM	Silty SAND - very pale brown, dry to moist, dense to very dense, fine to medium grained sand, strongly cemented (sandstone)	
2										
3			50/6							
4										
5										
6			50/5							
7										
8									... brown, moist	
9										
10										
11			50/5	86.9	14.8				... dry to moist, very pale brown	
12										
13										
14										
15										
16			28						... medium dense	
17									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B- 8

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - very pale brown, dry to moist, fine grained sand, strongly cemented	
2										
3			46	98.2	6.0				... dense	
4										
5										
6			32						... medium dense	
7										
8										
9										
10										
11			50/ 5	79.5	7.1				... dense	
12									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Boring: B- 9

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to medium grained sand, trace angular gravel	
2			9							
3			26	99.3	5.2			SP	Poorly Graded SAND - brown, moist, fine to medium grained sand	
4										
5			79						... moderately strong cemented material, trace orange striations	
6										
7										
8										
9										
10										
11			50	86.6	6.6					
12										
13										
14										
15										
16			50						... moderately cemented	
17									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Boring: B-10

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to medium grained sand, trace clay	
2										
3			26	103.7	9.2					
4										
5										
6			50						... less clay, moderately cemented	
7										
8										
9										
10										
11			50	88.8	18.7					
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-11

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			50/6					SM	Silty SAND - very pale brown, dry to moist, strongly cemented	
2									... dense	
3			50/6	104.4	9.9				... very dense	
4										
5			50/2							
6			50/4							
7										
8										
9									Boring terminated at approximately 8 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 8 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-12

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - olive, dry to moist, fine grained sand, trace fine grained gravel, subrounded	
2										
3			18	105.0	4.2				... medium dense	
4										
5										
6			50/ 3							
7										
8								SP-SM	Poorly Graded SAND with Silt - olive, dry to moist, fine to medium grained sand, weakly cemented	
9										
10									... dense	
11			50/ 3	95.8	5.7				Boring terminated at approximately 10.75 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
12										
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 8 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-13

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			18					SM	Silty SAND - very pale brown, dry to moist, fine grained sand, strongly cemented	
2								SC	Clayed SAND - olive, dry to moist, dense, fine grained sand, strongly cemented	
3			50/5	82.9	12.9					
4										
5								SM	Silty SAND - very pale brown dry to moist, dense, fine to coarse grained sand, yellowish brown mottlings	
6			50/5	91.2	21.0					
7										
8										
9										
10									Boring terminated at approximately 9 feet bgs. Auger refusal due to hard augering. No groundwater encountered. Boring backfilled with soil cuttings.	
11										
12										
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 9 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-14

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								CL	Lean CLAY - pale brown, moist, fine grained sand	
2										
3			36	77.1	39.3					
4										
5										
6			40	73.4	46.6					
7										
8										
9										
10										
11			47	74.2	46.1				... orange striations	
12									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-15

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SC	Clayey SAND - brown, moist, fine to coarse grained sand	
2			25							
3			50	84.5	12.3			SM	Silty SAND - brown, moist, fine to medium grained sand	
4										
5			50						... strongly cemented	
6										
7										
8										
9										
10										
11			50	98.8	19.1			SC	Clayey SAND - brown, moist, fine to coarse grained, strong cemented	
12										
13										
14										
15										
16			50					SP	Poorly Graded SAND - brown, moist, fine to coarse grained sand	
17									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

GEO BORING LOGS.GPJ BSK.GDT 1/11/21

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-16

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - pale olive, dry to moist, fine grained sand, trace clay	
2										
3			52	101.8	15.8				... dense	
4										
5										
6			24	93.0	13.1				... medium dense	
7										
8										
9										
10										
11			26	99.6	8.9					
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-17

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			50/5					SM	Silty SAND - pale olive, dry to moist, strongly cemented	
2									... dense	
3			50/3	88.2	24.1				... strongly cemented, gray mottlings	
4			50/6					SC	Clayey SAND - grayish bar, dry to moist, dense, fine to grained sand, weakly to strongly cemented	
5										
6			50/2	85.8	28.3				... greensih gray mottlings	
7										
8									Boring terminated at approximately 6.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-18

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to coarse grained sand	
2										
3			50/ 2	95.8	15.5				... dense, moderately cemented to strongly cemented	
4										
5										
6			50/ 4	104.9	14.8				... decreased fines content, gray to dark gray	
7										
8										
9										
10										
11			84	92.2	15.9				... very dense, dark gray	
12									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-19

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to coarse grained sand	
2			14							
3			37	93.0	23.6			CL	Lean CLAY with Sand - brown, moist, fine to medium grained sand	
4										
5			97						... strongly cemented material, trace gravel	
6										
7										
8										
9										
10										
11			58	84.3	35.8					
12										
13										
14										
15										
16									... no gravel, white-power like material	
17									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-20

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SP	Poorly Graded SAND - brown, moist, fine to coarse grained sand	
2										
3			18	77.9	42.2			CL	CLAY - brown, moist, fine grained sand	
4										
5										
6			17					SP	Poorly Graded SAND - brown, moist, fine to coarse grained sand	
7										
8										
9										
10										
11			62	100.9	7.1					
12										
13										
14										
15										
16										
17										
18										
19										
									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.

GEO BORING LOGS.GPJ BSK.GDT 1/11/21



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-21

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			17					SP-SM	Poorly Graded SAND with Silt - pale olive, dry to moist, medium dense, fine grained sand	
2										
3			24	110.5	4.5					
4										
5			15					SM	Silty SAND - yellowish brown, moist, medium dense, fine grained sand, trace clay	
6			33	108.4	10.8					
7										
8										
9										
10								SP	Poorly Graded SAND - olive, dry to moist, medium dense, fine to medium grained sand	
11			27	96.4	5.4					
12										
13										
14										
15										
16			86						... very dense	
17										
18									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
19										

Figure B-4: Direct Shear Test: $\phi = 25^\circ$, $c = 260$ psf

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-22

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, dry to moist, fine to medium grained sand	
2										
3			20	106.9	3.8				... medium dense	
4										
5								SP-SM	Poorly Graded SAND with Silt - pale olive, dry to moist, fine grained sand	
6			8						... loose	
7										
8										
9										
10										
11			50/ 4	82.8	31.3				... dense, strongly cemented mottlings	
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Boring: B-23

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - very pale brown, dry to moist, fine grained sand	
2			9						... loose	
3			50/ 5	100.1	5.0				... dense	
4										
5			50/ 4							
6			50/ 5	95.8	6.3					
7										
8										
9										
10										
11			50/ 5							
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Boring: B-24

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								ML	Sandy SILT - brown, moist, fine to medium grained sand, trace clay	
2										
3			17	88.0	13.2					
4										
5										
6			79	99.3	21.8			CL	Sandy CLAY - brown, moist, fine to medium grained sand	Figure B-5: Direct Shear Test: $\phi = 28^\circ$, $c = 330$ psf
7										
8										
9										
10										
11			57	92.4	29.1			CL	CLAY with Sand - brown, moist, fine to medium grained sand	
12										
13										
14										
15										
16										
17										
18										
19										

GEO BORING LOGS.GPJ BSK.GDT 1/11/21

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-25

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								CL	Sandy CLAY - brown, moist, fine to medium grained sand	
2			14							
3			25	82.4	37.3			CL	Lean CLAY - brown, moist, fine grained sand, trace white crystals, trace orange	
4										
5			23							
6										
7										
8										
9										
10										
11			43	79.4	42.6			CL	CLAY - reddish brown, moist, fine grained sand	
12										
13										
14										
15										
16			13							
17									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Boring: B-26

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - olive, dry to moist, fine to medium grained sand, white striations	
2										
3			12	97.8	10.8				... loose	
4										
5								SP-SM	Poorly Graded SAND with Silt - olive, dry to moist, fine to medium grained sand	
6			20	98.3	7.6				... medium dense	
7										
8										
9										
10										
11			50/ 4	91.9	4.8				... very dense	
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-27

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			16					SM	Silty SAND - very pale brown, dry to moist, fine grained sand, weakly to strongly cemented	
2									... medium dense, trace rootlets	
3			20	93.4	8.2					
4			19							
5										
6			46	97.4	9.1				... strongly cemented mottlings, dense	
7										
8										
9								SP-SM	Poorly Graded SAND with Silt - very pale brown, dry to moist, fine grained sand, medium dense, white striations	
10										
11			31	96.7	8.9					
12										
13										
14								SM	Silty SAND - very pale brown, dry to moist, fine grained sand, weakly cemented	
15										
16			27							
17										
18										
19										
									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Boring: B-28

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - very pale brown, dry to moist, fine grained sand, white striations	
2									... medium dense	
3			14	92.5	10.6					
4										
5										
6			76	87.8	26.9				... dense, no striations	
7										
8										
9										
10										
11			50/ 6	87.6	27.1					
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-29

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								ML	Sandy SILT - brown, moist, fine to medium grained sand	
2			14							
3			26	80.6	38.4			CL	Lean CLAY - brown, moist, fine grained sand, trace white powdery sand	
4										
5			24							
6										
7										
8										
9										
10										
11			24	79.1	36.7			CL	Sandy CLAY - brown, moist, fine grained sand, trace white, orange, black	
12										
13										
14										
15										
16			10					CL	Lean CLAY - brown, moist, fine grained sand	
17										
18										
19										

GEO BORING LOGS.GPJ BSK.GDT 1/11/21

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Boring: B-30

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to medium grained sand	
2										
3			29	102.5	8.8					
4										
5										
6			30	102.3	10.7				... strongly cemented, trace clay	
7										
8										
9										
10										
11			47	91.4	28.6			CL	Lean CLAY with Sand - brown, moist, fine to medium grained sand	
12									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
13										
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/15/20
Date Completed: 12/15/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 1

Boring: B-31

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SC	Clayey SAND - brown, moist, fine to medium grained sand	
2			16							
3			33	97.8	8.5			SM	Silty SAND - brown, moist, fine to medium grained, trace clay	
4										
5			44					CL	Sandy CLAY - brown, moist, fine to medium grained sand	
6										
7										
8										
9										
10										
11			50					CL	CLAY - brown, moist, fine to medium grained, trace white powder	
12										
13										
14										
15										
16			17							
17										
18										
19										
									Boring terminated at approximately 16.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-32

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - olive, dry to moist, fine to medium grained sand	
2										
3			56	105.7	4.0				... dense	
4										
5										
6			77						... very pale brown, strongly cemented	
7										
8										
9										
10								SP	Poorly Graded SAND - olive, dry to moist, fine to medium grained sand, dense	
11			50/ 4							
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.

GEO BORING LOGS.GPJ BSK.GDT 1/11/21



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Page 1 of 1

Boring: B-33

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1			11					SM	Silty SAND - brown, moist, fine to medium grained sand	
2										
3			16	101.1	7.5				... medium dense	
4			17					SC	Clayey SAND - olive, moist, medium dense, fine to medium grained sand	Figure B-6: Direct Shear Test: $\phi = 28^\circ$, $c = 90$ psf
5										
6			30	91.1	17.1					
7										
8								SP	Poorly Graded SAND - yellowish brown, moist, fine to coarse grained sand	
9										
10										
11			50/ 6						... dense ... bedrock	
12										
13									Boring terminated at approximately 36.5 feet bgs. Auger refusal due to hard augering. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 16.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: S. Jue
Checked By: O. Lau

Boring: B-34

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - very pale brown, dry to moist, moderately cemented	
2										
3			28	107.3	6.0				... medium dense	
4										
5										
6			65	86.1	22.0				... dense, strongly cemented	
7										
8										
9										
10										
11			88	97.5	20.1					
12										
13									Boring terminated at approximately 11.5 feet bgs. No groundwater encountered. Boring backfilled with soil cuttings.	
14										
15										
16										
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: CME75
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 11.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Boring: B-35

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1								SM	Silty SAND - brown, moist, fine to coarse grained sand, strongl cemented	
2										
3			26	93.7	13.0					
4										
5										
6			24					SP	Poorly Graded SAND - brown, moist, fine to medium grained sand	
7										
8										
9										
10										
11			81	95.3	8.5					
12										
13										
14										
15										
16			73						... moderately cemented, trace clay	
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 2 of 2

Boring: B-35

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
21			50	89.3	7.9			SP-SM	Poorly Graded SAND with Silt - brown, moist, fine to coarse grained sand	
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										

GEO BORING LOGS.GPJ BSK.GDT 1/11/21

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 1 of 2

Boring: B-36

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
1										
2										
3			17	80.1	41.2					
4										
5										
6			21							
7										
8										
9										
10										
11			39							
12										
13										
14										
15										
16			20							
17										
18										
19										

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



BSK Associates
550 W Locust Ave.
Fresno, CA 93650
Telephone: 559.497.2880
Fax: 559.497.2886

Project: Azalea Solar
Location: Lost Hills, CA
Project No.: G20-267-10F
Logged By: J. Leu
Checked By: O. Lau

Page 2 of 2

Boring: B-36

Depth (Feet)	Samples	Bulk Samples	Penetration Blows / Foot	In-Situ Dry Density (pcf)	In-Situ Moisture Content (%)	% Passing No. 200 Sieve	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS
21			46						CLAY - brown, moist, fine grained sand (<i>continued</i>)	
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										

GEO BORING LOGS.GPJ BSK.GDT 1/11/21

Drilling Contractor: Baja Exploration
Drilling Method: Mobile B-61
Drilling Equipment: Hollow Stem Auger
Date Started: 12/16/20
Date Completed: 12/16/20

Surface Elevation:
Sample Method: 2.5" I.D. Cal Mod & 1.5" I.D. SPT Split Spoon
Groundwater Depth: Not Encountered
Completion Depth: 21.5 Feet
Borehole Diameter: 8"

* See key sheet for symbols and abbreviations used above.



Field Resistivity Testing

550 W Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

ASTM G57 (Wenner 4-pin Method)

Project Name: Azalea Solar

Project Number: G20 - 267 - 10F

Test Conducted by: S.J./J.L. & A.B.

Test Dates: December 23 and 24, 2020 & January 21, 2021

Equipment Used: MC Miller 400D

Field Resistance (Ω), measured at each pin spacing												
Location	Test Line	Orientation	Pin Spacing (feet)									
			2	4	5	8	10	25	50	75	100	200
F-1	1	North-South	5.76	5.20	6.10	4.93	2.67	31.10	43.30	18.30	1030.00	39.70
	2	East-West	5.18	6.77	13.00	3.11	94.00	20.40	30.80	20.50	44.00	32.30
F-2	1	North-South	15.60	11.20	14.90	3.09	46.00	6.91	1.82	5.33	5.58	15.90
	2	East-West	30.80	56.80	25.10	2.47	15.10	26.80	29.10	31.70	6.26	6.74
F-3	1	North-South	6.03	2.72	1.16	106.00	32.10	7.49	1.63	16.30	8.61	3.89
	2	East-West	7.88	7.66	1.52	204.00	73.30	12.80	3.27	2.38	2.95	4.36
F-4	1	North-South	32.20	38.20	25.20	585.00	26.60	40.50	8.08	11.70	22.20	14.20
	2	East-West	6.07	2.80	4.01	482.00	21.00	4.31	1.24	1.32	0.73	0.41
F-5*	1	North-South	327.00	479.00	1.61	180.00	43.90	13.70	34.70	14.80	23.70	40.80
	2	East-West	268.00	1.54	163.00	284.00	114.00	30.80	35.60	20.70	26.50	31.80
F-6*	1	North-South	2.92	2.55	10.70	1.53	230.00	44.50	34.10	123.00	118.00	43.70
	2	East-West	4.41	1.65	3.01	181.00	67.50	68.10	133.00	7.88	16.80	10.60
F-7	1	North-South	9.44	33.30	8.01	2.27	1.32	1.24	0.38	4.32	1.92	0.63
	2	East-West	11.20	5.03	2.08	2.14	1.56	1.70	0.43	0.90	2.47	0.36
F-8	1	North-South	6.44	10.80	4.14	1.78	97.90	45.00	42.80	21.60	31.50	37.00
	2	East-West	17.70	4.75	2.78	1.20	1.52	30.30	19.10	66.20	24.50	69.50
F-9*	1	North-South	24.20	54.70	49.30	66.30	4.26	17.10	1.23	2.75	2.10	0.85
	2	East-West	19.70	6.86	4.49	2.83	2.25	2.56	17.20	9.86	14.70	2.06
F-10*	1	North-South	9.80	3.87	2.89	151.00	58.40	70.00	39.00	28.00	77.70	13.30
	2	East-West	188.00	3.35	2.54	2.25	135.00	17.20	12.10	1.06	0.57	1.58
F-11*	1	North-South	245.00	286.00	92.30	28.20	15.60	1.07	0.93	1.45	0.78	1.66
	2	East-West	2.87	2.43	274.00	107.00	23.90	3.43	1.46	1.28	3.47	1.63
F-12*	1	North-South	162.00	268.00	237.00	150.00	50.60	12.20	5.74	n/a	n/a	n/a
	2	East-West	191.00	1.10	1.95	319.00	73.20	33.20	19.00	n/a	n/a	n/a

*High numbers due to drier soils on top surface at time of testing and above-ground obstructions including irrigation pipes and heavy vegetation

Figure A-2



Field Resistivity Testing

550 W Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

ASTM G57 (Wenner 4-pin Method)

Project Name: Azalea Solar Project Number: G20 - 267 - 10F Test Conducted by: S.J./J.L. & A.B.

Test Dates: December 23 and 24, 2020 & January 21, 2021 Equipment Used: MC Miller 400D

Field Resistivity (Ω -m)												
Location	Test Line	Orientation	Pin Spacing (feet)									
			2	4	5	8	10	25	50	75	100	200
F-1	1	North-South	22.1	39.8	58.4	75.5	51.1	1,489.0	4,146.2	2,628.5	197,256.8	15,206.0
	2	East-West	19.8	51.9	124.5	47.6	1,800.2	976.7	2,949.3	2,944.5	8,426.5	12,371.6
F-2	1	North-South	59.8	85.8	142.7	47.3	881.0	330.8	174.3	765.6	1,068.6	6,090.1
	2	East-West	118.0	435.1	240.3	37.8	289.2	1,283.1	2,786.5	4,553.2	1,198.9	2,581.6
F-3	1	North-South	23.1	20.8	11.1	1,624.0	614.8	358.6	156.1	2,341.2	1,648.9	1,490.0
	2	East-West	30.2	58.7	14.6	3,125.5	1,403.8	612.8	313.1	341.8	565.0	1,670.0
F-4	1	North-South	123.3	292.6	241.3	8,962.7	509.4	1,939.1	773.7	1,680.5	4,251.6	5,438.9
	2	East-West	23.2	21.4	38.4	7,384.7	402.2	206.4	118.7	189.6	139.8	157.0
F-5*	1	North-South	1,252.5	3,669.4	15.4	2,757.8	840.7	655.9	3,322.7	2,125.8	4,538.8	15,627.3
	2	East-West	1,026.5	11.8	1,560.8	4,351.1	2,183.2	1,474.6	3,408.9	2,973.2	5,075.1	12,180.1
F-6*	1	North-South	11.2	19.5	102.5	23.5	4,404.8	2,130.6	3,265.3	17,666.9	22,598.4	16,738.1
	2	East-West	16.9	12.6	28.8	2,773.1	1,292.7	3,260.5	12,735.5	1,131.8	3,217.4	4,060.0
F-7	1	North-South	36.2	255.1	76.7	34.8	25.3	59.4	36.4	620.5	367.7	241.3
	2	East-West	42.9	38.5	19.9	32.8	29.9	81.4	41.2	129.3	473.0	137.9
F-8	1	North-South	24.7	82.7	39.6	27.3	1,874.9	2,154.5	4,098.3	3,102.5	6,032.6	14,171.9
	2	East-West	67.8	36.4	26.6	18.4	29.1	1,450.7	1,828.9	9,508.5	4,692.0	26,620.1
F-9*	1	North-South	92.7	419.0	472.1	1,015.8	81.6	818.7	117.8	395.0	402.2	325.6
	2	East-West	75.5	52.6	43.0	43.4	43.1	122.6	1,647.0	1,416.2	2,815.2	789.0
F-10*	1	North-South	37.5	29.6	27.7	2,313.5	1,118.4	3,351.5	3,734.5	4,021.7	14,880.4	5,094.2
	2	East-West	720.1	25.7	24.3	34.5	2,585.4	823.5	1,158.6	152.3	109.2	605.2
F-11*	1	North-South	938.4	2,190.9	883.8	432.0	298.8	51.2	89.1	208.3	149.4	635.8
	2	East-West	11.0	18.6	2,623.7	1,639.3	457.7	164.2	139.8	183.9	664.5	624.3
F-12*	1	North-South	620.5	2,053.0	2,269.4	2,298.1	969.0	584.1	549.6	n/a	n/a	n/a
	2	East-West	731.6	8.4	18.7	4,887.4	1,401.9	1,589.5	1,819.4	n/a	n/a	n/a

*High numbers due to drier soils on top surface at time of testing and above-ground obstructions including irrigation pipes and heavy vegetation

Figure A-3



Field Resistivity Testing

550 W Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

ASTM G57 (Wenner 4-pin Method)

Project Name: Azalea Solar Project Number: G20 - 267 - 10F Test Conducted by: S.J./J.L. & A.B.

Test Dates: December 23 and 24, 2020 & January 21, 2021 Equipment Used: MC Miller 400D

Field Resistivity (Ω-cm)												
Location	Test Line	Orientation	Pin Spacing (feet)									
			2	4	5	8	10	25	50	75	100	200
F-1	1	North-South	2,206	3,983	5,841	7,553	5,113	148,900	414,622	262,850	19,725,683	1,520,601
	2	East-West	1,984	5,186	12,448	4,765	180,021	97,671	294,928	294,449	842,651	1,237,164
F-2	1	North-South	5,975	8,580	14,268	4,734	88,095	33,084	17,428	76,557	106,863	609,007
	2	East-West	11,797	43,511	24,035	3,784	28,918	128,313	278,649	455,319	119,886	258,157
F-3	1	North-South	2,310	2,084	1,111	162,402	61,475	35,861	15,608	234,123	164,891	148,996
	2	East-West	3,018	5,868	1,455	312,547	140,378	61,284	31,312	34,185	56,496	166,998
F-4*	1	North-South	12,333	29,263	24,130	896,274	50,942	193,905	77,371	168,051	425,156	543,893
	2	East-West	2,325	2,145	3,840	738,468	40,217	20,635	11,874	18,960	13,980	15,704
F-5*	1	North-South	125,249	366,936	1,542	275,777	84,074	65,593	332,272	212,578	453,882	1,562,734
	2	East-West	102,650	1,180	156,082	435,114	218,323	147,464	340,890	297,322	507,505	1,218,013
F-6	1	North-South	1,118	1,953	10,246	2,349	440,476	213,057	326,527	1,766,693	2,259,836	1,673,810
	2	East-West	1,689	1,264	2,882	277,309	129,270	326,048	1,273,551	113,183	321,739	406,004
F-7	1	North-South	3,616	25,509	7,670	3,478	2,528	5,937	3,639	62,050	36,770	24,130
	2	East-West	4,290	3,853	1,992	3,279	2,988	8,139	4,117	12,927	47,303	13,789
F-8	1	North-South	2,467	8,273	3,964	2,727	187,490	215,450	409,835	310,249	603,261	1,417,185
	2	East-West	6,780	3,639	2,662	1,839	2,911	145,070	182,893	950,855	469,203	2,662,010
F-9*	1	North-South	9,269	41,903	47,208	101,578	8,158	81,871	11,778	39,499	40,217	32,557
	2	East-West	7,546	5,255	4,299	4,336	4,309	12,257	164,700	141,623	281,522	78,903
F-10*	1	North-South	3,754	2,965	2,767	231,346	111,843	335,145	373,447	402,174	1,488,044	509,421
	2	East-West	72,008	2,566	2,432	3,447	258,541	82,350	115,864	15,225	10,916	60,518
F-11*	1	North-South	93,841	219,089	88,383	43,205	29,876	5,123	8,905	20,827	14,938	63,582
	2	East-West	1,099	1,861	262,371	163,934	45,771	16,422	13,980	18,385	66,454	62,433
F-12*	1	North-South	62,050	205,300	226,941	229,814	96,905	58,411	54,964	n/a	n/a	n/a
	2	East-West	73,157	843	1,867	488,737	140,186	158,955	181,936	n/a	n/a	n/a

*High numbers due to drier soils on top surface at time of testing and above-ground obstructions including irrigation pipes and heavy vegetation

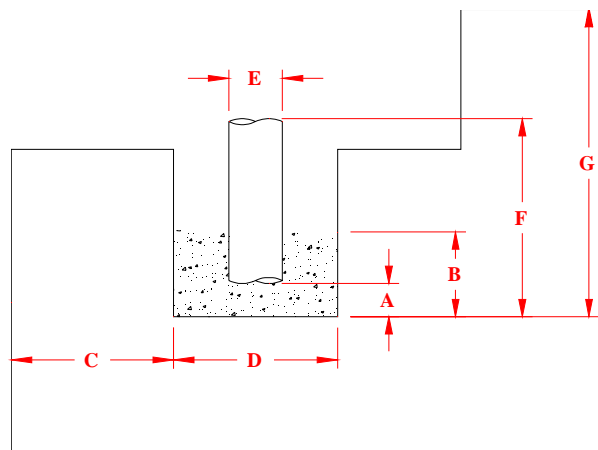
Figure A-4

PERCOLATION TEST DATA SHEET

FIGURE A-5

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2868
Fax: (559) 497-2886

Project Name:	Azalea Solar Project	Project No.:	G20-267-10F
Project Location:	Lost Hills, CA	Pit No.:	PT-1



A.	Gravel Layer Depth, in.	4
B.	Total Gravel Thickness, in.	19
C.	Distance from Shelf, ft.	NA
D.	Hole Diameter, in.	8
E.	Case Diameter, in.	2.5
F.	Reference Depth, in.	76
G.	Hole Depth, ft.	5
	Depth to Groundwater	NA
Soil Type		Silty Sand (SM)

Date & Time Saturated: 12/16/2020, 14:50

Depth of Water after 24-hour Saturation: 0

Begin Test	Initial Depth to Water*, in.	Refilled	End Test	Final Depth to Water*, in.	Test Duration, min.	Water Drop, in.	Drop Rate min./in.**
10:21	22.0	X	10:51	54.3	30.0	32.3	2.25
10:58	22.0	X	11:28	38.5	30.0	16.5	4.40
11:31	22.0	X	12:01	41.5	30.0	19.5	3.72
12:06	22.0	X	12:36	42.0	30.0	20.0	3.63

Average = 3.50

*Depth below reference datum

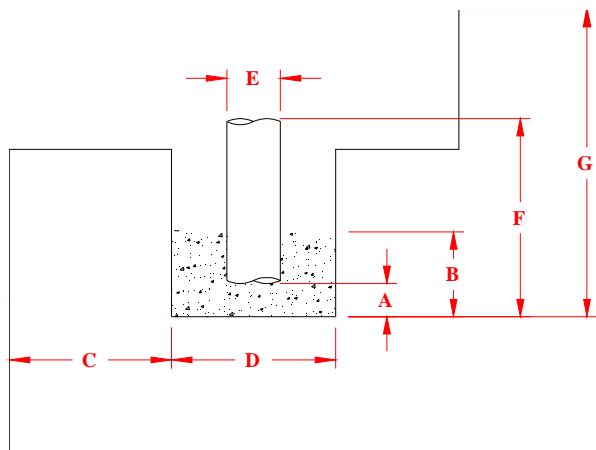
**Corrected for full depth gravel in annulus

PERCOLATION TEST DATA SHEET

FIGURE A-6

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2868
Fax: (559) 497-2886

Project Name:	Azalea Solar Project	Project No.:	G20-267-10F
Project Location:	Lost Hills, CA	Pit No.:	PT-2



A.	Gravel Layer Depth, in.	3
B.	Total Gravel Thickness, in.	27
C.	Distance from Shelf, ft.	NA
D.	Hole Diameter, in.	8
E.	Case Diameter, in.	2.5
F.	Reference Depth, in.	71
G.	Hole Depth, ft.	3.00
	Depth to Groundwater	NA
Soil Type		Silty SAND (SM)

Date & Time Saturated: 12/16/2020, 16:33

Depth of Water after 24-hour Saturation: 0

Begin Test	Initial Depth to Water*, in.	Refilled	End Test	Final Depth to Water*, in.	Test Duration, min.	Water Drop, in.	Drop Rate min./in.**
14:00	38.0	X	14:30	41.1	30.0	3.1	23.4
14:37	36.9	X	15:07	39.3	30.0	2.4	30.2
15:13	36.9	X	15:43	39.0	30.0	2.1	34.6
15:54	36.9	X	16:24	38.7	30.0	1.8	40.3

Average = 32.1

*Depth below reference datum

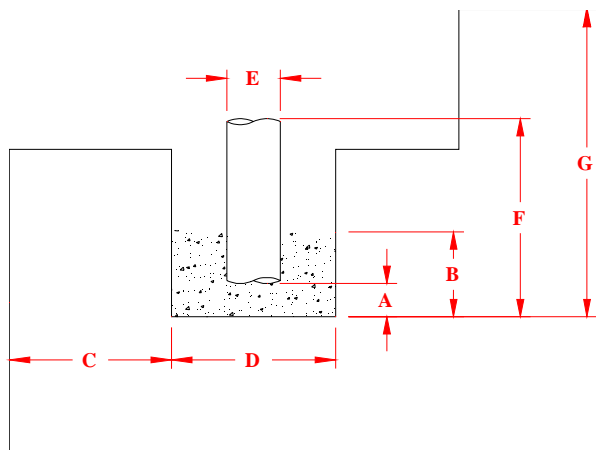
**Corrected for full depth gravel in annulus

PERCOLATION TEST DATA SHEET

FIGURE A-7

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2868
Fax: (559) 497-2886

Project Name:	Azalea Solar Project	Project No.:	G20-267-10F
Project Location:	Lost Hills, CA	Pit No.:	PT-3



A.	Gravel Layer Depth, in.	6
B.	Total Gravel Thickness, in.	18
C.	Distance from Shelf, ft.	NA
D.	Hole Diameter, in.	8
E.	Case Diameter, in.	2.5
F.	Reference Depth, in.	91
G.	Hole Depth, ft.	5.00
	Depth to Groundwater	NA
Soil Type		CLAY (CL)

Date & Time Saturated: 12/16/2020, 15:30

Depth of Water after 24-hour Saturation: 0

Begin Test	Initial Depth to Water*, in.	Refilled	End Test	Final Depth to Water*, in.	Test Duration, min.	Water Drop, in.	Drop Rate min./in.**
9:08	32.1	X	10:08	62.1	60.0	30.0	4.84
10:12	32.0	X	11:12	57.3	60.0	25.3	5.74
11:18	32.0	X	12:18	56.7	60.0	24.7	5.87

Average = 5.48

*Depth below reference datum

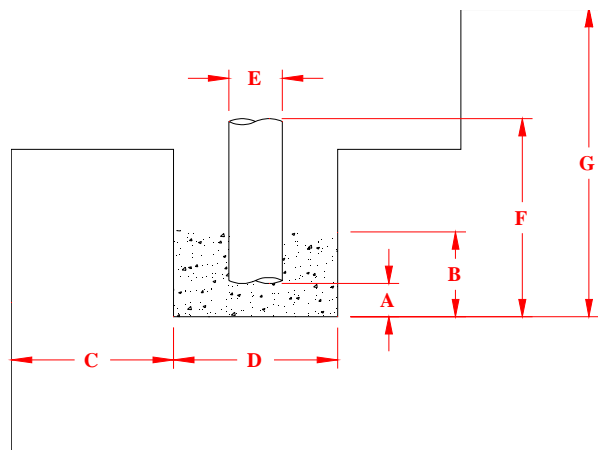
**Corrected for full depth gravel in annulus

PERCOLATION TEST DATA SHEET

FIGURE A-8

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2868
Fax: (559) 497-2886

Project Name:	Azalea Solar Project	Project No.:	G20-267-10F
Project Location:	Lost Hills, CA	Pit No.:	PT-4



A.	Gravel Layer Depth, in.	6
B.	Total Gravel Thickness, in.	24
C.	Distance from Shelf, ft.	NA
D.	Hole Diameter, in.	8
E.	Case Diameter, in.	2.5
F.	Reference Depth, in.	70
G.	Hole Depth, ft.	5.00
	Depth to Groundwater	NA
Soil Type		Sandy CLAY (CL)

Date & Time Saturated: 12/16/2020, 16:47

Depth of Water after 24-hour Saturation: 0

Begin Test	Initial Depth to Water*, in.	Refilled	End Test	Final Depth to Water*, in.	Test Duration, min.	Water Drop, in.	Drop Rate min./in.**
12:50	21.0	X	12:57	58.5	7.0	37.5	0.451
13:01	21.0	X	13:08	57.3	7.0	36.3	0.466
13:10	21.0	X	13:17	58.5	7.0	37.5	0.451
13:20	21.0	X	13:27	57.3	7.0	36.3	0.466
13:29	21.0	X	13:36	58.5	7.0	37.5	0.451

Average = 0.459

*Depth below reference datum

**Corrected for full depth gravel in annulus

APPENDIX B

LABORATORY TESTING RESULTS

APPENDIX B LABORATORY TESTING

Moisture-Density Tests

The field moisture content, as a percentage of dry weight of the soils, was determined by weighing the samples before and after oven drying in accordance with ASTM D 2216 test procedures. Dry densities, in pounds per cubic foot, were also determined for undisturbed core samples in general accordance with ASTM D 2937 test procedures. Test results are presented in the boring log in Appendix A.

Direct Shear Test

Six (6) Direct Shear Tests were performed on relatively undisturbed soil sample obtained at the time of drilling in the area of planned construction. The test was conducted to determine the soil strength characteristics. The standard test method is ASTM D3080, Direct Shear Test for Soil under Consolidated Drained Conditions. The direct shear test results are presented graphically on Figures B-1 through B-6.

Moisture-Density Relationship Test

One (1) Moisture-Density Relationship Test was performed on a bulk soil sample obtained at the time of drilling in the area of planned construction. The soil sample was tested for optimum moisture content and maximum dry density per ASTM Test Method D1557. The test results are presented on Figure B-7.

Collapse Potential Test

Four (4) Collapse Potential Tests were performed on relatively undisturbed soil samples to evaluate collapse potential characteristics. The tests were performed in general accordance with ASTM D 5333. The samples were initially loaded under as-received moisture content to a selected stress level, loaded up to a maximum load of 1300 psf and were then saturated. The test results are presented on Figures B-8 through B-11.

Plasticity Index Test

One (1) Plasticity Index Test was performed on a bulk soil sample obtained at the time of drilling in the area of planned construction. The soil sample was tested for the liquid limits and plastic limits to determine the plasticity index of each sample using ASTM Test Method D4318. The test results are presented on Figure B-12, Table B-1, and the boring logs in Appendix A.

Table B-1: Summary of Plasticity Index Test Results			
Sample Location	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)
B-36 @ 0-5 feet bgs	60	30	30



California Bearing Ratio Test

One (1) California Bearing Ratio (CBR) Test was performed on a bulk soil sample obtained at the time of drilling in the area of planned construction. The soil was tested to evaluate the subgrade material for pavement design. The test was performed in general accordance with ASTM Test Method D1883. The test results are presented on Figure B-13.

Soil Corrosivity

Twenty-six (26) corrosivity evaluations were performed on soil samples obtained at the time of drilling. The corrosivity testing was performed by Sunland Analytical Laboratories of Rancho Cordova, CA for minimum resistivity (ASTM G51), sulfate (ASTM G200), chloride (ASTM C1580), pH (ASTM G187), and redox potential (ASTM D5212). The test results are presented in Table B-2 below.

Table B-1: Summary of Corrosion Test Results					
Sample Location	pH	Sulfate, ppm	Chloride, ppm	Minimum Resistivity, ohm-cm	Redox Potential (mv)
B-1 @ 0.5 feet bgs	7.52	0.1	8.3	2,200	+ 150
B-1 @ 5 feet bgs	7.24	12.5	4.2	2,630	+ 95
B-7 @ 0.5 feet bgs	6.95	51.2	51.4	1,530	+ 111
B-7 @ 5 feet bgs	7.34	317.3	99.0	540	+ 107
B-9 @ 0.5 feet bgs	6.99	6.4	24.7	1,500	+ 125
B-9 @ 5 feet bgs	7.30	94.7	9.2	1,100	+ 141
B-11 @ 0.5 feet bgs	7.08	26.9	12.5	1,340	+ 154
B-11 @ 5 feet bgs	7.33	23.6	11.2	1,900	+ 163
B-15 @ 0.5 feet bgs	7.17	36.0	54.8	780	+ 162
B-15 @ 5 feet bgs	7.62	73.9	74.5	1,260	+ 163
B-17 @ 0.5 feet bgs	7.52	57.0	70.6	940	+ 131
B-17 @ 5 feet bgs	7.60	51.2	63.4	860	+ 165
B-19 @ 0.5 feet bgs	6.79	1184.1	51.7	190	+ 186
B-19 @ 5 feet bgs	7.20	3478.0	1084.4	110	+ 157
B-21 @ 0.5 feet bgs	7.54	23.6	7.2	1,660	+ 167
B-21 @ 5 feet bgs	7.51	21.0	5.7	2,390	+ 178
B-25 @ 0.5 feet bgs	7.58	2142.3	68.2	130	+ 183
B-25 @ 5 feet bgs	8.04	7748.5	1547.6	70	+ 161
B-27 @ 0.5 feet bgs	7.69	46.0	81.2	1,020	+ 172
B-27 @ 5 feet bgs	7.78	1231.0	276.2	240	+ 166
B-29 @ 0.5 feet bgs	7.42	913.5	91.4	180	+ 180
B-29 @ 5 feet bgs	7.74	15658.8	810.1	060	+ 160
B-33 @ 0.5 feet bgs	7.55	38.4	13.1	1,340	+ 170
B-33 @ 5 feet bgs	7.86	137.6	28.9	940	+ 151
B-36 @ 0.5 feet bgs	7.10	20225.0	684.4	070	+ 169
B-36 @ 5 feet bgs	7.34	12360.7	397.7	110	+ 165





Direct Shear Test

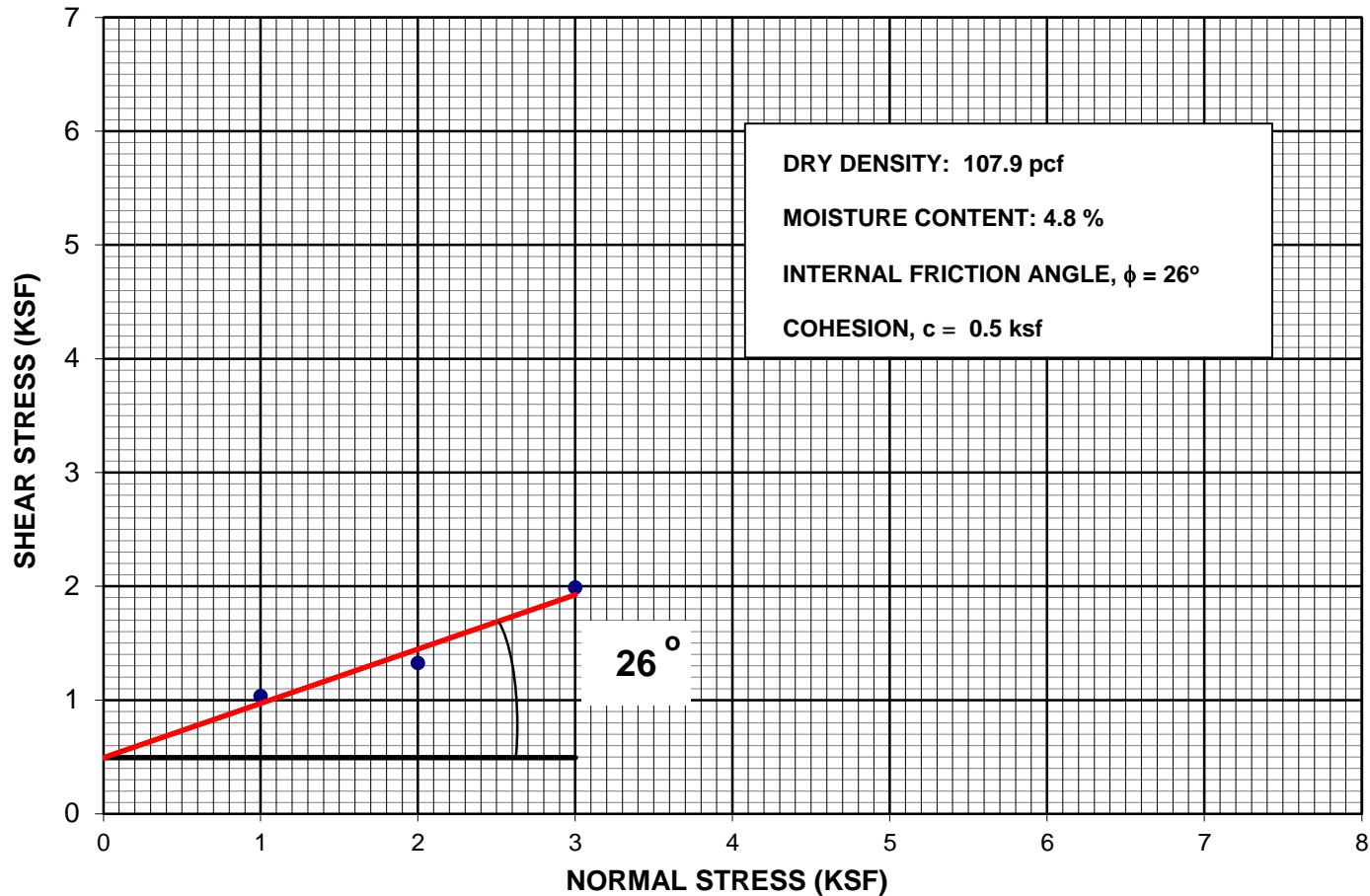
ASTM D-3080

FIGURE B-1

550 W. Locust
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	Azalea Solar	Sampled By:	J.L.	Sample Date:	12/16/2020
		Tested By:	D.M.	Test Date:	12/30/2020
Project Number:	G20 - 267 - 10F	Lab Tracking ID:	N/A	Report Date:	1/8/2021
Sample Location:	B - 1 @ 2'	Sample Description:	SM: Silty Sand: brown, moist, fine to coarse grained		

SHEAR STRENGTH DIAGRAM





Direct Shear Test

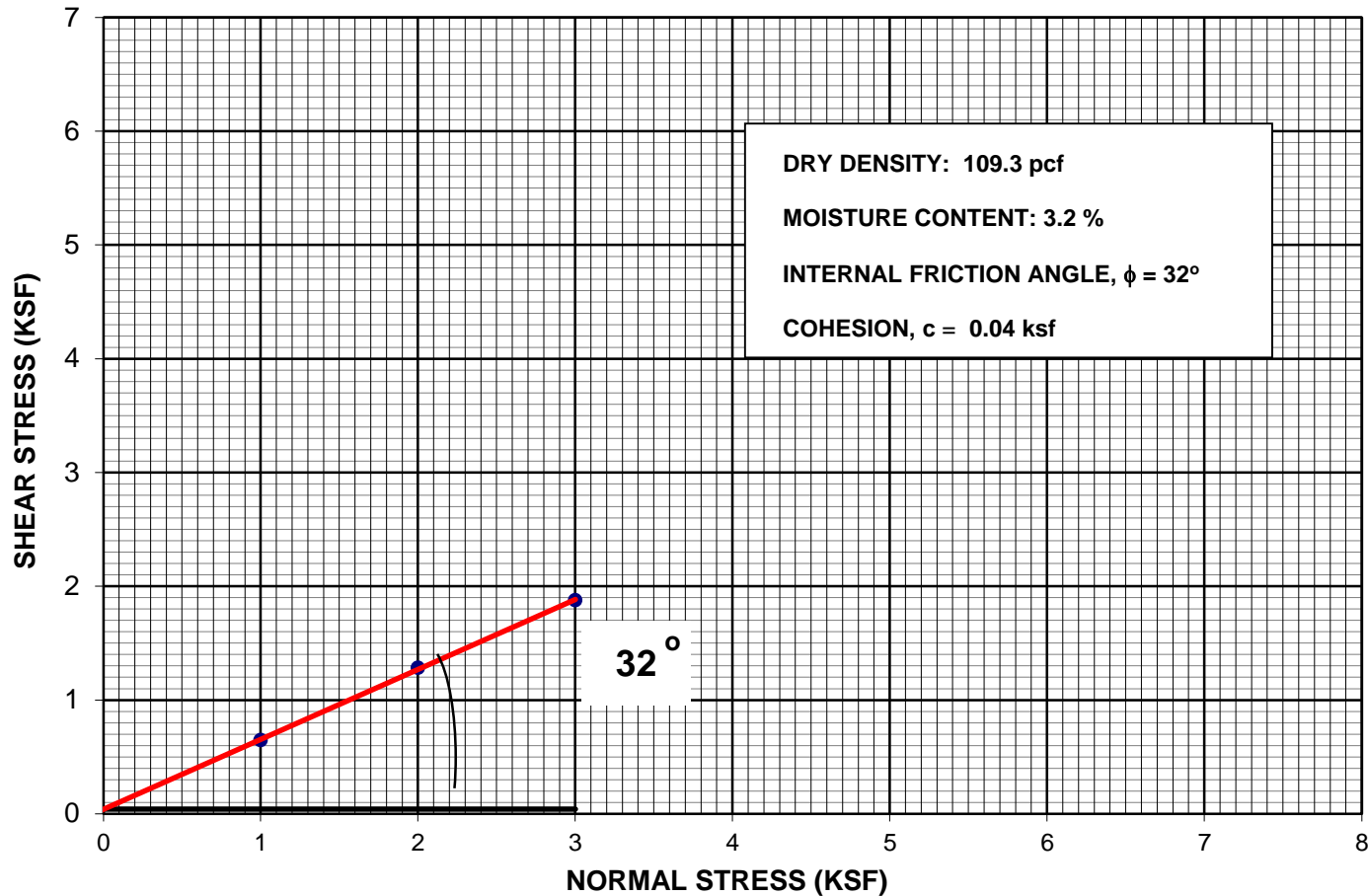
ASTM D-3080

FIGURE B-2

550 W. Locust
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	Azalea Solar	Sampled By:	S.J.	Sample Date:	12/15/2020
		Tested By:	D.M.	Test Date:	12/30/2020
Project Number:	G20 - 267 - 10F	Lab Tracking ID:	N/A	Report Date:	1/8/2021
Sample Location:	B - 6 @ 6'	Sample Description:	SM: Silty Sand: very pale brown, moist, fine grained		

SHEAR STRENGTH DIAGRAM





Direct Shear Test

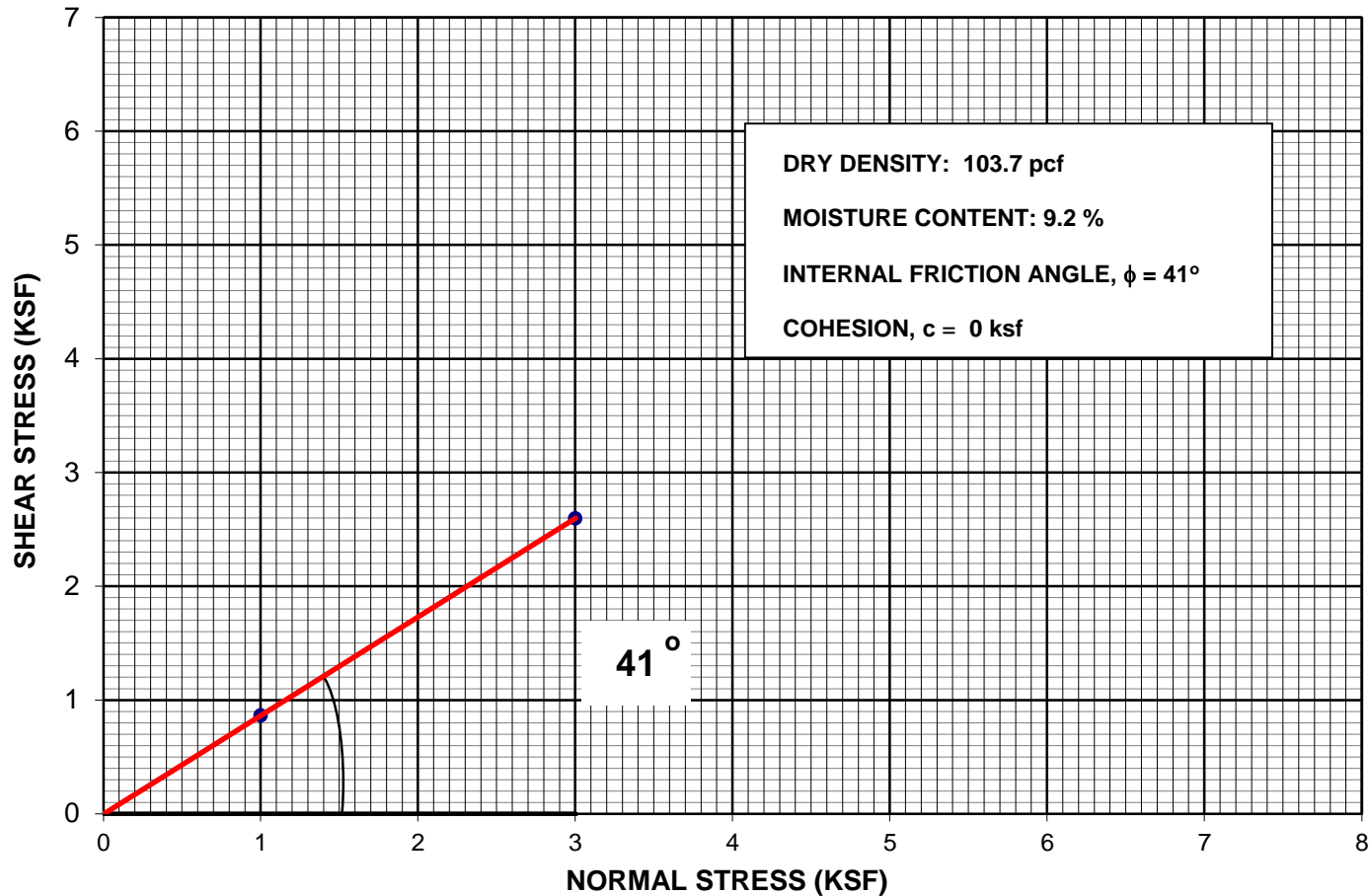
ASTM D-3080

FIGURE B-3

550 W. Locust
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	Azalea Solar	Sampled By:	J.L.	Sample Date:	12/16/2020
		Tested By:	D.M.	Test Date:	1/4/2021
Project Number:	G20 - 267 - 10F	Lab Tracking ID:	N/A	Report Date:	1/8/2021
Sample Location:	B - 10 @ 2'	Sample Description:	SM: Silty Sand: very pale brown, moist, fine to medium grained		

SHEAR STRENGTH DIAGRAM





Direct Shear Test

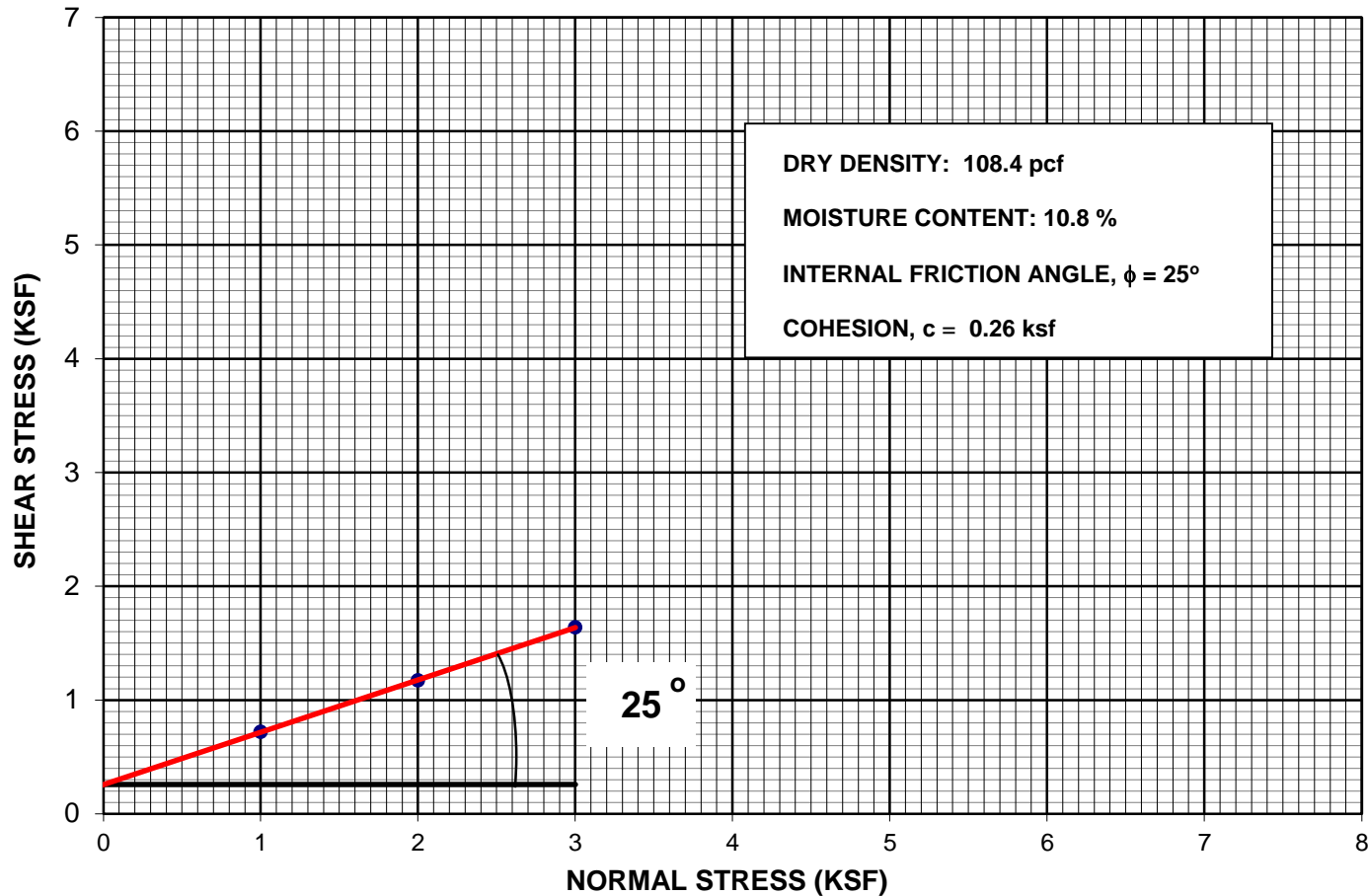
ASTM D-3080

FIGURE B-4

550 W. Locust
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	Azalea Solar	Sampled By:	S.J.	Sample Date:	12/16/2020
		Tested By:	D.M.	Test Date:	1/5/2021
Project Number:	G20 - 267 - 10F	Lab Tracking ID:	N/A	Report Date:	1/8/2021
Sample Location:	B - 21 @ 6'	Sample Description:	SM: Silty Sand: yellowish brown, moist, fine grained		

SHEAR STRENGTH DIAGRAM





Direct Shear Test

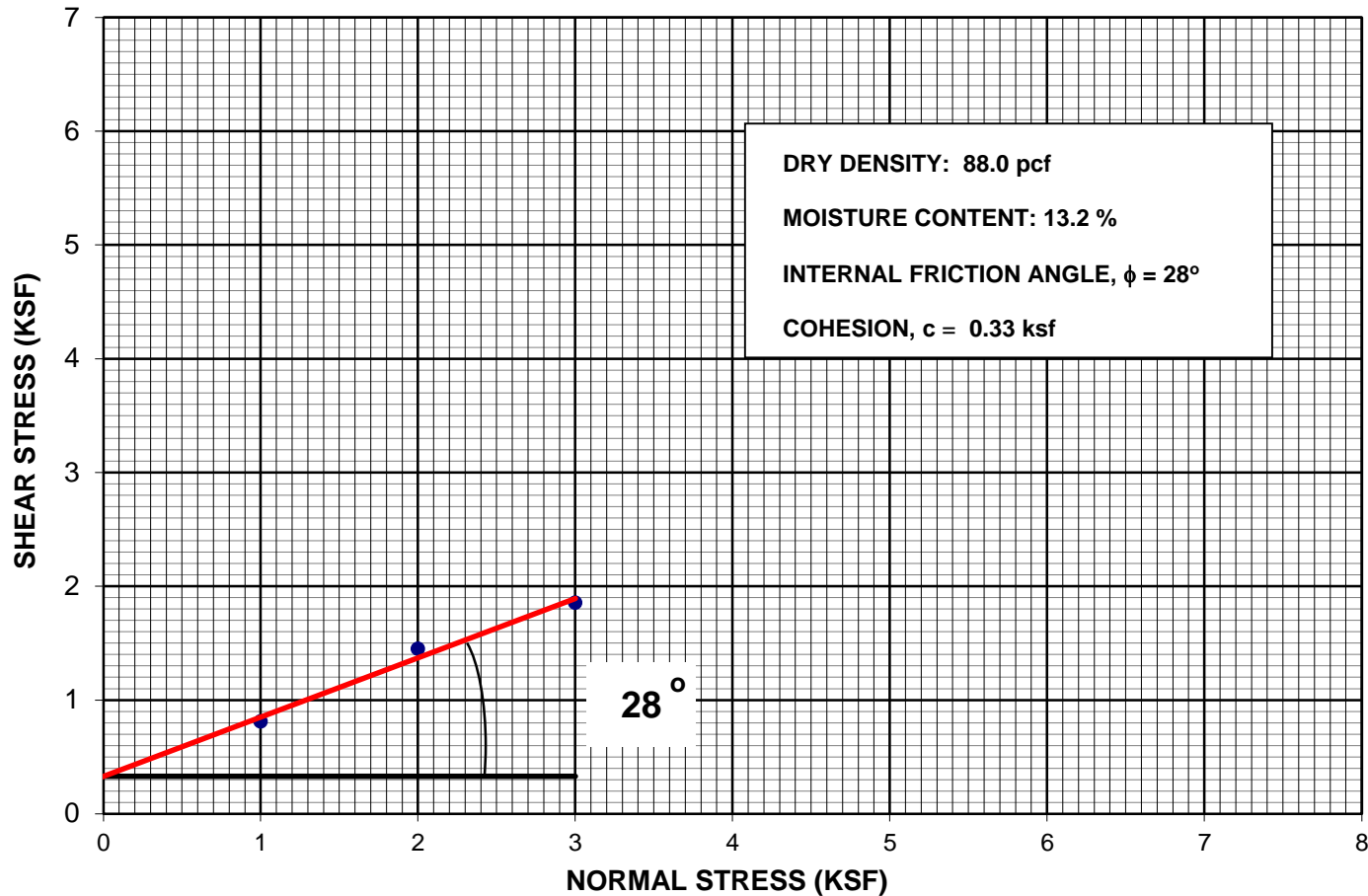
ASTM D-3080

FIGURE B-5

550 W. Locust
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	Azalea Solar	Sampled By:	J.L.	Sample Date:	12/15/2020
		Tested By:	D.M.	Test Date:	1/5/2021
Project Number:	G20 - 267 - 10F	Lab Tracking ID:	N/A	Report Date:	1/8/2021
Sample Location:	B - 24 @ 2'	Sample Description:	ML: Sandy Silt: brown, moist, fine to medium grained		

SHEAR STRENGTH DIAGRAM





Direct Shear Test

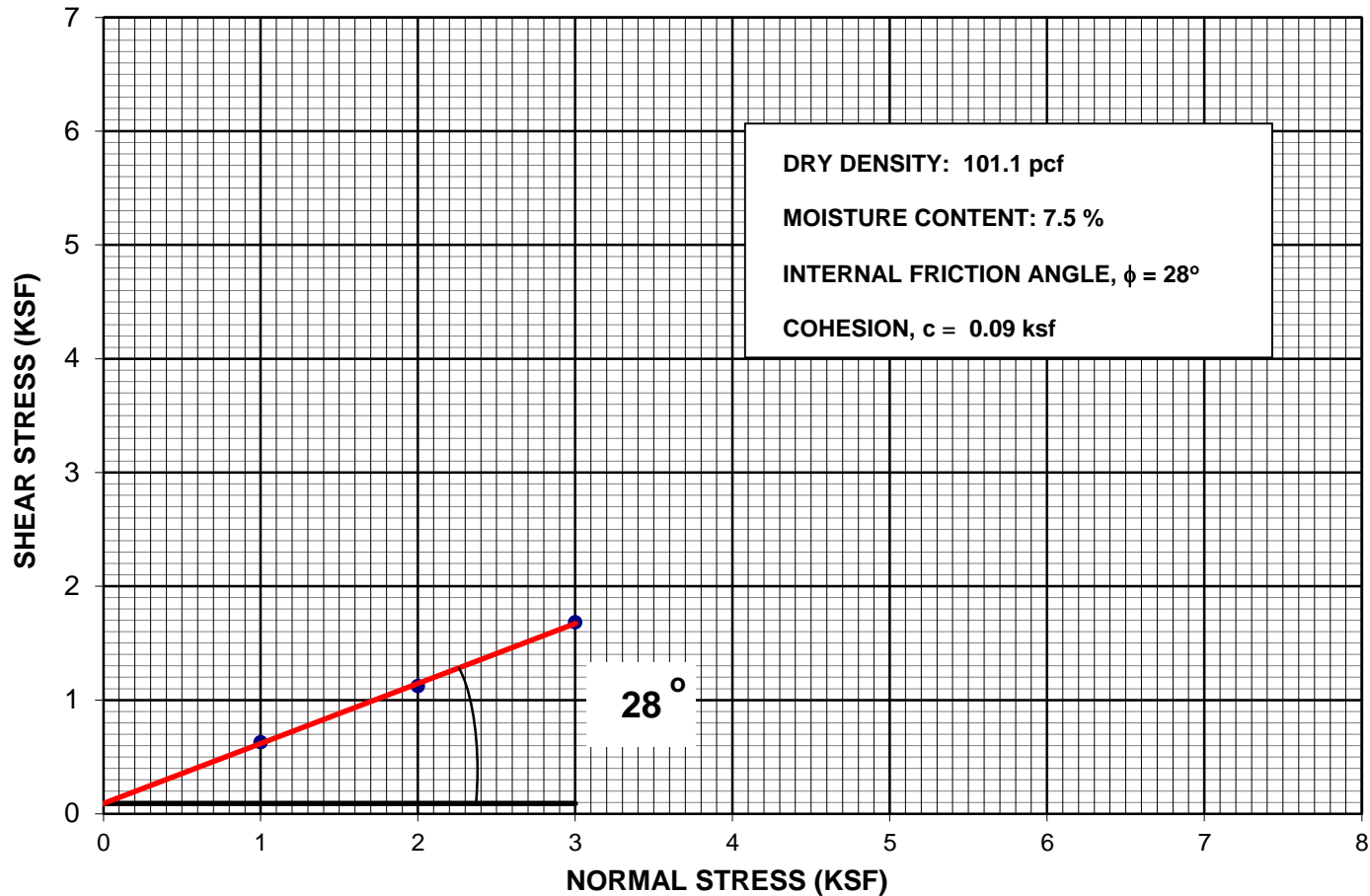
ASTM D-3080

FIGURE B-6

550 W. Locust
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	Azalea Solar	Sampled By:	S.J.	Sample Date:	12/16/2020
		Tested By:	D.M.	Test Date:	1/7/2021
Project Number:	G20 - 267 - 10F	Lab Tracking ID:	N/A	Report Date:	1/8/2021
Sample Location:	B - 33 @ 3'	Sample Description:	SM: Silty Sand: brown, moist, fine to medium grained		

SHEAR STRENGTH DIAGRAM

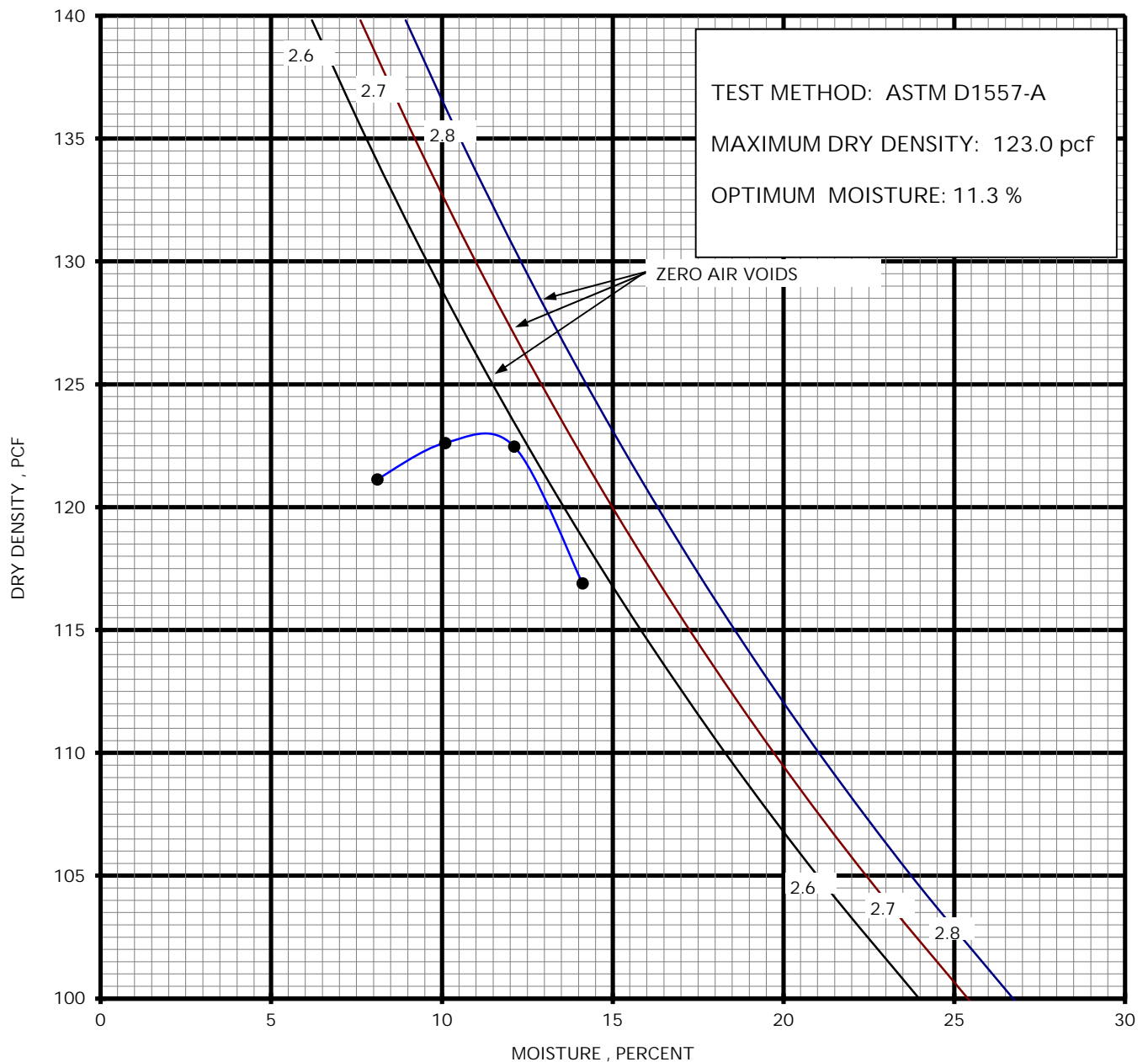




MOISTURE DENSITY RELATIONSHIP ASTM D1557

FIGURE B-7
700 22nd Street
Bakersfield, CA 93301
Ph: (661) 327-0671
Fax: (661) 324-4218

Project Name:	<u>Azalea Solar</u>	Project Number:	<u>G20-267-10F</u>
Project Manager:	<u>O. Lau</u>	Lab Number:	<u>B20-209</u>
Sample Location:	<u>B-1 & B-2 @ 0-5 feet bgs (Combined)</u>	Sample Date:	<u>1/16/2021</u>
Sample Description:	<u>SM: Silty Sand: brown, fine to coarse grained, moist</u>		
Tested By:	<u>J. Buenrostro</u>	Tested Date:	<u>1/5/2021</u>
		Sample By:	<u>J. Leu</u>



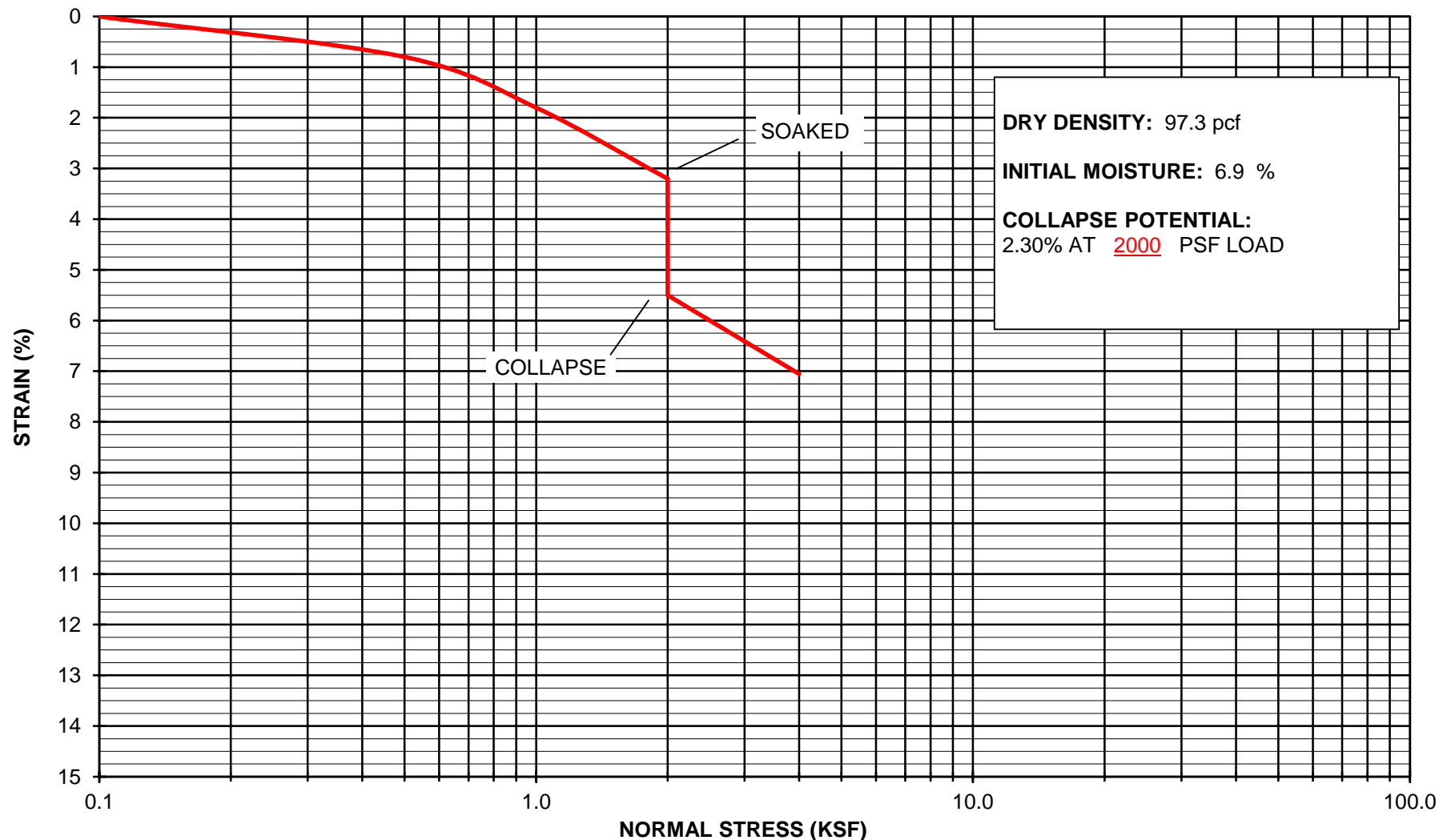
Reviewed by: Ian Remotigue

COLLAPSE POTENTIAL ASTM D-5333

FIGURE B-8

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	<u>Azalea Solar Project</u>	Sampled By:	<u>J. Leu</u>	Sample Date:	<u>12/15/2020</u>
Project Number:	<u>G20 - 267-10F</u>	Tested By:	<u>D. Messfin</u>	Test Date:	<u>1/5/21</u>
Sample Location:	<u>B - 3 @ 10'</u>	Lab Tracking ID:	<u>N/A</u>	Report Date:	<u>1/11/21</u>
Sample Description: <u>SP: Poorly Graded Sand: brown, moist, fine to coarse grained</u>					

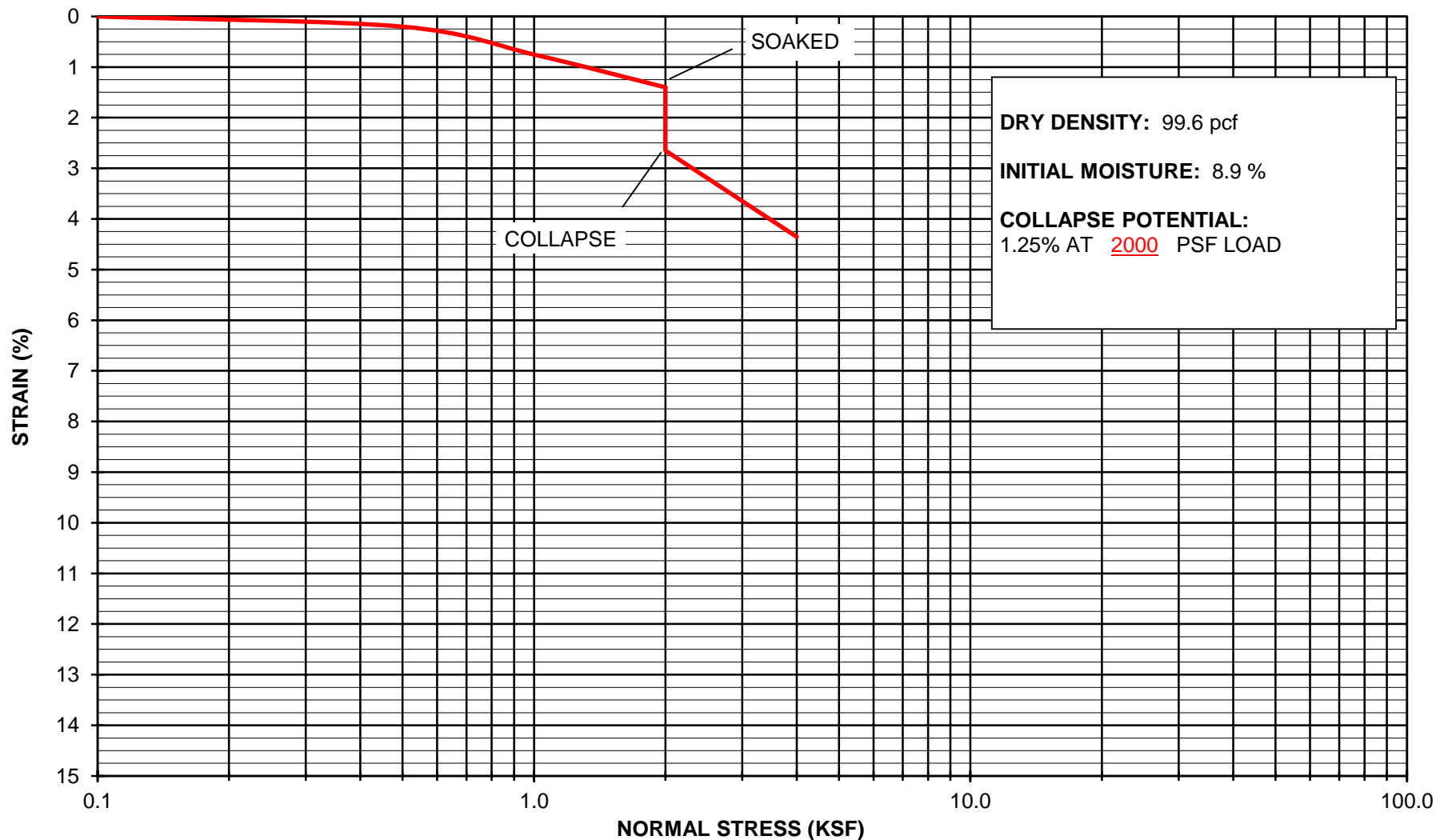


COLLAPSE POTENTIAL ASTM D-5333

FIGURE B-9

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	<u>Azalea Solar Project</u>	Sampled By:	<u>S. Jue</u>	Sample Date:	<u>12/16/2020</u>
Project Number:	<u>G20 - 267 - 10F</u>	Tested By:	<u>D. Messfin</u>	Test Date:	<u>1/6/21</u>
Sample Location:	<u>B - 16 @ 11'</u>	Lab Tracking ID:	<u>N/A</u>	Report Date:	<u>1/11/21</u>
Sample Description:		<u>SM: Silty Sand: pale olive, moist, fine grained</u>			

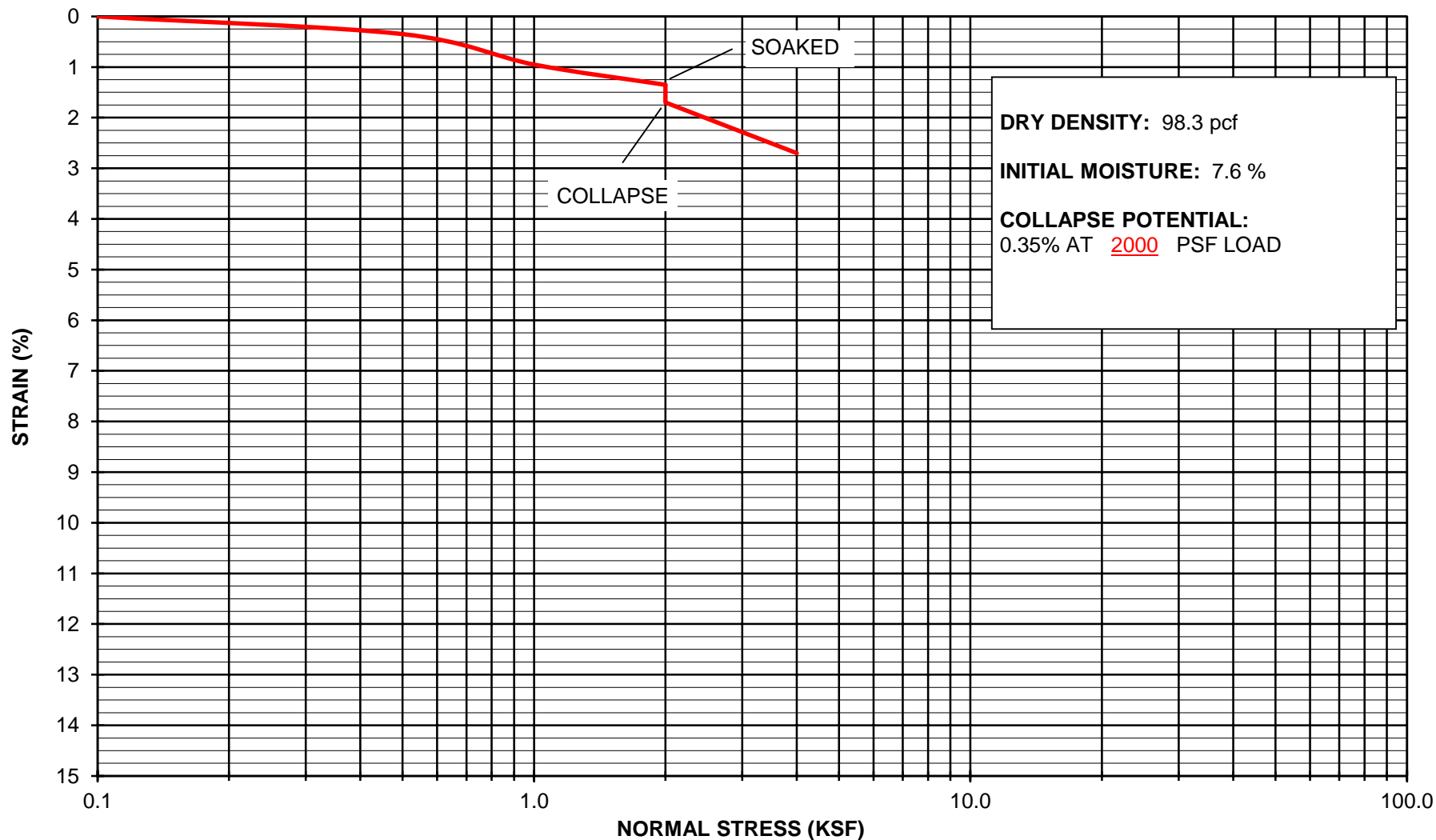


COLLAPSE POTENTIAL ASTM D-5333

FIGURE B-10

550 W. Locust Ave.
Fresno, CA 93650
Ph: (559) 497-2880
Fax: (559) 497-2886

Project Name:	<u>Azalea Solar Project</u>	Sampled By:	<u>S. Jeu</u>	Sample Date:	<u>12/16/2020</u>
Project Number:	<u>G20 - 267-10F</u>	Tested By:	<u>D. Messfin</u>	Test Date:	<u>1/7/21</u>
Sample Location:	<u>B - 26 @ 6"</u>	Lab Tracking ID:	<u>N/A</u>	Report Date:	<u>1/11/21</u>
Sample Description: <u>SP-SM: Poorly Graded Sand w/ Silt: olive, slightly moist, fine to medium grained</u>					





EXPANSION/COLLAPSE POTENTIAL ASTM D-5333

FIGURE B-11

550 W. Locust Ave.

Fresno, CA 93650

Ph: (559) 497-2880

Fax: (559) 497-2886

Project Name: Azalea Solar Project

Sampled By: J. Leu

Sample Date: 12/15/2020

Tested By: D. Messfin

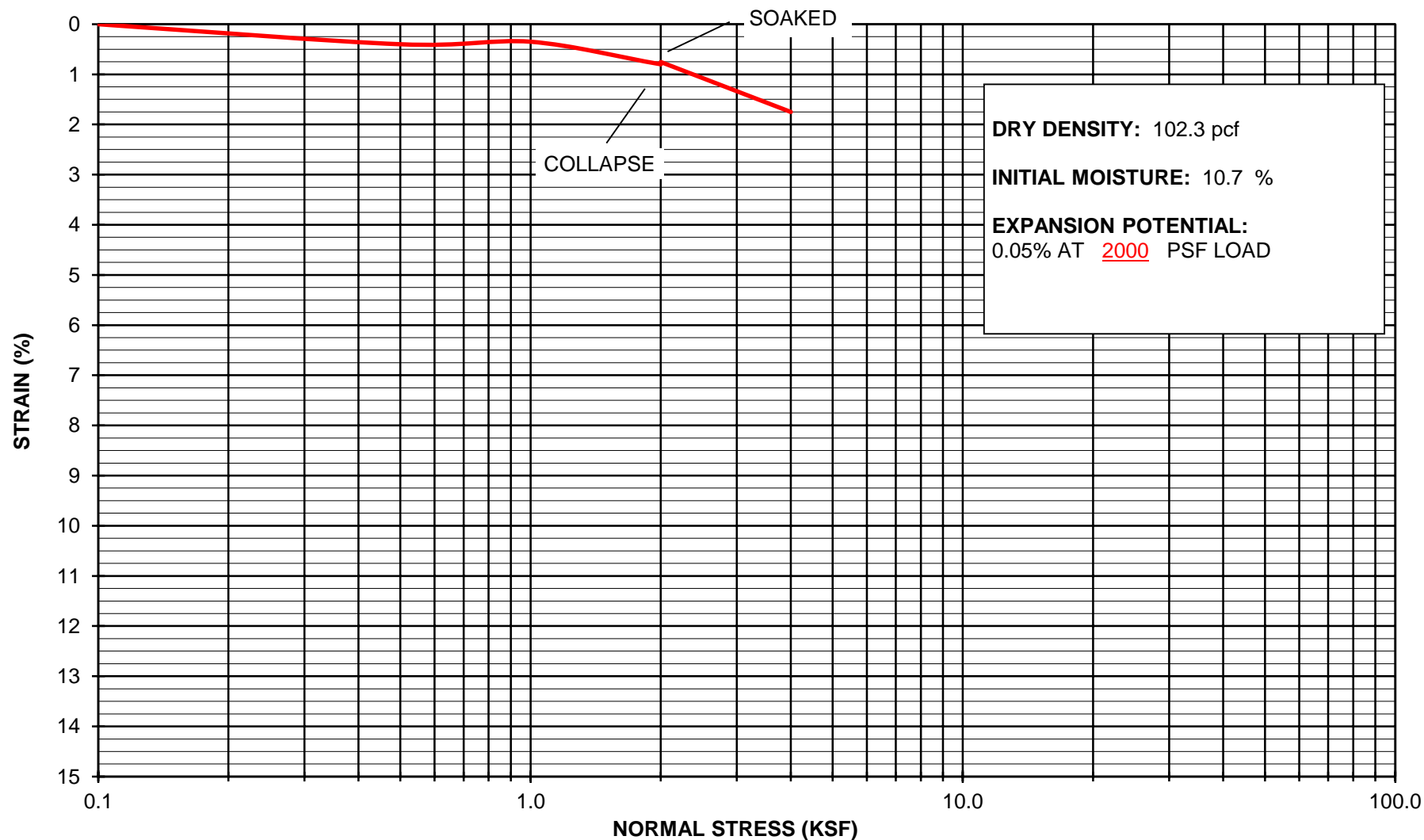
Test Date: 1/7/21

Project Number: G20 - 267-10F

Lab Tracking ID: N/A

Report Date: 1/11/21

Sample Location: B - 30 @ 5' Sample Description: SM: Silty Sand: brown, moist, fine to medium grained





PLASTICITY INDEX TEST

ASTM D-4318

FIGURE B-12

550 W. Locust Ave.

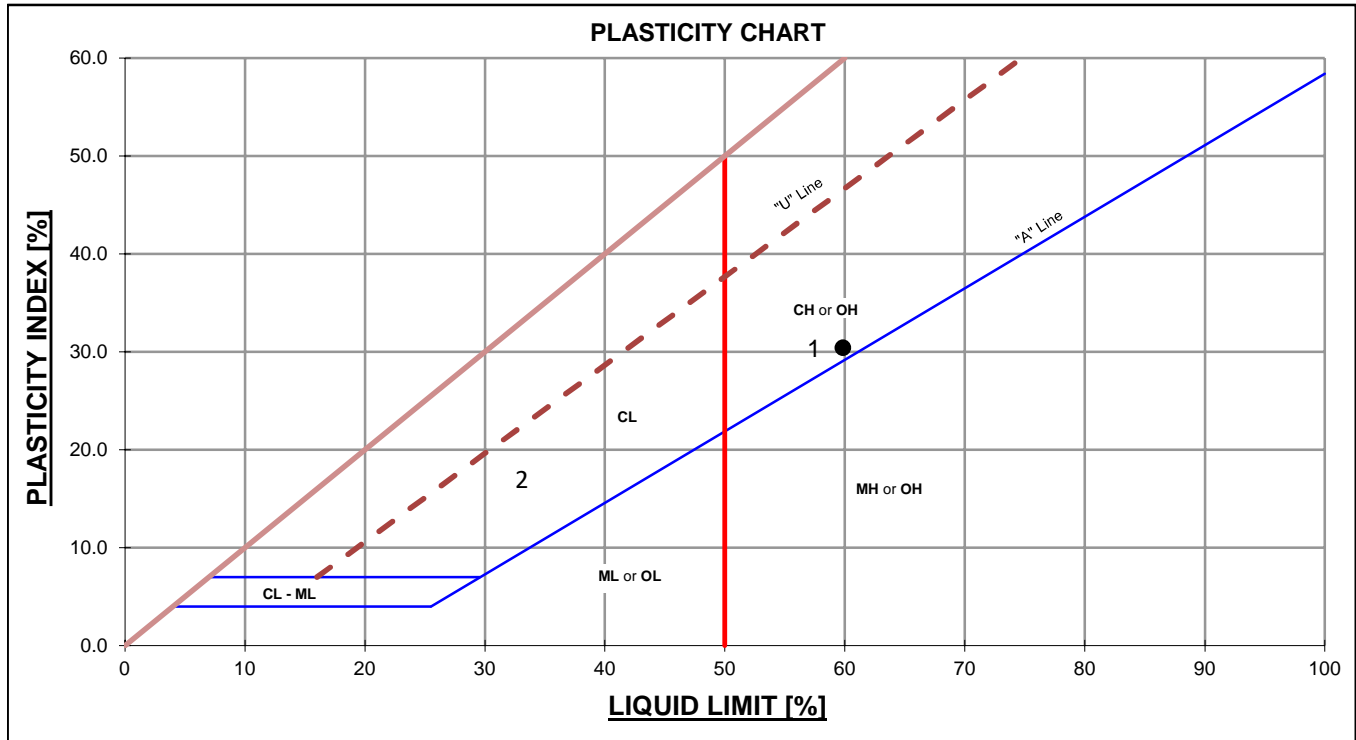
Fresno, CA 93650

Ph: (559) 497-2868

Fax: (559) 497-2886

Project Name: Azalea Solar Project
 Project Number: G20-267-10F
 Sampled By: J. Leu Tested By: D. Messfin

Report Date: 1/11/2021
 Sample Date: 12/16/2020
 Test Date: 1/8/2021

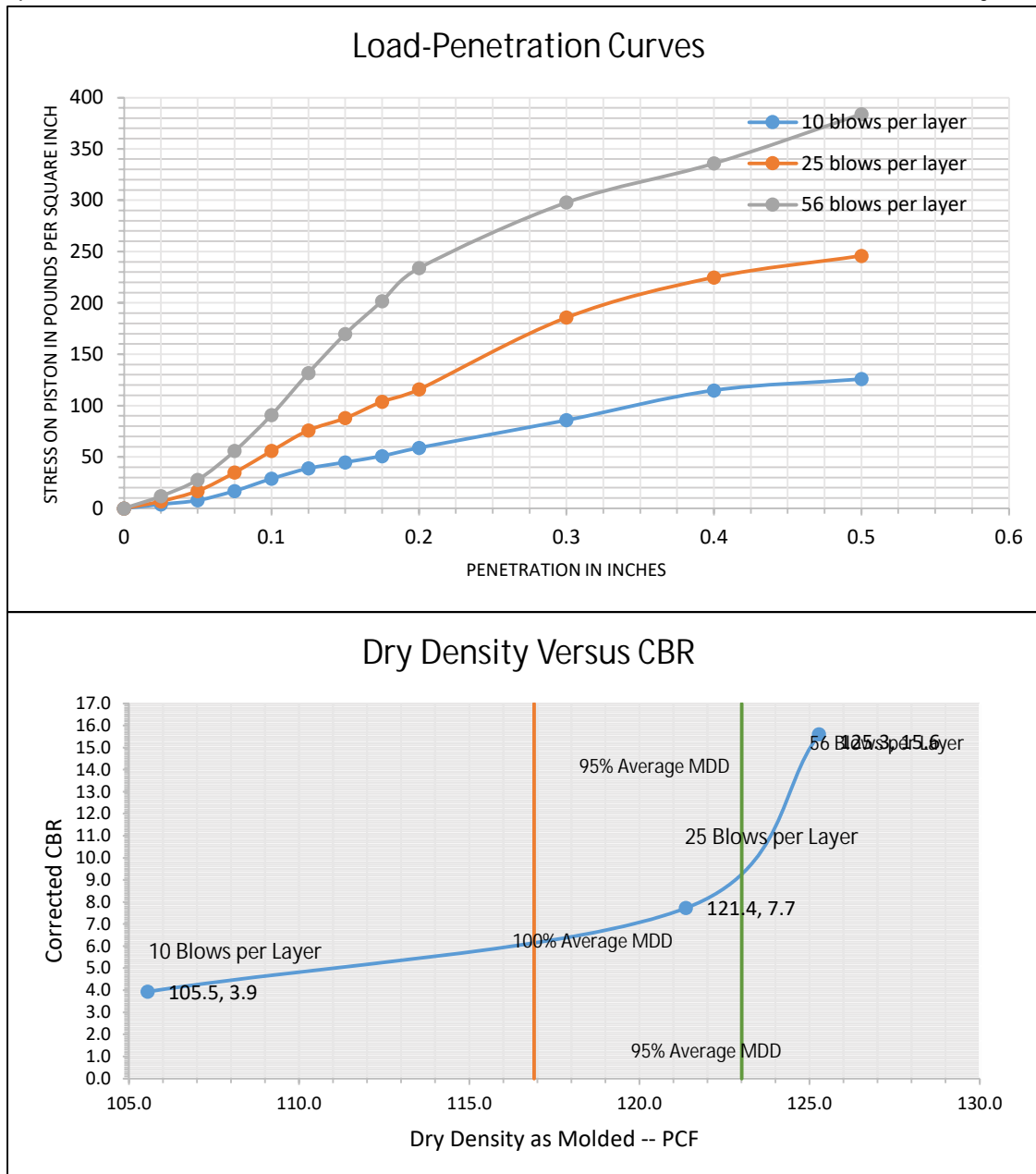


Sample #	1			2			3					
Sample ID	B-36 @ 0-5'											
Location												
Description												
	Liquid Limit Data											
Wet+Tare (g)	23.72	23.80	23.04									
Dry+Tare (g)	18.12	18.05	17.46									
Tare (g)	8.47	8.47	8.49									
Spec. Blows	25-35	20-30	15-25									
No. of Blows	32	25.00	15									
LL	58.0	60.0	62.2									
Corrected LL												
	Plastic Limit Data											
Wet+Tare (g)	27.83	27.25										
Dry+Tare (g)	26.09	25.65										
Tare (g)	20.19	20.20										
M.C.	29.5	29.4										
Results		Specification		Results		Specification		Results		Specification		
AVG L.L.	59.8											
AVG P.L.	29.4											
P.I.	30											
USCS Symbol												

Remarks:

Project Name: Azalea Solar Project
Project Number: G20-267-10F
Sample Location: Combined B-1 & B-2 @ 0.0-5.0 feet BGS
Sample Description: SP-SM: Sand to Silty Sand: brown, moist, fine to medium grained

Sample Date: 12/16/2021
Test Date: 1/21/2021
Sampled by: J. Leu
Tested By: ILTRemotigue



The CBR Test is based off of the compaction test method, ASTM D1557

At the Maximum Dry Density of ASTM D1557:

CBR @ MDD (123.0) =

9

At 95% of the Maximum Dry Density of ASTM D1557:

CBR @ 0.95*MDD (116.8) =

6.3

APPENDIX C

PILE LOAD TEST RESULTS



Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-1
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49"
Height of Jack Attachment:	49"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	4"

Design Load:	n/a
Test Date:	12/3/2020
Time:	8:00 AM
Temperature:	40 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.000
3	2000	0.000
4	3000	0.000
5	4000	0.000
6	3000	0.000
7	2000	0.000
8	1000	0.000
9	0	0.000

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-3
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	80.25"
Height of Jack Attachment:	80.25"
Height of Top Pile Gauge:	80.25"
Height of Bottom Pile Gauge:	2"

Design Load:	n/a
Test Date:	12/3/2020
Time:	1:20 PM
Temperature:	70 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.005
3	2000	0.007
4	3000	0.005
5	4000	0.006
6	5000	0.002
7	4000	0.000
8	3000	0.000
9	2000	0.000
10	1000	0.000
11	0	0.000

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-5
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	65"
Height of Jack Attachment:	65"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	0.5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	2:05 PM
Temperature:	65 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.009
3	2000	0.022
4	3000	0.041
5	4000	0.064
6	5000	0.086
7	4000	0.073
8	3000	0.056
9	2000	0.036
10	1000	0.018
11	0	0.004

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-7
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	47.5"
Height of Jack Attachment:	47.5"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	2"

Design Load:	n/a
Test Date:	12/3/2020
Time:	9:45 AM
Temperature:	50 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	750	0.000
3	1500	0.018
4	2250	0.016
5	3000	0.342
6	5250	1.090
7	3000	1.082
8	2250	1.068
9	1500	1.052
10	750	1.035
11	0	1.008

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-9
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48"
Height of Jack Attachment:	48"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	1.5"

Design Load:	n/a
Test Date:	12/3/2020
Time:	2:05 PM
Temperature:	71 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.001
3	2000	0.013
4	3000	0.023
5	4000	0.030
6	5000	0.042
7	4000	0.047
8	3000	0.050
9	2000	0.053
10	1000	0.052
11	0	0.036

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-11
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	50"
Height of Jack Attachment:	50"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	0.5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	1:00 PM
Temperature:	63 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.014
3	2000	0.033
4	3000	0.054
5	4000	0.076
6	5000	0.100
7	4000	0.085
8	3000	0.066
9	2000	0.043
10	1000	0.022
11	0	0.003

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-13
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48.5"
Height of Jack Attachment:	48.5"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	1.5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	7:25 AM
Temperature:	37 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.003
3	2000	0.005
4	3000	0.006
5	4000	0.006
6	5000	0.007
7	4000	0.006
8	3000	0.004
9	2000	0.003
10	1000	0.003
11	0	0.005

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-15
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48"
Height of Jack Attachment:	48"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	2"

Design Load:	n/a
Test Date:	12/3/2020
Time:	11:30 AM
Temperature:	64 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.000
3	2000	0.000
4	3000	0.000
5	4000	0.020
6	5000	0.083
7	4000	0.074
8	3000	0.060
9	2000	0.040
10	1000	0.018
11	0	0.000

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-17
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	50.5"
Height of Jack Attachment:	50.5"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	1.5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	8:30 AM
Temperature:	41 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.015
3	2000	0.024
4	3000	0.038
5	4000	0.052
6	5000	0.065
7	4000	0.055
8	3000	0.047
9	2000	0.036
10	1000	0.022
11	0	0.005

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-19
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49"
Height of Jack Attachment:	49"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	0.5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	11:45 AM
Temperature:	60 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.012
3	2000	0.022
4	3000	0.040
5	4000	0.052
6	5000	0.062
7	4000	0.056
8	3000	0.048
9	2000	0.039
10	1000	0.029
11	0	0.021

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-21
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48.5"
Height of Jack Attachment:	48.5"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	1.5"

Design Load:	n/a
Test Date:	12/3/2020
Time:	12:15 PM
Temperature:	64 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.005
3	2000	0.165
4	3000	0.042
5	4000	0.095
6	5000	0.290
7	4000	0.282
8	3000	0.265
9	2000	0.244
10	1000	0.225
11	0	0.197

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-23
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	51"
Height of Jack Attachment:	51"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	1"

Design Load:	n/a
Test Date:	12/4/2020
Time:	9:30 AM
Temperature:	45 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.009
3	2000	0.025
4	3000	0.057
5	4000	0.117
6	5000	0.200
5	4000	0.197
6	3000	0.189
7	2000	0.177
8	1000	0.161
9	0	0.133

Axial (Tension) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-25
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49.5"
Height of Jack Attachment:	49.5"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	0.5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	10:30 AM
Temperature:	53 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Bottom of Pile Gauge Reading (inches)
1	0	0.000
2	1000	0.021
3	2000	0.128
4	3000	0.135
5	4000	0.549
6	5000	0.926
7	4000	0.918
8	3000	0.900
9	2000	0.876
10	1000	0.851
11	0	0.812

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-2
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49"
Height of Jack Attachment:	49"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	3.5"

Design Load:	n/a
Test Date:	12/3/2020
Time:	8:32 AM
Temperature:	43 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	925	0.222	0.044
3	1850	0.454	0.095
4	2775	0.728	0.146
5	3700	1.014	0.199
6	5600	1.748	0.348
7	3900	1.369	0.287
8	2775	1.134	0.239
9	1050	0.856	1.885
10	925	0.582	0.132
11	0	0.000	0.071

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-4
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	80.5"
Height of Jack Attachment:	77"
Height of Top Pile Gauge:	53.75"
Height of Bottom Pile Gauge:	2.5"

Design Load:	n/a
Test Date:	12/3/2020
Time:	1:35 PM
Temperature:	70 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.525	0.125
3	2000	1.063	0.241
4	3000	1.710	0.379
5	4000	3.689	0.824
6	3000	3.452	0.794
7	2000	2.931	0.697
8	1000	2.365	0.571
9	0	2.268	0.394

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-6
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	67"
Height of Jack Attachment:	48"
Height of Top Pile Gauge:	48"
Height of Bottom Pile Gauge:	3"

Design Load:	n/a
Test Date:	12/4/2020
Time:	2:35 PM
Temperature:	64 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.313	0.052
3	2000	0.563	0.109
4	3000	0.875	0.166
5	4000	1.125	0.223
6	5000	1.500	0.295
7	4000	1.313	0.269
8	3000	1.063	0.230
9	2000	0.813	0.181
10	1000	0.500	0.119
11	0	0.188	0.038

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-8
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49.75"
Height of Jack Attachment:	49.75"
Height of Top Pile Gauge:	49.75"
Height of Bottom Pile Gauge:	4"

Design Load:	n/a
Test Date:	12/3/2020
Time:	10:20 AM
Temperature:	58 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	925	0.061	0.014
3	1850	0.401	0.108
4	2775	0.815	0.223
5	3700	1.288	0.385
6	4900	2.297	0.758
7	3700	2.058	0.727
8	2775	1.805	0.678
9	1850	1.498	0.607
10	925	1.103	0.499
11	0	0.574	0.331

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-10
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49.25"
Height of Jack Attachment:	49.25"
Height of Top Pile Gauge:	49.25"
Height of Bottom Pile Gauge:	4"

Design Load:	n/a
Test Date:	12/3/2020
Time:	2:35 PM
Temperature:	70 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.402	0.081
3	2000	0.681	0.145
4	3000	1.053	0.241
5	4000	1.446	0.352
6	5000	1.890	0.484
7	4000	1.657	0.447
8	3000	1.406	0.391
9	2000	1.055	0.308
10	1000	0.682	0.206
11	0	0.153	0.047

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-12
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49.25"
Height of Jack Attachment:	49.25"
Height of Top Pile Gauge:	49.25"
Height of Bottom Pile Gauge:	3"

Design Load:	n/a
Test Date:	12/4/2020
Time:	1:10 PM
Temperature:	63 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.304	0.064
3	2000	0.718	0.150
4	3000	0.977	0.213
5	4000	1.328	0.287
6	5000	1.762	0.381
7	4000	1.565	0.345
8	3000	1.296	0.296
9	2000	0.985	0.233
10	1000	0.623	0.158
11	0	0.196	0.095

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-14
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	50.5"
Height of Jack Attachment:	50.5"
Height of Top Pile Gauge:	50.5"
Height of Bottom Pile Gauge:	3.5"

Design Load:	n/a
Test Date:	12/3/2020
Time:	7:50 AM
Temperature:	37 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.571	0.202
3	2000	1.007	0.329
4	3000	1.673	0.560
5	4000	2.575	0.926
6	3000	2.381	0.885
7	2000	1.974	0.783
8	1000	1.430	0.623
9	0	0.524	0.279

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-16
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48"
Height of Jack Attachment:	48"
Height of Top Pile Gauge:	48"
Height of Bottom Pile Gauge:	3"

Design Load:	n/a
Test Date:	12/3/2020
Time:	11:30 AM
Temperature:	64 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.553	0.174
3	2000	1.072	0.363
4	3000	1.699	0.610
5	4000	2.609	1.020
6	3000	2.382	0.974
7	2000	1.973	0.850
8	1000	1.380	0.638
9	0	0.670	0.359

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-18
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49"
Height of Jack Attachment:	49"
Height of Top Pile Gauge:	49"
Height of Bottom Pile Gauge:	4"

Design Load:	n/a
Test Date:	12/4/2020
Time:	8:50 AM
Temperature:	45 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.459	0.109
3	2000	0.826	0.209
4	3000	1.277	0.335
5	4000	1.707	0.456
6	3000	2.233	0.620
7	4000	2.039	0.588
8	3000	1.765	0.527
9	2000	1.390	0.434
10	1000	0.910	0.298
11	0	0.377	0.141

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-20
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	50.5"
Height of Jack Attachment:	50.5"
Height of Top Pile Gauge:	50.5"
Height of Bottom Pile Gauge:	3"

Design Load:	n/a
Test Date:	12/4/2020
Time:	12:00 PM
Temperature:	60 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.349	0.086
3	2000	0.719	0.170
4	3000	1.062	0.245
5	4000	1.415	0.310
6	5000	2.422	0.449
7	4000	2.253	0.425
8	3000	1.964	0.391
9	2000	1.602	0.339
10	1000	1.234	0.262
11	0	0.693	0.123

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-22
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	49"
Height of Jack Attachment:	49"
Height of Top Pile Gauge:	49"
Height of Bottom Pile Gauge:	3.5"

Design Load:	n/a
Test Date:	12/3/2020
Time:	12:30 PM
Temperature:	67 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.408	0.091
3	2000	0.853	0.224
4	3000	1.335	0.381
5	4000	2.071	0.656
6	5000	3.127	1.070
7	4000	2.817	1.010
8	3000	2.654	0.975
9	2000	2.261	0.875
10	1000	1.735	0.716
11	0	1.722	0.464

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-24
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48.5"
Height of Jack Attachment:	48.5"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	4"

Design Load:	n/a
Test Date:	12/4/2020
Time:	9:50 AM
Temperature:	53 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.718	0.283
3	2000	1.780	0.750
4	1000	1.521	0.679
5	0	0.780	0.398

Lateral (Strong Axis) Pile Load Testing

BSK Project No.:	G2026710F
BSK Project Name:	Azalea Solar Project
Project Location	NW of King Rd & Twisselman Rd, Lost Hills, Kern County, CA

Pile Location Number:	PLT-26
Total Pile Length:	10'-0"
Pile Shape:	W6x9
Exposed Height of Pile:	48"
Height of Jack Attachment:	48"
Height of Top Pile Gauge:	N/A
Height of Bottom Pile Gauge:	5"

Design Load:	n/a
Test Date:	12/4/2020
Time:	11:00 AM
Temperature:	57 F
Weather:	Sunny
Performed By:	S. Jue

Step	Load (lbs)	Top of Pile Gauge Reading (inches)	Bottom of Pile Gauge Reading (inches)
1	0	0.000	0.000
2	1000	0.368	0.151
3	2000	0.890	0.347
4	3000	1.712	0.710
5	4000	3.218	1.440
6	3000	3.059	1.413
7	2000	2.732	1.327
8	1000	2.335	1.195
9	0	1.506	1.123

APPENDIX D

THERMAL RESISTIVITY TEST RESULTS

Laboratory Report for BSK Associates Engineers & Laboratories

G2026710F, Azalea

January 26, 2021



Daniel B. Stephens & Associates, Inc.

4400 Alameda Blvd. NE, Suite C • Albuquerque, New Mexico 87113



January 26, 2021

On Man Lau
BSK Associates Engineers & Laboratories
550 W Locust Ave.
Fresno, CA 93650
(559) 497-2880 ext 206

Re: DBS&A Laboratory Report for the BSK Associates G2026710F, Azalea Project

Dear Mr. On Man Lau:

Enclosed is the report for the BSK Associates G2026710F, Azalea project sample testing. Please review this report and provide any comments as samples will be held for a maximum of 30 days. After 30 days samples will be returned or disposed of in an appropriate manner.

All testing results were evaluated subjectively for consistency and reasonableness, and the results appear to be reasonably representative of the material tested. However, DBS&A does not assume any responsibility for interpretations or analyses based on the data enclosed, nor can we guarantee that these data are fully representative of the undisturbed materials at the field site. We recommend that careful evaluation of these laboratory results be made for your particular application.

The testing utilized to generate the enclosed report employs methods that are standard for the industry. The results do not constitute a professional opinion by DBS&A, nor can the results affect any professional or expert opinions rendered with respect thereto by DBS&A. You have acknowledged that all the testing undertaken by us, and the report provided, constitutes mere test results using standardized methods, and cannot be used to disqualify DBS&A from rendering any professional or expert opinion, having waived any claim of conflict of interest by DBS&A.

We are pleased to provide this service to BSK Associates and look forward to future laboratory testing on other projects. If you have any questions about the enclosed data, please do not hesitate to call.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.
SOIL TESTING & RESEARCH LABORATORY

Joleen Hines
Laboratory Manager

Enclosure

Daniel B. Stephens & Associates, Inc.
Soil Testing & Research Laboratory

4400 Alameda Blvd. NE, Suite C
Albuquerque, NM 87113

505-889-7752
FAX 505-889-0258

Summaries



Summary of Tests Performed

Laboratory Sample Number	Initial Soil Properties ¹			Saturated Hydraulic Conductivity ²			Moisture Characteristics ³								Particle Size ⁴			Specific Gravity ⁵		Air Perm- eability	Atterberg Limits	Thermal Properties
	G	VM	VD	CH	FH	FW	HC	PP	FP	DPP	RH	EP	WHC	K _{unsat}	DS	WS	H	F	C			
B-2 @ 5'	X	X																				X
B-8 @ 6'	X	X																				X
B-10 @ 5'	X	X																				X
B-20 @ 5'	X	X																				X
B-22 @ 6'	X	X																				X
B-36 @ 5'	X	X																				X

¹ G = Gravimetric Moisture Content, VM = Volume Measurement Method, VD = Volume Displacement Method

² CH = Constant Head Rigid Wall, FH = Falling Head Rigid Wall, FW = Falling Head Rising Tail Flexible Wall

³ HC = Hanging Column, PP = Pressure Plate, FP = Filter Paper, DPP = Dew Point Potentiometer, RH = Relative Humidity Box, EP = Effective Porosity, WHC = Water Holding Capacity, K_{unsat} = Calculated Unsaturated Hydraulic Conductivity

⁴ DS = Dry Sieve, WS = Wet Sieve, H = Hydrometer

⁵ F = Fine (<4.75mm), C = Coarse (>4.75mm)



Notes

Sample Receipt:

Six samples, each as a 2.5" x 6" stainless steel sleeve sealed with end caps and tape, were received on January 7, 2021. The samples were delivered in a cardboard box with no packing material.

Sample Preparation and Testing Notes:

An intact sub-sample was obtained from each of the sleeves by extruding the sample material from the original sleeve into a similar size testing ring. Each sub-sample was then subjected to thermal properties testing at the initial moisture content, the saturated moisture content, and at the oven dry state. Each thermal properties reading was obtained in the same location if possible.



Summary of Thermal Properties

Sample	Reading	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Temp °C	K W/(m·K)	ρ °C·cm/W	C MJ/(m ³ ·K)	D mm ² /s
B-2 @ 5'	Initial	9.66	13.41	1.39	21.37	0.555	180.3	1.683	0.329
B-2 @ 5'	Saturated	35.80	49.67	1.39	19.66	1.155	86.6	3.585	0.322
B-2 @ 5'	Oven Dry	0.00	0.00	1.39	22.13	0.181	551.4	1.264	0.143
B-8 @ 6'	Initial	4.24	6.98	1.65	21.65	0.312	320.2	1.606	0.195
B-8 @ 6'	Saturated	24.86	40.90	1.65	19.61	1.469	68.1	3.174	0.463
B-8 @ 6'	Oven Dry	0.00	0.00	1.65	22.15	0.221	452.7	1.440	0.153
B-10 @ 5'	Initial	9.50	14.52	1.53	21.77	0.629	158.9	1.954	0.322
B-10 @ 5'	Saturated	28.38	43.37	1.53	19.59	1.327	75.3	3.664	0.362
B-10 @ 5'	Oven Dry	0.00	0.00	1.53	22.26	0.215	465.8	1.278	0.168
B-20 @ 5'	Initial	6.02	9.06	1.51	21.69	0.541	184.8	1.502	0.360
B-20 @ 5'	Saturated	31.70	47.74	1.51	19.67	1.361	73.4	3.359	0.405
B-20 @ 5'	Oven Dry	0.00	0.00	1.51	22.37	0.177	566.5	1.404	0.126
B-22 @ 6'	Initial	4.89	8.43	1.72	21.71	0.844	118.5	1.724	0.489
B-22 @ 6'	Saturated	22.00	37.95	1.72	19.74	1.664	60.1	3.157	0.527
B-22 @ 6'	Oven Dry	0.00	0.00	1.72	22.33	0.274	364.5	1.432	0.192
B-36 @ 5'	Initial	41.42	52.08	1.26	21.72	0.935	107.0	3.774	0.248
B-36 @ 5'	Saturated	45.42	57.11	1.26	20.07	1.082	92.5	3.987	0.271
B-36 @ 5'	Oven Dry	0.00	0.00	1.26	22.38	0.364	274.6	1.645	0.221

¹ Adjusted for volume changes during testing, if applicable.

Thermal Properties



Summary of Thermal Properties

Sample	Reading	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Temp °C	K W/(m·K)	ρ °C·cm/W	C MJ/(m ³ ·K)	D mm ² /s
B-2 @ 5'	Initial	9.66	13.41	1.39	21.37	0.555	180.3	1.683	0.329
B-2 @ 5'	Saturated	35.80	49.67	1.39	19.66	1.155	86.6	3.585	0.322
B-2 @ 5'	Oven Dry	0.00	0.00	1.39	22.13	0.181	551.4	1.264	0.143
B-8 @ 6'	Initial	4.24	6.98	1.65	21.65	0.312	320.2	1.606	0.195
B-8 @ 6'	Saturated	24.86	40.90	1.65	19.61	1.469	68.1	3.174	0.463
B-8 @ 6'	Oven Dry	0.00	0.00	1.65	22.15	0.221	452.7	1.440	0.153
B-10 @ 5'	Initial	9.50	14.52	1.53	21.77	0.629	158.9	1.954	0.322
B-10 @ 5'	Saturated	28.38	43.37	1.53	19.59	1.327	75.3	3.664	0.362
B-10 @ 5'	Oven Dry	0.00	0.00	1.53	22.26	0.215	465.8	1.278	0.168
B-20 @ 5'	Initial	6.02	9.06	1.51	21.69	0.541	184.8	1.502	0.360
B-20 @ 5'	Saturated	31.70	47.74	1.51	19.67	1.361	73.4	3.359	0.405
B-20 @ 5'	Oven Dry	0.00	0.00	1.51	22.37	0.177	566.5	1.404	0.126
B-22 @ 6'	Initial	4.89	8.43	1.72	21.71	0.844	118.5	1.724	0.489
B-22 @ 6'	Saturated	22.00	37.95	1.72	19.74	1.664	60.1	3.157	0.527
B-22 @ 6'	Oven Dry	0.00	0.00	1.72	22.33	0.274	364.5	1.432	0.192
B-36 @ 5'	Initial	41.42	52.08	1.26	21.72	0.935	107.0	3.774	0.248
B-36 @ 5'	Saturated	45.42	57.11	1.26	20.07	1.082	92.5	3.987	0.271
B-36 @ 5'	Oven Dry	0.00	0.00	1.26	22.38	0.364	274.6	1.645	0.221

¹ Adjusted for volume changes during testing, if applicable.



Daniel B. Stephens & Associates, Inc.

Thermal Properties Results Sheet for Sample: B-2 @ 5'

Job Name: BSK Associates
Job Number: DB21.1033.00
Sample Number: B-2 @ 5'
Job #: G2026710F
Job Name: Azalea

Instrument Description: Decagon KD2 Pro

Probe: ☐ KS-1, 6 cm length, 1.3 mm diameter, single needle
☐ TR-1, 10 cm length, 2.4 mm diameter, single needle
☒ SH-1, 3 cm length, 1.3 mm diameter, dual needle, 6 mm spacing

Test Start Date: 1/14/21

Reading	Water Potential (-cm water)	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Test Temperature (°C)	K Thermal Conductivity W/(m·K)	ρ Thermal Resistivity °C·cm/W	C Specific Heat Capacity MJ/(m ³ ·K)	D Thermal Diffusivity (mm ² /s)
Initial	---	9.66	13.41	1.39	21.37	0.555	180.3	1.683	0.329
Saturated	0	35.80	49.67	1.39	19.66	1.155	86.6	3.585	0.322
Oven Dry	---	0.00	0.00	1.39	22.13	0.181	551.4	1.264	0.143

--- = Value not measured.

¹ Adjusted for volume changes during testing, if applicable.



Thermal Properties Data

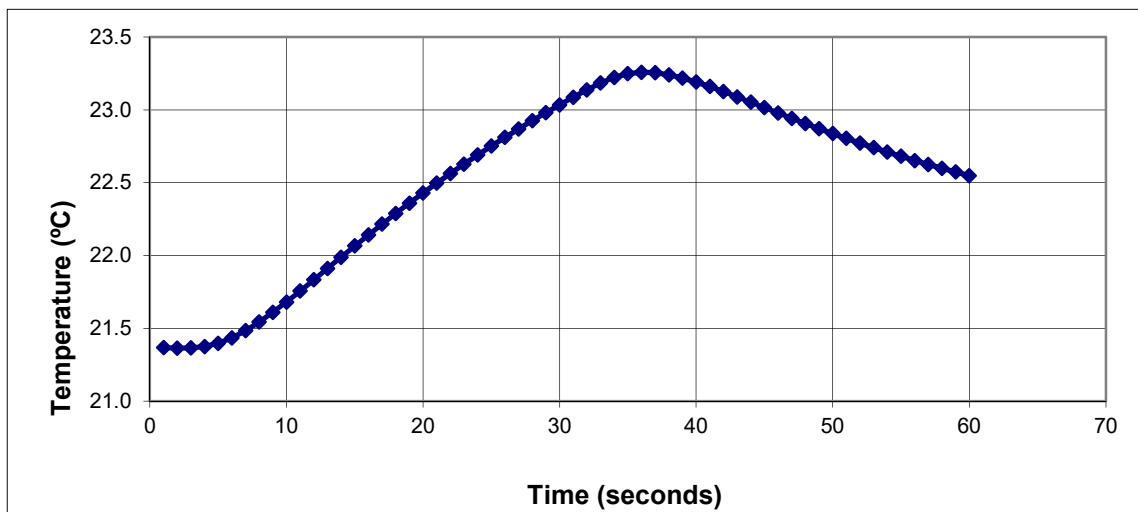
Sample Number: B-2 @ 5'
Potential (-cm water): Initial

Test Date/Time: 1/14/21 8:12 AM	K (W/(m·K)): 0.555
Sensor: SH-1	ρ (°C·cm/W): 180.3
Test Temp.(°C): 21.4	C (MJ/(m ³ ·K)): 1.683
KD2 Pro Sample ID: B-2-AR	D (mm ² /s): 0.329
Power (W/m): 20.470	Err: 0.0034
Current (amps): 0.140	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	21.368	16	22.141	31	23.086	46	22.979
2	21.365	17	22.216	32	23.137	47	22.942
3	21.366	18	22.289	33	23.184	48	22.906
4	21.375	19	22.360	34	23.223	49	22.871
5	21.397	20	22.429	35	23.248	50	22.837
6	21.434	21	22.497	36	23.258	51	22.804
7	21.484	22	22.563	37	23.255	52	22.772
8	21.544	23	22.628	38	23.241	53	22.741
9	21.610	24	22.690	39	23.219	54	22.710
10	21.681	25	22.752	40	23.191	55	22.682
11	21.757	26	22.811	41	23.160	56	22.652
12	21.834	27	22.869	42	23.125	57	22.625
13	21.911	28	22.926	43	23.089	58	22.599
14	21.988	29	22.981	44	23.053	59	22.574
15	22.066	30	23.034	45	23.015	60	22.549

B-2 @ 5', Potential: Initial - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

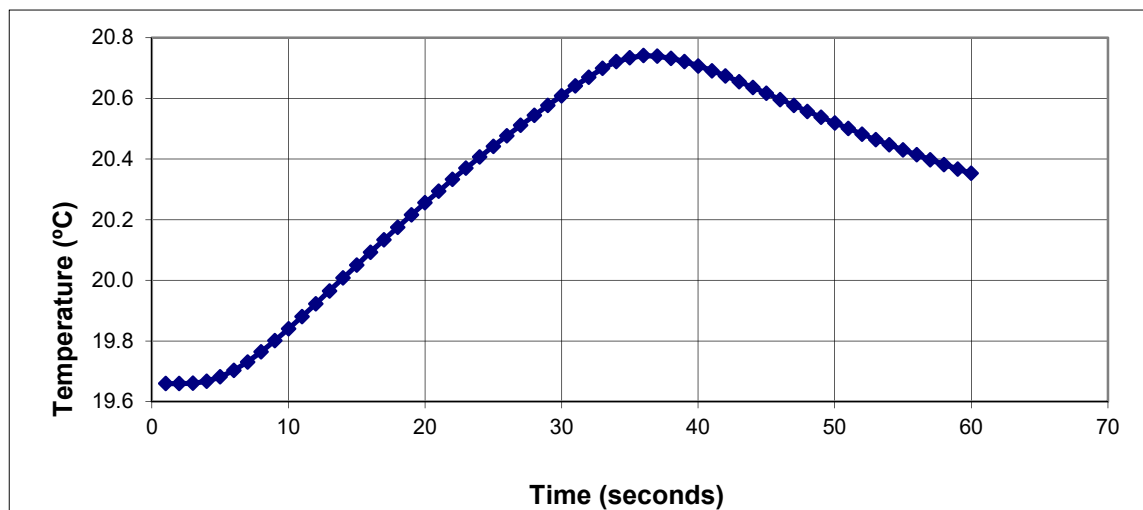
Sample Number: B-2 @ 5'
Potential (-cm water): 0

Test Date/Time: 1/15/21 2:04 PM	K (W/(m·K)): 1.155
Sensor: SH-1	ρ (°C·cm/W): 86.6
Test Temp.(°C): 19.7	C (MJ/(m ³ ·K)): 3.585
KD2 Pro Sample ID: B-2-SA	D (mm ² /s): 0.322
Power (W/m): 24.370	Err: 0.0013
Current (amps): 0.153	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	19.660	16	20.093	31	20.641	46	20.596
2	19.660	17	20.134	32	20.670	47	20.577
3	19.661	18	20.175	33	20.699	48	20.557
4	19.667	19	20.216	34	20.721	49	20.538
5	19.682	20	20.256	35	20.734	50	20.519
6	19.703	21	20.294	36	20.741	51	20.501
7	19.731	22	20.333	37	20.739	52	20.482
8	19.764	23	20.370	38	20.732	53	20.464
9	19.801	24	20.407	39	20.721	54	20.447
10	19.840	25	20.442	40	20.707	55	20.430
11	19.881	26	20.477	41	20.691	56	20.414
12	19.923	27	20.511	42	20.674	57	20.398
13	19.965	28	20.544	43	20.655	58	20.382
14	20.008	29	20.577	44	20.636	59	20.367
15	20.050	30	20.609	45	20.617	60	20.353

B-2 @ 5', Potential: 0 - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

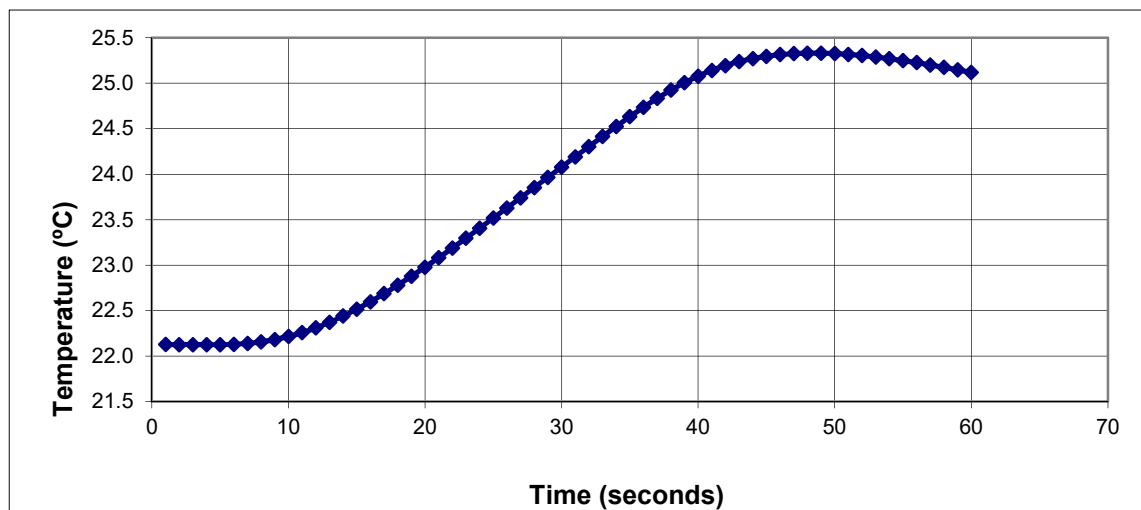
Sample Number: B-2 @ 5'
Potential (-cm water): Oven Dry

Test Date/Time: 1/18/21 3:51 PM	K (W/(m·K)): 0.181
Sensor: SH-1	ρ (°C·cm/W): 551.4
Test Temp.(°C): 22.1	C (MJ/(m³·K)): 1.264
KD2 Pro Sample ID: B-2-OD	D (mm²/s): 0.143
Power (W/m): 23.750	Err: 0.0012
Current (amps): 0.151	

Raw Data

Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)
1 22.129	16 22.598	31 24.191	46 25.315
2 22.127	17 22.687	32 24.303	47 25.326
3 22.126	18 22.781	33 24.414	48 25.331
4 22.126	19 22.877	34 24.523	49 25.331
5 22.126	20 22.978	35 24.632	50 25.326
6 22.130	21 23.082	36 24.736	51 25.317
7 22.140	22 23.188	37 24.834	52 25.305
8 22.156	23 23.296	38 24.925	53 25.289
9 22.181	24 23.406	39 25.007	54 25.269
10 22.216	25 23.517	40 25.078	55 25.248
11 22.258	26 23.629	41 25.141	56 25.226
12 22.311	27 23.741	42 25.194	57 25.201
13 22.372	28 23.854	43 25.237	58 25.174
14 22.441	29 23.966	44 25.271	59 25.147
15 22.517	30 24.078	45 25.296	60 25.118

B-2 @ 5', Potential: Oven Dry - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Thermal Properties Results Sheet for Sample: B-8 @ 6'

Job Name: BSK Associates
Job Number: DB21.1033.00
Sample Number: B-8 @ 6'
Job #: G2026710F
Job Name: Azalea

Instrument Description: Decagon KD2 Pro

Probe: ☐ KS-1, 6 cm length, 1.3 mm diameter, single needle
☐ TR-1, 10 cm length, 2.4 mm diameter, single needle
☒ SH-1, 3 cm length, 1.3 mm diameter, dual needle, 6 mm spacing

Test Start Date: 1/14/21

Reading	Water Potential (-cm water)	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Test Temperature (°C)	K Thermal Conductivity W/(m·K)	ρ Thermal Resistivity °C·cm/W	C Specific Heat Capacity MJ/(m ³ ·K)	D Thermal Diffusivity (mm ² /s)
Initial	---	4.24	6.98	1.65	21.65	0.312	320.2	1.606	0.195
Saturated	0	24.86	40.90	1.65	19.61	1.469	68.1	3.174	0.463
Oven Dry	---	0.00	0.00	1.65	22.15	0.221	452.7	1.440	0.153

--- = Value not measured.

¹ Adjusted for volume changes during testing, if applicable.



Thermal Properties Data

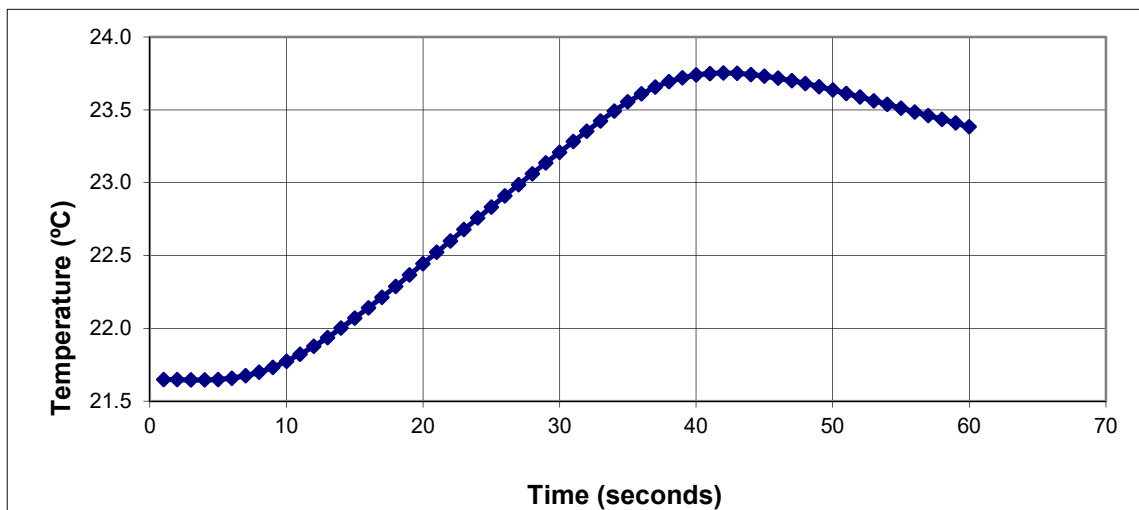
Sample Number: B-8 @ 6'
Potential (-cm water): Initial

Test Date/Time: 1/14/21 8:27 AM	K (W/(m·K)): 0.312
Sensor: SH-1	ρ (°C·cm/W): 320.2
Test Temp.(°C): 21.7	C (MJ/(m ³ ·K)): 1.606
KD2 Pro Sample ID: B-8-AR	D (mm ² /s): 0.195
Power (W/m): 20.650	Err: 0.0011
Current (amps): 0.141	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	21.649	16	22.141	31	23.282	46	23.717
2	21.648	17	22.214	32	23.354	47	23.700
3	21.646	18	22.289	33	23.424	48	23.681
4	21.646	19	22.366	34	23.492	49	23.659
5	21.649	20	22.444	35	23.555	50	23.636
6	21.658	21	22.522	36	23.610	51	23.613
7	21.674	22	22.600	37	23.656	52	23.588
8	21.700	23	22.678	38	23.694	53	23.563
9	21.732	24	22.757	39	23.720	54	23.538
10	21.774	25	22.833	40	23.739	55	23.512
11	21.823	26	22.910	41	23.749	56	23.486
12	21.877	27	22.987	42	23.753	57	23.460
13	21.937	28	23.062	43	23.750	58	23.435
14	22.002	29	23.136	44	23.743	59	23.410
15	22.070	30	23.209	45	23.732	60	23.384

B-8 @ 6', Potential: Initial - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

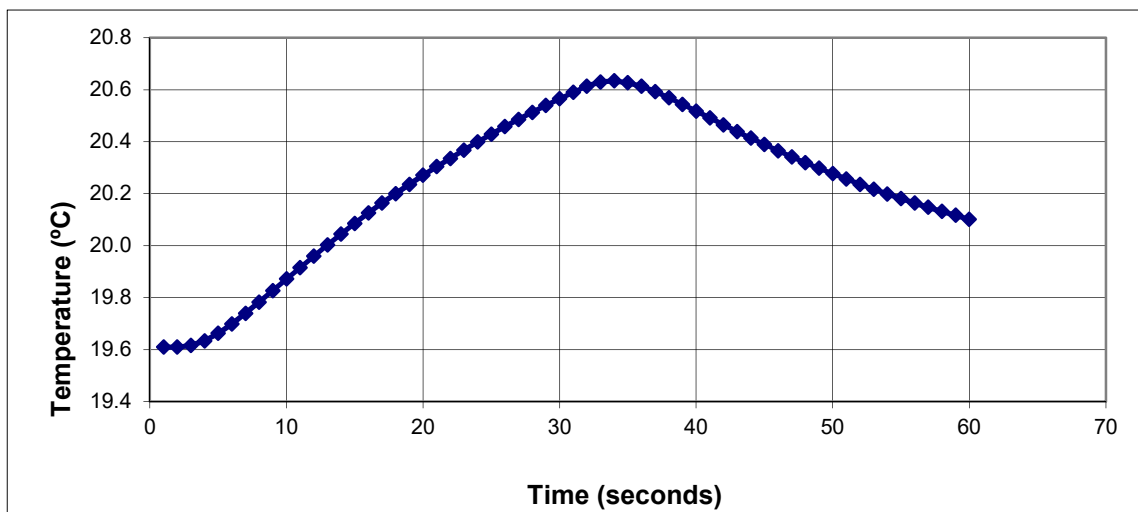
Sample Number: B-8 @ 6'
Potential (-cm water): 0

Test Date/Time: 1/15/21 2:15 PM	K (W/(m·K)): 1.469
Sensor: SH-1	ρ (°C·cm/W): 68.1
Test Temp.(°C): 19.6	C (MJ/(m ³ ·K)): 3.174
KD2 Pro Sample ID: B-8-SA	D (mm ² /s): 0.463
Power (W/m): 22.850	Err: 0.0025
Current (amps): 0.148	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	19.610	16	20.126	31	20.590	46	20.365
2	19.610	17	20.164	32	20.614	47	20.342
3	19.616	18	20.200	33	20.630	48	20.319
4	19.634	19	20.236	34	20.634	49	20.298
5	19.663	20	20.271	35	20.627	50	20.277
6	19.699	21	20.304	36	20.613	51	20.257
7	19.740	22	20.336	37	20.593	52	20.236
8	19.783	23	20.368	38	20.569	53	20.217
9	19.827	24	20.400	39	20.544	54	20.199
10	19.872	25	20.429	40	20.518	55	20.182
11	19.916	26	20.458	41	20.492	56	20.164
12	19.960	27	20.486	42	20.465	57	20.148
13	20.003	28	20.513	43	20.439	58	20.132
14	20.045	29	20.540	44	20.414	59	20.117
15	20.086	30	20.565	45	20.390	60	20.101

B-8 @ 6', Potential: 0 - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

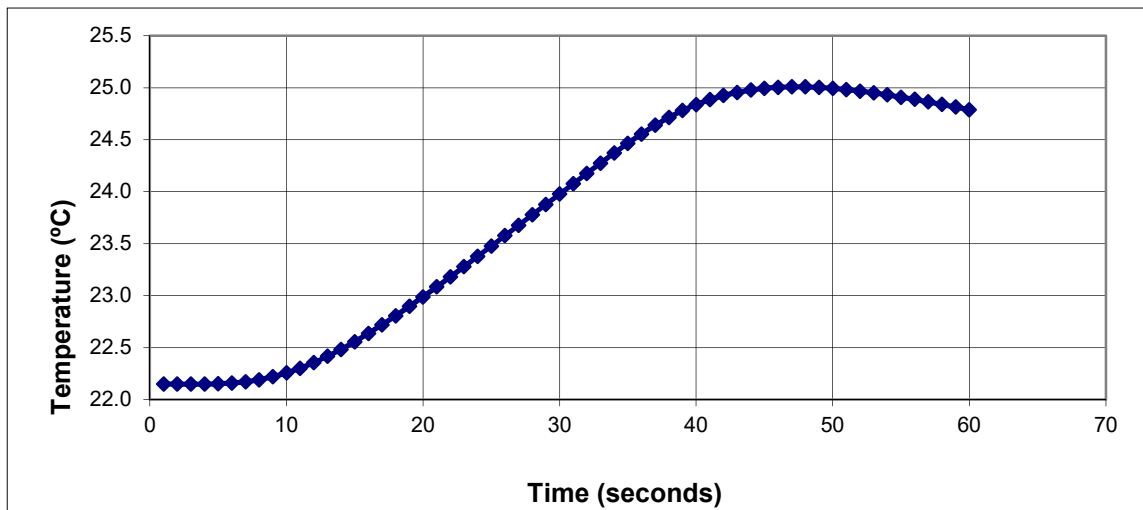
Sample Number: B-8 @ 6'
Potential (-cm water): Oven Dry

Test Date/Time: 1/18/21 4:12 PM	K (W/(m·K)): 0.221
Sensor: SH-1	ρ (°C·cm/W): 452.7
Test Temp.(°C): 22.2	C (MJ/(m³·K)): 1.440
KD2 Pro Sample ID: B-8-OD	D (mm²/s): 0.153
Power (W/m): 23.560	Err: 0.0012
Current (amps): 0.151	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	22.151	16	22.637	31	24.076	46	25.004
2	22.150	17	22.720	32	24.176	47	25.008
3	22.150	18	22.806	33	24.274	48	25.008
4	22.150	19	22.897	34	24.371	49	25.003
5	22.153	20	22.989	35	24.466	50	24.994
6	22.160	21	23.085	36	24.555	51	24.982
7	22.172	22	23.181	37	24.639	52	24.967
8	22.192	23	23.279	38	24.714	53	24.950
9	22.220	24	23.377	39	24.781	54	24.931
10	22.257	25	23.477	40	24.838	55	24.909
11	22.302	26	23.578	41	24.886	56	24.888
12	22.356	27	23.677	42	24.925	57	24.864
13	22.417	28	23.777	43	24.955	58	24.840
14	22.484	29	23.878	44	24.978	59	24.814
15	22.557	30	23.977	45	24.994	60	24.788

B-8 @ 6', Potential: Oven Dry - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Thermal Properties Results Sheet for Sample: B-10 @ 5'

Job Name: BSK Associates
Job Number: DB21.1033.00
Sample Number: B-10 @ 5'
Job #: G2026710F
Job Name: Azalea

Instrument Description: Decagon KD2 Pro

Probe: ☐ KS-1, 6 cm length, 1.3 mm diameter, single needle
☐ TR-1, 10 cm length, 2.4 mm diameter, single needle
☒ SH-1, 3 cm length, 1.3 mm diameter, dual needle, 6 mm spacing

Test Start Date: 1/14/21

Reading	Water Potential (-cm water)	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Test Temperature (°C)	K Thermal Conductivity W/(m·K)	ρ Thermal Resistivity °C·cm/W	C Specific Heat Capacity MJ/(m ³ ·K)	D Thermal Diffusivity (mm ² /s)
Initial	---	9.50	14.52	1.53	21.77	0.629	158.9	1.954	0.322
Saturated	0	28.38	43.37	1.53	19.59	1.327	75.3	3.664	0.362
Oven Dry	---	0.00	0.00	1.53	22.26	0.215	465.8	1.278	0.168

--- = Value not measured.

¹ Adjusted for volume changes during testing, if applicable.



Thermal Properties Data

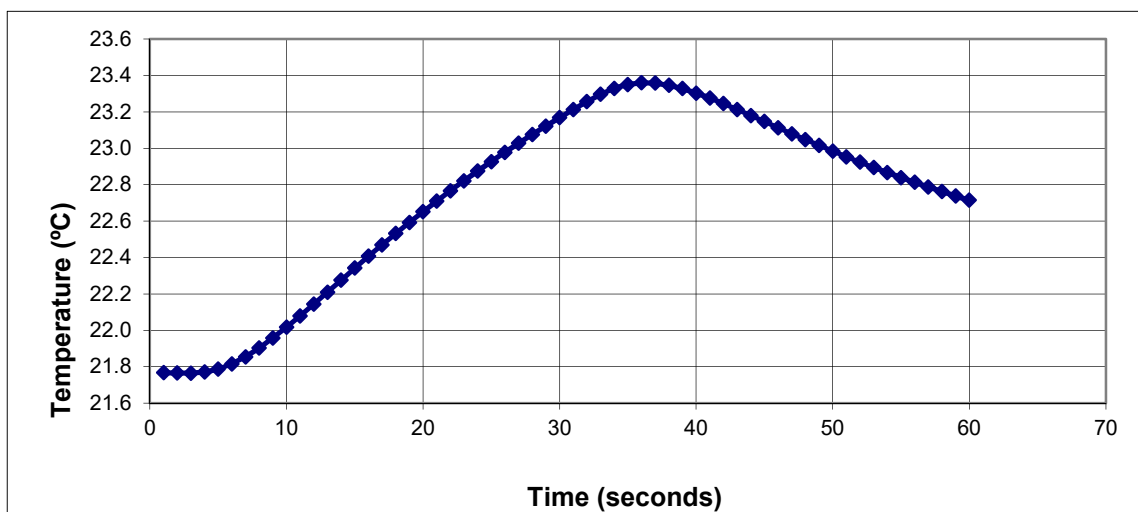
Sample Number: B-10 @ 5'
Potential (-cm water): Initial

Test Date/Time: 1/14/21 8:42 AM	K (W/(m·K)): 0.629
Sensor: SH-1	ρ (°C·cm/W): 158.9
Test Temp.(°C): 21.8	C (MJ/(m ³ ·K)): 1.954
KD2 Pro Sample ID: B-10-AR	D (mm ² /s): 0.322
Power (W/m): 20.650	Err: 0.0032
Current (amps): 0.141	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	21.768	16	22.407	31	23.213	46	23.113
2	21.766	17	22.470	32	23.256	47	23.080
3	21.765	18	22.532	33	23.297	48	23.048
4	21.771	19	22.593	34	23.329	49	23.016
5	21.787	20	22.652	35	23.350	50	22.985
6	21.816	21	22.710	36	23.360	51	22.953
7	21.855	22	22.767	37	23.358	52	22.924
8	21.903	23	22.821	38	23.346	53	22.894
9	21.958	24	22.875	39	23.328	54	22.867
10	22.017	25	22.927	40	23.303	55	22.839
11	22.080	26	22.978	41	23.276	56	22.813
12	22.145	27	23.028	42	23.246	57	22.787
13	22.210	28	23.076	43	23.213	58	22.763
14	22.276	29	23.122	44	23.180	59	22.738
15	22.342	30	23.168	45	23.147	60	22.715

B-10 @ 5', Potential: Initial - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

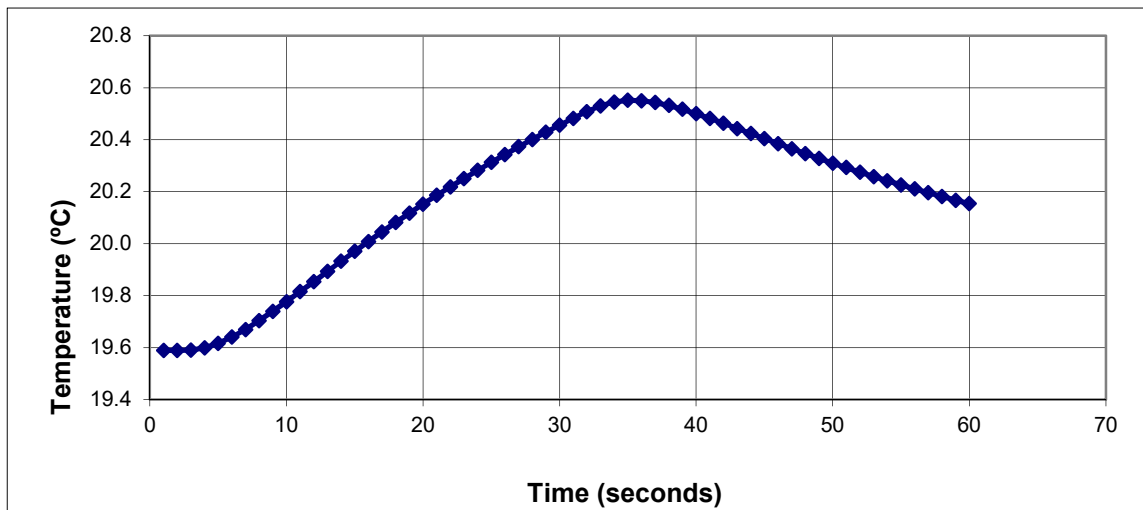
Sample Number: B-10 @ 5'
Potential (-cm water): 0

Test Date/Time: 1/15/21 2:24 PM	K (W/(m·K)): 1.327
Sensor: SH-1	ρ (°C·cm/W): 75.3
Test Temp.(°C): 19.6	C (MJ/(m ³ ·K)): 3.664
KD2 Pro Sample ID: B-10-SA	D (mm ² /s): 0.362
Power (W/m): 22.930	Err: 0.0013
Current (amps): 0.149	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	19.590	16	20.008	31	20.482	46	20.385
2	19.589	17	20.045	32	20.508	47	20.365
3	19.591	18	20.082	33	20.530	48	20.346
4	19.599	19	20.117	34	20.545	49	20.328
5	19.617	20	20.152	35	20.552	50	20.310
6	19.641	21	20.186	36	20.550	51	20.293
7	19.670	22	20.219	37	20.543	52	20.275
8	19.704	23	20.251	38	20.532	53	20.258
9	19.740	24	20.282	39	20.517	54	20.242
10	19.777	25	20.313	40	20.500	55	20.226
11	19.816	26	20.343	41	20.482	56	20.211
12	19.854	27	20.373	42	20.463	57	20.196
13	19.893	28	20.401	43	20.443	58	20.182
14	19.933	29	20.429	44	20.424	59	20.167
15	19.971	30	20.456	45	20.404	60	20.154

B-10 @ 5', Potential: 0 - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

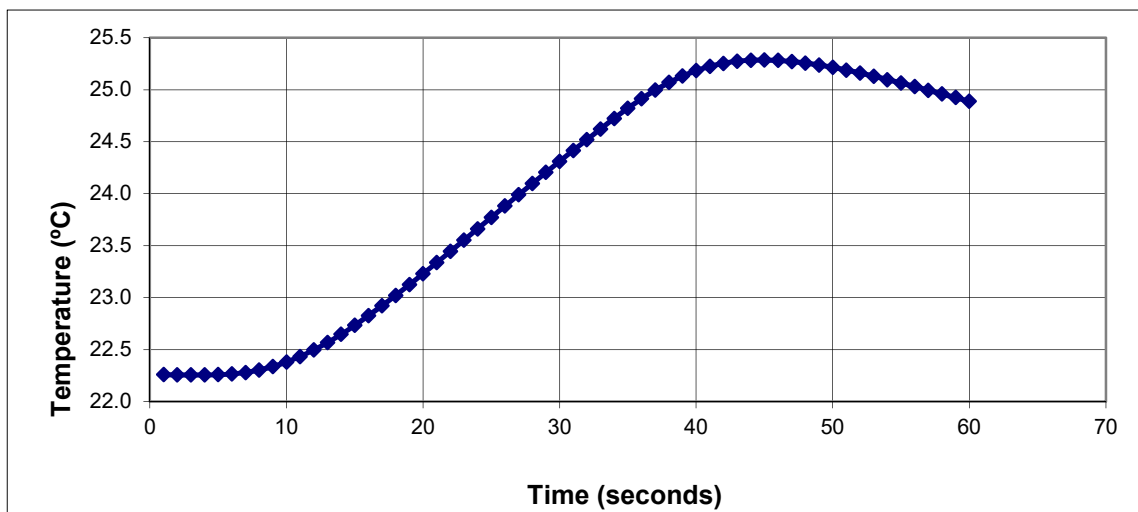
Sample Number: B-10 @ 5'
Potential (-cm water): Oven Dry

Test Date/Time: 1/18/21 4:18 PM	K (W/(m·K)): 0.215
Sensor: SH-1	ρ (°C·cm/W): 465.8
Test Temp.(°C): 22.3	C (MJ/(m ³ ·K)): 1.278
KD2 Pro Sample ID: B-10-OD	D (mm ² /s): 0.168
Power (W/m): 23.480	Err: 0.0020
Current (amps): 0.150	

Raw Data

Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)
1 22.260	16 22.826	31 24.416	46 25.282
2 22.258	17 22.922	32 24.520	47 25.272
3 22.258	18 23.022	33 24.623	48 25.257
4 22.258	19 23.125	34 24.724	49 25.238
5 22.260	20 23.230	35 24.821	50 25.215
6 22.267	21 23.337	36 24.913	51 25.188
7 22.281	22 23.445	37 24.996	52 25.161
8 22.304	23 23.554	38 25.070	53 25.130
9 22.337	24 23.663	39 25.132	54 25.097
10 22.381	25 23.772	40 25.184	55 25.065
11 22.434	26 23.882	41 25.224	56 25.031
12 22.497	27 23.990	42 25.253	57 24.995
13 22.569	28 24.098	43 25.273	58 24.960
14 22.648	29 24.205	44 25.284	59 24.925
15 22.735	30 24.311	45 25.286	60 24.889

B-10 @ 5', Potential: Oven Dry - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Thermal Properties Results Sheet for Sample: B-20 @ 5'

Job Name: BSK Associates
Job Number: DB21.1033.00
Sample Number: B-20 @ 5'
Job #: G2026710F
Job Name: Azalea

Instrument Description: Decagon KD2 Pro

Probe: ☐ KS-1, 6 cm length, 1.3 mm diameter, single needle
☐ TR-1, 10 cm length, 2.4 mm diameter, single needle
☒ SH-1, 3 cm length, 1.3 mm diameter, dual needle, 6 mm spacing

Test Start Date: 1/14/21

Reading	Water Potential (-cm water)	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Test Temperature (°C)	K Thermal Conductivity W/(m·K)	ρ Thermal Resistivity °C·cm/W	C Specific Heat Capacity MJ/(m ³ ·K)	D Thermal Diffusivity (mm ² /s)
Initial	---	6.02	9.06	1.51	21.69	0.541	184.8	1.502	0.360
Saturated	0	31.70	47.74	1.51	19.67	1.361	73.4	3.359	0.405
Oven Dry	---	0.00	0.00	1.51	22.37	0.177	566.5	1.404	0.126

--- = Value not measured.

¹ Adjusted for volume changes during testing, if applicable.



Thermal Properties Data

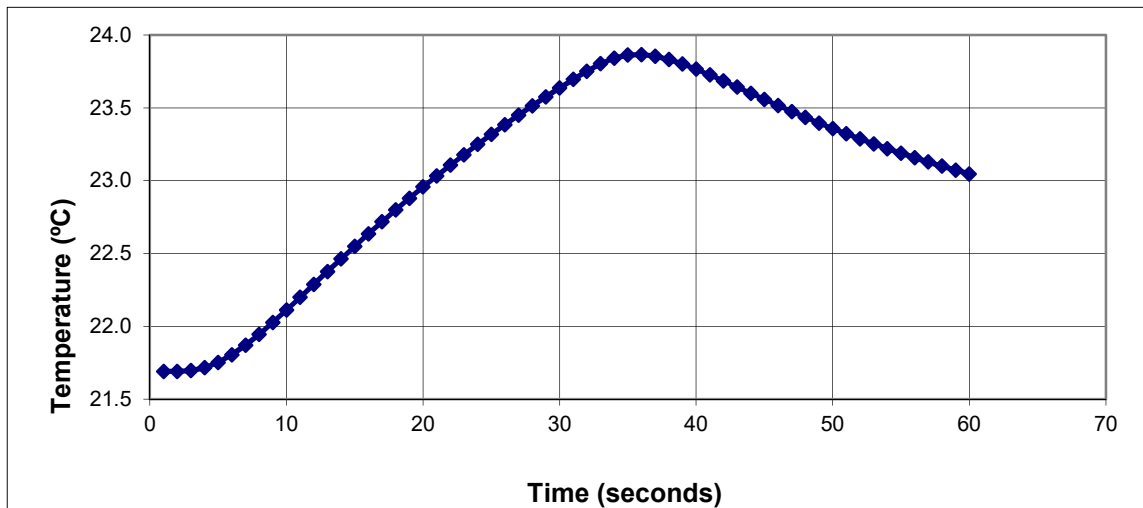
Sample Number: B-20 @ 5'
Potential (-cm water): Initial

Test Date/Time: 1/14/21 8:56 AM	K (W/(m·K)): 0.541
Sensor: SH-1	ρ (°C·cm/W): 184.8
Test Temp.(°C): 21.7	C (MJ/(m ³ ·K)): 1.502
KD2 Pro Sample ID: B-20-AR	D (mm ² /s): 0.360
Power (W/m): 20.750	Err: 0.0027
Current (amps): 0.141	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	21.691	16	22.635	31	23.695	46	23.516
2	21.691	17	22.718	32	23.751	47	23.475
3	21.696	18	22.800	33	23.803	48	23.435
4	21.716	19	22.879	34	23.841	49	23.396
5	21.753	20	22.957	35	23.862	50	23.358
6	21.805	21	23.033	36	23.866	51	23.322
7	21.871	22	23.107	37	23.855	52	23.287
8	21.945	23	23.178	38	23.832	53	23.253
9	22.027	24	23.249	39	23.802	54	23.220
10	22.112	25	23.318	40	23.766	55	23.189
11	22.200	26	23.385	41	23.726	56	23.158
12	22.288	27	23.450	42	23.685	57	23.129
13	22.376	28	23.514	43	23.643	58	23.100
14	22.463	29	23.576	44	23.600	59	23.073
15	22.550	30	23.636	45	23.558	60	23.046

B-20 @ 5', Potential: Initial - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

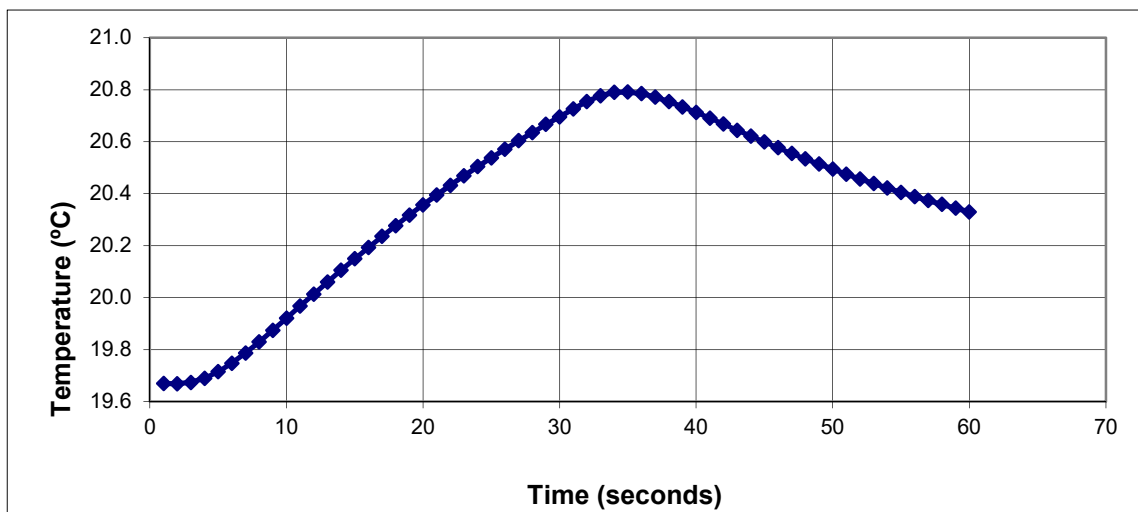
Sample Number: B-20 @ 5'
Potential (-cm water): 0

Test Date/Time: 1/15/21 2:32 PM	K (W/(m·K)): 1.361
Sensor: SH-1	ρ (°C·cm/W): 73.4
Test Temp.(°C): 19.7	C (MJ/(m ³ ·K)): 3.359
KD2 Pro Sample ID: B-20-SA	D (mm ² /s): 0.405
Power (W/m): 24.290	Err: 0.0018
Current (amps): 0.153	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	19.670	16	20.193	31	20.726	46	20.577
2	19.669	17	20.236	32	20.755	47	20.555
3	19.674	18	20.277	33	20.777	48	20.534
4	19.690	19	20.318	34	20.790	49	20.514
5	19.715	20	20.357	35	20.791	50	20.495
6	19.748	21	20.395	36	20.785	51	20.475
7	19.787	22	20.432	37	20.772	52	20.457
8	19.830	23	20.469	38	20.754	53	20.439
9	19.875	24	20.504	39	20.734	54	20.422
10	19.921	25	20.538	40	20.713	55	20.405
11	19.968	26	20.571	41	20.691	56	20.389
12	20.014	27	20.604	42	20.668	57	20.374
13	20.060	28	20.635	43	20.644	58	20.359
14	20.106	29	20.667	44	20.622	59	20.344
15	20.150	30	20.696	45	20.599	60	20.330

B-20 @ 5', Potential: 0 - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

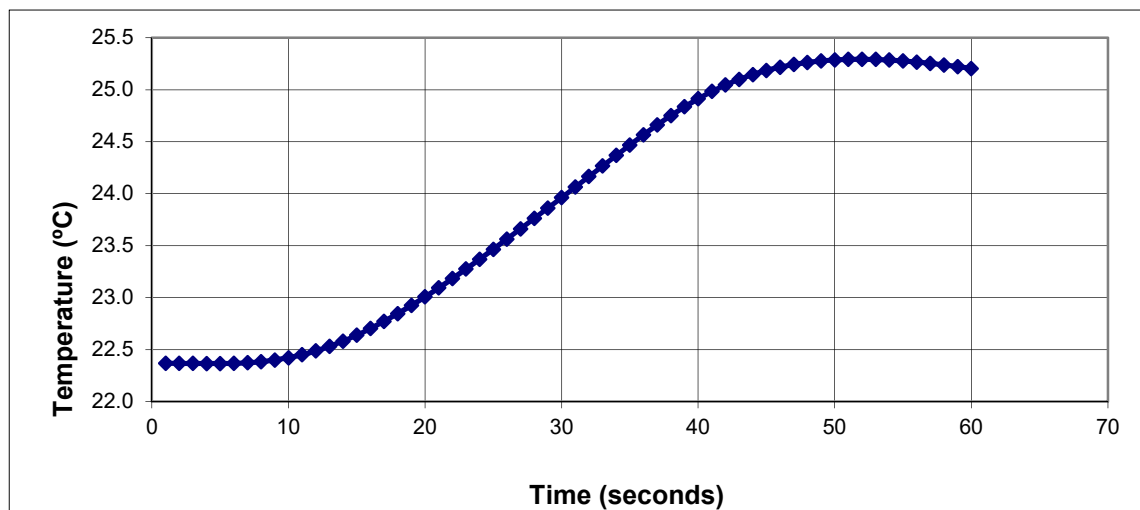
Sample Number: B-20 @ 5'
Potential (-cm water): Oven Dry

Test Date/Time: 1/18/21 4:06 PM	K (W/(m·K)): 0.177
Sensor: SH-1	ρ (°C·cm/W): 566.5
Test Temp.(°C): 22.4	C (MJ/(m ³ ·K)): 1.404
KD2 Pro Sample ID: B-20-OD	D (mm ² /s): 0.126
Power (W/m): 23.650	Err: 0.0010
Current (amps): 0.151	

Raw Data

Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)
1 22.370	16 22.704	31 24.064	46 25.217
2 22.368	17 22.773	32 24.166	47 25.243
3 22.368	18 22.847	33 24.267	48 25.263
4 22.366	19 22.926	34 24.368	49 25.277
5 22.366	20 23.009	35 24.468	50 25.287
6 22.368	21 23.095	36 24.566	51 25.292
7 22.374	22 23.184	37 24.661	52 25.293
8 22.384	23 23.276	38 24.752	53 25.291
9 22.400	24 23.370	39 24.836	54 25.286
10 22.422	25 23.466	40 24.913	55 25.277
11 22.451	26 23.563	41 24.984	56 25.266
12 22.488	27 23.663	42 25.045	57 25.253
13 22.531	28 23.762	43 25.099	58 25.238
14 22.582	29 23.862	44 25.145	59 25.222
15 22.639	30 23.963	45 25.185	60 25.204

B-20 @ 5', Potential: Oven Dry - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Thermal Properties Results Sheet for Sample: B-22 @ 6'

Job Name: BSK Associates
Job Number: DB21.1033.00
Sample Number: B-22 @ 6'
Job #: G2026710F
Job Name: Azalea

Instrument Description: Decagon KD2 Pro

Probe: ☐ KS-1, 6 cm length, 1.3 mm diameter, single needle
☐ TR-1, 10 cm length, 2.4 mm diameter, single needle
☒ SH-1, 3 cm length, 1.3 mm diameter, dual needle, 6 mm spacing

Test Start Date: 1/14/21

Reading	Water Potential (-cm water)	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Test Temperature (°C)	K Thermal Conductivity W/(m·K)	ρ Thermal Resistivity °C·cm/W	C Specific Heat Capacity MJ/(m ³ ·K)	D Thermal Diffusivity (mm ² /s)
Initial	---	4.89	8.43	1.72	21.71	0.844	118.5	1.724	0.489
Saturated	0	22.00	37.95	1.72	19.74	1.664	60.1	3.157	0.527
Oven Dry	---	0.00	0.00	1.72	22.33	0.274	364.5	1.432	0.192

--- = Value not measured.

¹ Adjusted for volume changes during testing, if applicable.



Thermal Properties Data

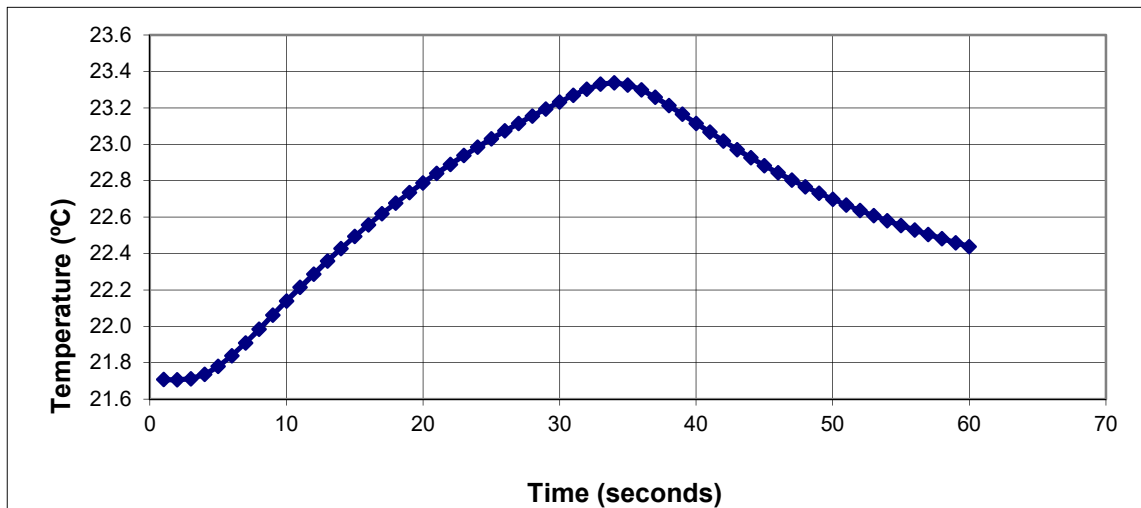
Sample Number: B-22 @ 6'
Potential (-cm water): Initial

Test Date/Time: 1/14/21 9:08 AM	K (W/(m·K)): 0.844
Sensor: SH-1	ρ (°C·cm/W): 118.5
Test Temp.(°C): 21.7	C (MJ/(m ³ ·K)): 1.724
KD2 Pro Sample ID: B-22-AR	D (mm ² /s): 0.489
Power (W/m): 20.490	Err: 0.0079
Current (amps): 0.140	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	21.708	16	22.558	31	23.269	46	22.843
2	21.706	17	22.619	32	23.303	47	22.804
3	21.712	18	22.677	33	23.330	48	22.767
4	21.736	19	22.734	34	23.338	49	22.732
5	21.780	20	22.788	35	23.326	50	22.698
6	21.839	21	22.840	36	23.298	51	22.667
7	21.909	22	22.890	37	23.259	52	22.637
8	21.984	23	22.938	38	23.213	53	22.608
9	22.062	24	22.985	39	23.165	54	22.580
10	22.139	25	23.030	40	23.115	55	22.554
11	22.214	26	23.073	41	23.066	56	22.529
12	22.287	27	23.115	42	23.018	57	22.505
13	22.359	28	23.155	43	22.971	58	22.482
14	22.428	29	23.194	44	22.927	59	22.459
15	22.494	30	23.232	45	22.883	60	22.438

B-22 @ 6', Potential: Initial - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

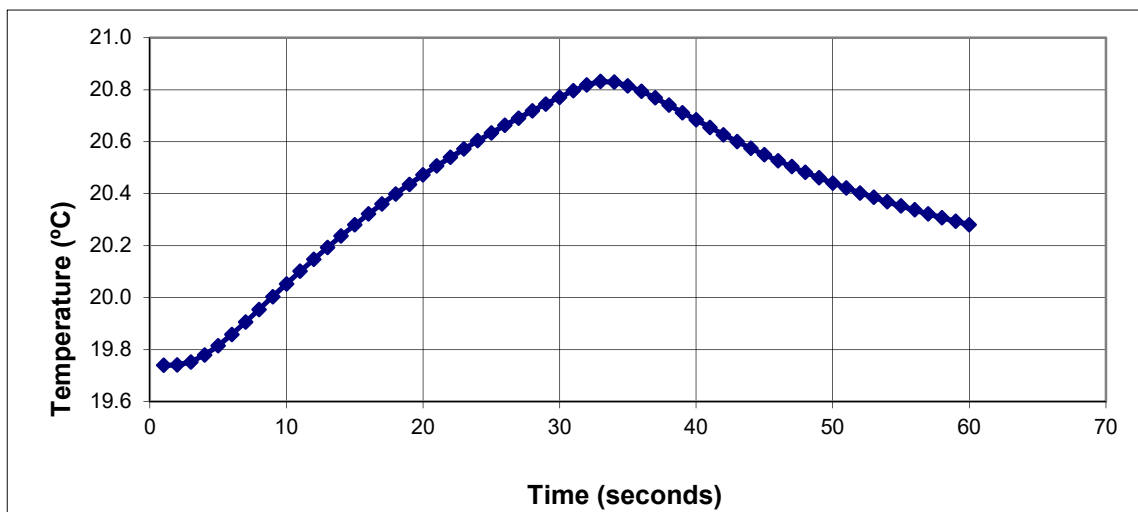
Sample Number: B-22 @ 6'
Potential (-cm water): 0

Test Date/Time: 1/15/21 2:40 PM	K (W/(m·K)): 1.664
Sensor: SH-1	ρ (°C·cm/W): 60.1
Test Temp.(°C): 19.7	C (MJ/(m ³ ·K)): 3.157
KD2 Pro Sample ID: B-22-SA	D (mm ² /s): 0.527
Power (W/m): 24.140	Err: 0.0030
Current (amps): 0.152	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	19.740	16	20.322	31	20.796	46	20.527
2	19.741	17	20.361	32	20.819	47	20.504
3	19.753	18	20.399	33	20.832	48	20.482
4	19.779	19	20.436	34	20.829	49	20.461
5	19.815	20	20.472	35	20.815	50	20.441
6	19.859	21	20.507	36	20.794	51	20.422
7	19.906	22	20.540	37	20.769	52	20.403
8	19.955	23	20.572	38	20.741	53	20.386
9	20.004	24	20.604	39	20.712	54	20.369
10	20.053	25	20.634	40	20.684	55	20.353
11	20.102	26	20.663	41	20.655	56	20.338
12	20.148	27	20.691	42	20.627	57	20.322
13	20.193	28	20.719	43	20.601	58	20.308
14	20.238	29	20.745	44	20.575	59	20.294
15	20.280	30	20.771	45	20.550	60	20.281

B-22 @ 6', Potential: 0 - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

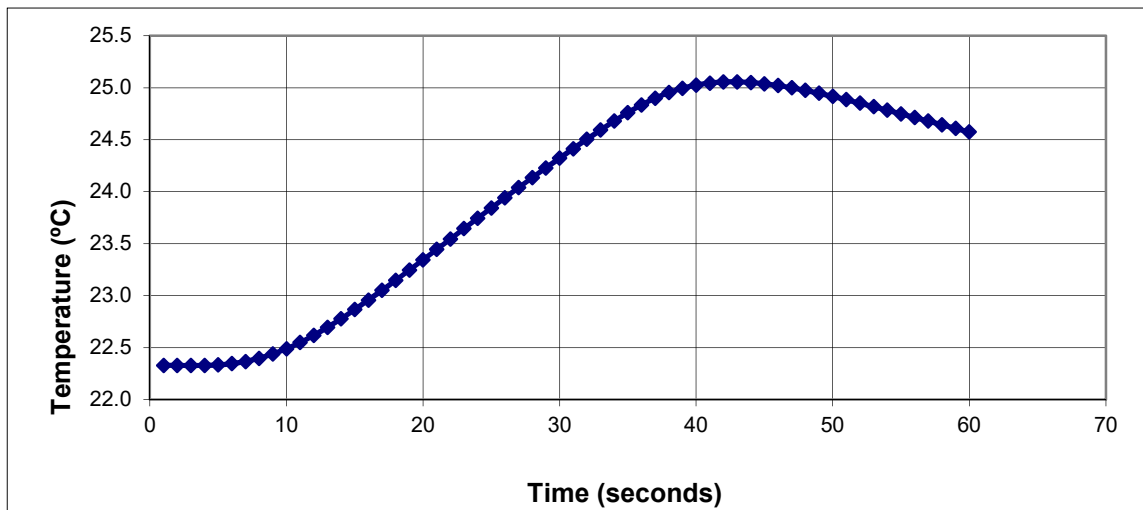
Sample Number: B-22 @ 6'
Potential (-cm water): Oven Dry

Test Date/Time: 1/18/21 3:59 PM	K (W/(m·K)): 0.274
Sensor: SH-1	ρ (°C·cm/W): 364.5
Test Temp.(°C): 22.3	C (MJ/(m ³ ·K)): 1.432
KD2 Pro Sample ID: B-22-OD	D (mm ² /s): 0.192
Power (W/m): 23.720	Err: 0.0021
Current (amps): 0.151	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	22.330	16	22.958	31	24.413	46	25.022
2	22.330	17	23.052	32	24.504	47	25.000
3	22.329	18	23.148	33	24.593	48	24.975
4	22.330	19	23.246	34	24.680	49	24.947
5	22.335	20	23.346	35	24.761	50	24.917
6	22.346	21	23.445	36	24.835	51	24.885
7	22.367	22	23.546	37	24.899	52	24.852
8	22.398	23	23.646	38	24.953	53	24.817
9	22.439	24	23.745	39	24.995	54	24.784
10	22.490	25	23.844	40	25.025	55	24.749
11	22.550	26	23.942	41	25.044	56	24.714
12	22.619	27	24.039	42	25.054	57	24.679
13	22.696	28	24.134	43	25.056	58	24.644
14	22.778	29	24.228	44	25.050	59	24.609
15	22.866	30	24.322	45	25.038	60	24.575

B-22 @ 6', Potential: Oven Dry - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Daniel B. Stephens & Associates, Inc.

Thermal Properties Results Sheet for Sample: B-36 @ 5'

Job Name: BSK Associates
 Job Number: DB21.1033.00
 Sample Number: B-36 @ 5'
 Job #: G2026710F
 Job Name: Azalea

Instrument Description: Decagon KD2 Pro

Probe: ☐ KS-1, 6 cm length, 1.3 mm diameter, single needle
☐ TR-1, 10 cm length, 2.4 mm diameter, single needle
☒ SH-1, 3 cm length, 1.3 mm diameter, dual needle, 6 mm spacing

Test Start Date: 1/26/21

Reading	Water Potential (-cm water)	Gravimetric Moisture Content (g/g, %)	Volumetric Moisture Content ¹ (vol/vol, %)	Dry Bulk Density ¹ (g/cm ³)	Test Temperature (°C)	K Thermal Conductivity W/(m·K)	ρ Thermal Resistivity °C·cm/W	C Specific Heat Capacity MJ/(m ³ ·K)	D Thermal Diffusivity (mm ² /s)
Initial	---	41.42	52.08	1.26	21.72	0.935	107.0	3.774	0.248
Saturated	0	45.42	57.11	1.26	20.07	1.082	92.5	3.987	0.271
Oven Dry	---	0.00	0.00	1.26	22.38	0.364	274.6	1.645	0.221

--- = Value not measured.

¹ Adjusted for volume changes during testing, if applicable.



Thermal Properties Data

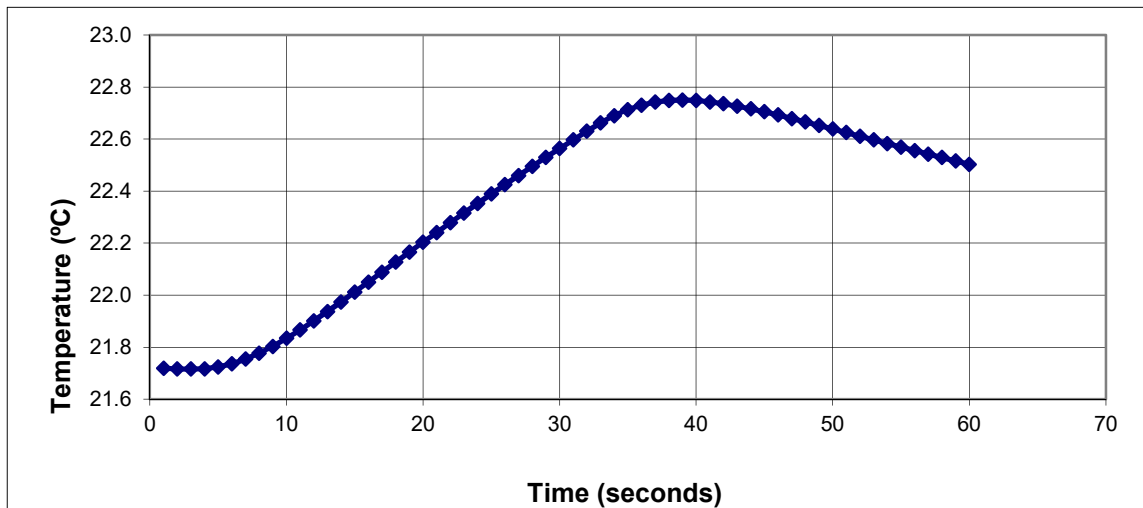
Sample Number: B-36 @ 5'
Potential (-cm water): Initial

Test Date/Time: 1/26/21 7:48 AM	K (W/(m·K)): 0.935
Sensor: SH-1	ρ (°C·cm/W): 107.0
Test Temp.(°C): 21.7	C (MJ/(m ³ ·K)): 3.774
KD2 Pro Sample ID: B-36A-AR	D (mm ² /s): 0.248
Power (W/m): 23.070	Err: 0.0014
Current (amps): 0.149	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	21.719	16	22.050	31	22.597	46	22.693
2	21.716	17	22.088	32	22.630	47	22.679
3	21.716	18	22.127	33	22.662	48	22.666
4	21.717	19	22.165	34	22.690	49	22.653
5	21.724	20	22.204	35	22.713	50	22.639
6	21.736	21	22.241	36	22.730	51	22.625
7	21.754	22	22.279	37	22.742	52	22.611
8	21.777	23	22.316	38	22.748	53	22.597
9	21.803	24	22.353	39	22.750	54	22.583
10	21.834	25	22.389	40	22.748	55	22.569
11	21.866	26	22.425	41	22.743	56	22.555
12	21.901	27	22.460	42	22.736	57	22.542
13	21.937	28	22.495	43	22.726	58	22.529
14	21.974	29	22.530	44	22.716	59	22.516
15	22.012	30	22.564	45	22.705	60	22.503

B-36 @ 5', Potential: Initial - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

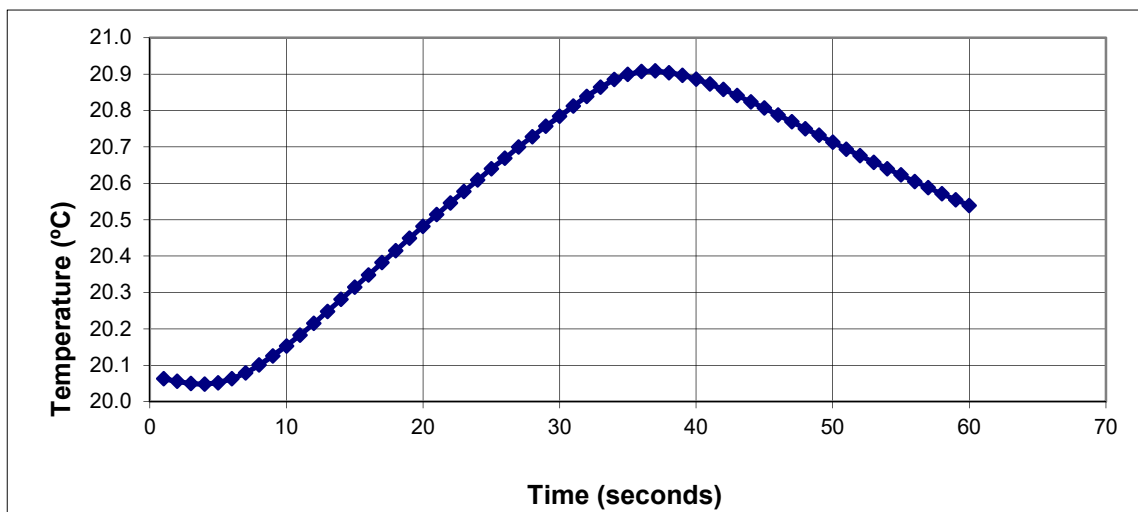
Sample Number: B-36 @ 5'
Potential (-cm water): 0

Test Date/Time: 1/15/21 2:51 PM	K (W/(m·K)): 1.082
Sensor: SH-1	ρ (°C·cm/W): 92.5
Test Temp.(°C): 20.1	C (MJ/(m ³ ·K)): 3.987
KD2 Pro Sample ID: B-36-SA	D (mm ² /s): 0.271
Power (W/m): 23.980	Err: 0.0026
Current (amps): 0.152	

Raw Data

Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)		Second Temp.(°C)	
1	20.063	16	20.348	31	20.812	46	20.788
2	20.056	17	20.382	32	20.839	47	20.769
3	20.050	18	20.415	33	20.864	48	20.750
4	20.048	19	20.449	34	20.885	49	20.732
5	20.052	20	20.482	35	20.899	50	20.713
6	20.063	21	20.514	36	20.907	51	20.694
7	20.079	22	20.546	37	20.909	52	20.676
8	20.101	23	20.578	38	20.904	53	20.658
9	20.126	24	20.609	39	20.897	54	20.640
10	20.153	25	20.640	40	20.886	55	20.623
11	20.183	26	20.669	41	20.873	56	20.605
12	20.215	27	20.700	42	20.858	57	20.588
13	20.248	28	20.728	43	20.841	58	20.571
14	20.281	29	20.757	44	20.824	59	20.555
15	20.315	30	20.784	45	20.807	60	20.539

B-36 @ 5', Potential: 0 - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines



Thermal Properties Data

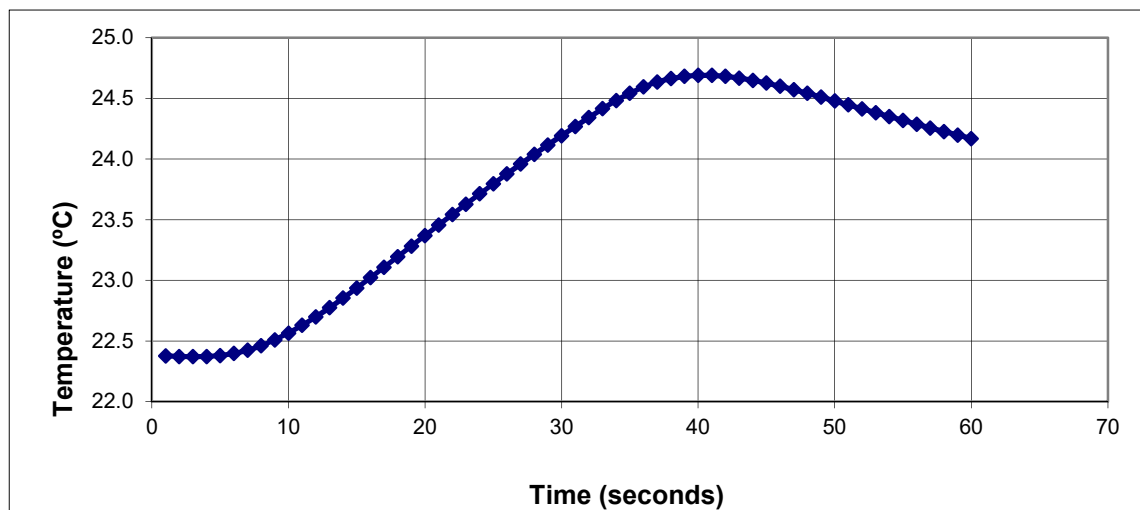
Sample Number: B-36 @ 5'
Potential (-cm water): Oven Dry

Test Date/Time: 1/18/21 4:23 PM	K (W/(m·K)): 0.364
Sensor: SH-1	ρ (°C·cm/W): 274.6
Test Temp.(°C): 22.4	C (MJ/(m ³ ·K)): 1.645
KD2 Pro Sample ID: B-36-OD	D (mm ² /s): 0.221
Power (W/m): 23.380	Err: 0.0015
Current (amps): 0.150	

Raw Data

Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)	Second Temp.(°C)
1 22.377	16 23.022	31 24.268	46 24.600
2 22.373	17 23.108	32 24.343	47 24.572
3 22.371	18 23.195	33 24.415	48 24.542
4 22.372	19 23.282	34 24.483	49 24.511
5 22.380	20 23.370	35 24.543	50 24.479
6 22.397	21 23.457	36 24.594	51 24.447
7 22.424	22 23.543	37 24.635	52 24.414
8 22.461	23 23.628	38 24.663	53 24.382
9 22.509	24 23.713	39 24.681	54 24.350
10 22.565	25 23.796	40 24.689	55 24.318
11 22.629	26 23.879	41 24.689	56 24.287
12 22.700	27 23.959	42 24.681	57 24.256
13 22.774	28 24.038	43 24.667	58 24.226
14 22.854	29 24.116	44 24.649	59 24.197
15 22.937	30 24.192	45 24.626	60 24.168

B-36 @ 5', Potential: Oven Dry - Temperature vs. Time Graph



Laboratory analysis by: D. O'Dowd
Data entered by: J. Hines
Checked by: J. Hines

Laboratory Tests and Methods



Daniel B. Stephens & Associates, Inc.

Tests and Methods

Thermal Properties:

ASTM D5334

Appendix H-2

Paleontological Inventory Report

Paleontological Inventory Report

for

SF Azalea, LLC

Lost Hills, California 93249

1



Prepared By:

Surf to Snow Environmental Resource Management, Inc. (S2S)
2246 Camino Ramon
San Ramon, CA 94583
Brian Frantz, Chief Operating Officer
Phone: 925-718-6275/ Email: brian.frantz@s2serm.com

Bob Masuoka, S2S Principal Regulatory Specialist
Phone: 415-317-7620/ Email: bob.masuoka@S2serm.com

Date: July 2021

Submitted to:

Sam Holing
50 California Street, Suite 820
San Francisco, CA 94111
sam.holing.0170@idemitsurenrenewables.com

TABLE OF CONTENTS

1 – SUMMARY OF FINDINGS	3
2 – INTRODUCTION.....	4
2.0 Project Description	4
2.1 Paleontological Study Area	4
2.0 Kern County Paleontological Guidelines.....	13
3 – METHODS	13
3.0 Personnel	13
3.1 Literature and Database Review	13
3.2 Paleontological Reconnaissance Survey	13
3.3 Criteria for Evaluating Paleontological Potential.....	14
4 – RESULTS.....	15
4.0 Geological Background	15
4.1 Geologic Map and Literature Review	18
4.2 Paleontological Museum Record Search Results.....	27
4.3 Field Survey	27
5 – IMPACT DETERMINATIONS.....	28
6 – MITIGATION AND AVOIDANCE, AND MINIMIZATION OF IMPACTS TO PALEONTOLOGICAL RESOURCES.....	30
6.0 Mitigation Measures	30
7 – REFERENCES.....	31

LIST OF FIGURES

Figure 1: Project Vicinity Map.....	5
Figure 2: Project Site Map.....	6
Figure 3: Project Geology Map	19

LIST OF TABLES

Table 1: Azalea Solar Project Summary	9
Table 2: Summary of Paleontological Fossil Yield Classification	14
Table 3: Paleontological Literature and Record Search Results	20

LIST OF ATTACHMENTS

Attachment A: Representative Photographs
Attachment B: Natural History Museum of Los Angeles County Record Search Results
Attachment C: Newly Documented Fossil Localities – CONFIDENTIAL
Attachment D: CEQA Checklist

List of Abbreviations and Acronyms

APN	Assessor's Parcel Number
BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
EIR	Project's Environmental Impact Report
GIS	Geographic Information System
GPS	Global Positioning System
HREC	Historical Recognized Environmental Condition
KCPNRD	Kern County Planning and Natural Resources Department
LACM	Natural History Museum of Los Angeles County
MW	Megawatt
PFYC	Potential Fossil Yield Classification
PG&E	Pacific, Gas, & Electric Company
PIR	Paleontological Inventory Report
S2S	Surf to Snow Environmental Resource Management
UCMP	University of California Museum of Paleontology

1 – SUMMARY OF FINDINGS

This Paleontological Inventory Report (PIR) presents the results of the paleontological technical study conducted by Paleo Solutions, Inc. (Paleo Solutions) in support of the Azalea Solar Energy Project (Project) located in Kern County, California (see Figures 1 and 2). Paleo Solutions was contracted by S2S Environmental Resource Management (S2S) to conduct an analysis of existing paleontological data and a field survey and to provide recommendations for mitigation based on the geological and paleontological data. This work was required by the Kern County Planning and Natural Resources Department (KCPNRD) to meet their requirements as the lead agency under the California Environmental Quality Act (CEQA). The PIR was prepared in compliance with state and local regulations and best practices in mitigation paleontology (Murphey et al., 2019).

The Project involves construction of a 70-Megawatt (MW) utility-scale solar farm on approximately 640 acres, across two privately owned parcels. The Project area also includes two additional parcels designated for the proposed Gen-Tie lines. In addition to construction of the solar farm and Gen-Tie line, the Project will involve expansion of the Pacific Gas and Electric Company (PG&E) Arco Substation. There are two proposed access roads, both of which would begin at Kings Road, at the Kern County/Kings County boundary line, and trend west to the northeastern corner of the northernmost parcel. The Project area is located in an unincorporated area of northwestern Kern County approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road.

The Project area was evaluated based on an analysis of existing paleontological data, which included a geologic map review, a literature search, an institutional record search conducted for this Project, a review of institutional record searches conducted for a nearby oilfield project, and a review of online paleontological databases. The analysis of existing data was supplemented with a pedestrian field survey. Using the analysis of existing data and the results of the survey, each geologic unit was evaluated on its potential for producing significant paleontological resources. Paleontological sensitivity assignments were developed following the Potential Fossil Yield Classification (PFYC) system (Bureau of Land Management [BLM], 2016; see Section 3.3) and best practices in mitigation paleontology (Murphey et al., 2019).

Geologic mapping by T.W. Dibblee and J.A. Minch (2006) and the results of the field survey indicate that the Project area is underlain by low paleontological potential (PFYC 2) previously disturbed sediments and Holocene-age young alluvium (Qa); moderate potential (PFYC 3) Pleistocene-age older alluvium (Qoa); and high potential (PFYC 4) late Pliocene-age San Joaquin Formation (Tsj) and Pliocene-age Etchegoin Formation (Te) (see Figure 3). Also mapped within the Project vicinity, within the half-mile buffer, is high potential (PFYC 4) Pleistocene- to late Pliocene-age Tulare Formation (QTt) (Dibblee and Minch, 2006; see Figure 3). This unit may be impacted at depth beneath younger units within the Project area and is, therefore, included in the analysis. According to the record searches, there are no previously recorded fossil localities within the Project area. However, there are several fossil localities recorded within the Project vicinity and other areas of California from sediments similar to those mapped within the Project area. The field survey resulted in the discovery of two new non-significant fossil localities, including invertebrate shells, molds, and casts, that were documented from late Pliocene-age San Joaquin Formation (Tsj) and Pliocene-age Etchegoin Formation (Te) sediments.

Based on the ground disturbance necessary to complete the Project, there is potential for adverse direct impacts to scientifically significant paleontological resources within Pleistocene-age older alluvium (Qoa), Pleistocene- to late Pliocene-age Tulare Formation (QTt), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te) within the Project area. Implementation of Mitigation

Measure MM PAL-01 (see Section 6) would reduce impacts to paleontological resources to a less-than significant level.

2 – INTRODUCTION

This PIR presents the results of the paleontological technical study conducted by Paleo Solutions in support of the Azalea Solar Project (Figures 1 and 2). Paleo Solutions was contracted by S2S to conduct an analysis of existing paleontological data and field survey and to provide recommendations for mitigation based on the geological and paleontological data. This work was required by the County to meet their requirements as the lead agency under CEQA. The PIR was prepared in compliance with state and local regulations and best practices in mitigation paleontology (Murphey et al., 2019). The results of the paleontological technical study will be incorporated into the Project's Environmental Impact Report (EIR). A Project summary is provided in Table 1.

2.0 PROJECT DESCRIPTION

The Project involves construction of a 70-MW utility-scale solar farm, which will include solar panels, security fencing, energy storage battery systems, and associated Gen-Tie lines. In addition to construction of the solar farm and Gen-Tie line, the Project will involve expansion of the PG&E Arco Substation.

2.1 PALEONTOLOGICAL STUDY AREA

The Project area is mapped on the Antelope Plain (2018) United States Geological Survey (USGS) 7.5-minute topographic quadrangle in Sections 2, 3, 10, 11, and 12, Township 25 South, Range 19 East, in Kern County, California. The Project area is located in an unincorporated area of northwestern Kern County. Specifically, the Project area is approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, and directly south of the Kern County/Kings County boundary line. The Project area is situated on agricultural lands, and the surrounding area is largely dominated by agricultural uses and undeveloped lands.

The Project area encompasses approximately 640 acres, across two privately owned parcels: 043-210-17 and 043-210-18, which are collectively referred to as the Project Site parcel. The Project area also includes two additional parcels designated for the proposed Gen-Tie lines, the larger of which is also referred to as the Solar Facility parcel. The Solar Facility parcel (larger Gen-Tie parcel) encompasses approximately 615 acres, and the smaller Gen-Tie parcel encompasses approximately 21 acres. Located adjacent to the central-southern portion of the Solar Facility parcel is an approximately 24-acre parcel of PG&E property that surrounds the existing Arco Substation, which encompasses approximately 4.75 acres. There are two proposed access roads, both of which would begin at Kings Road, at the Kern County/Kings County boundary line, and trend approximately 0.8 miles west to the northeastern corner of the Solar Facility parcel. The shorter road (Access Road Option 1) would measure approximately 2.1 miles and trend approximately 0.5 miles south along the eastern edge of the Solar Facility parcel, trend approximately 0.3 miles east, and trend approximately 0.5 miles south to where it terminates at the northern edge of the Project Site parcel (parcel number 043-210-17). The longer road (Access Road Option 2) would measure approximately 3.3 miles and continue to trend west, approximately 0.7 miles, along the northern edge of the Solar Facility parcel, trend approximately 1.0 miles south through the Solar Facility parcel and along the western edge of the 24-acre parcel of PG&E property, and trend approximately 0.7 miles east to where it terminates at the southeast edge of the Solar Facility parcel and northwestern corner of the Project Site parcel (parcel number 043-210-17).

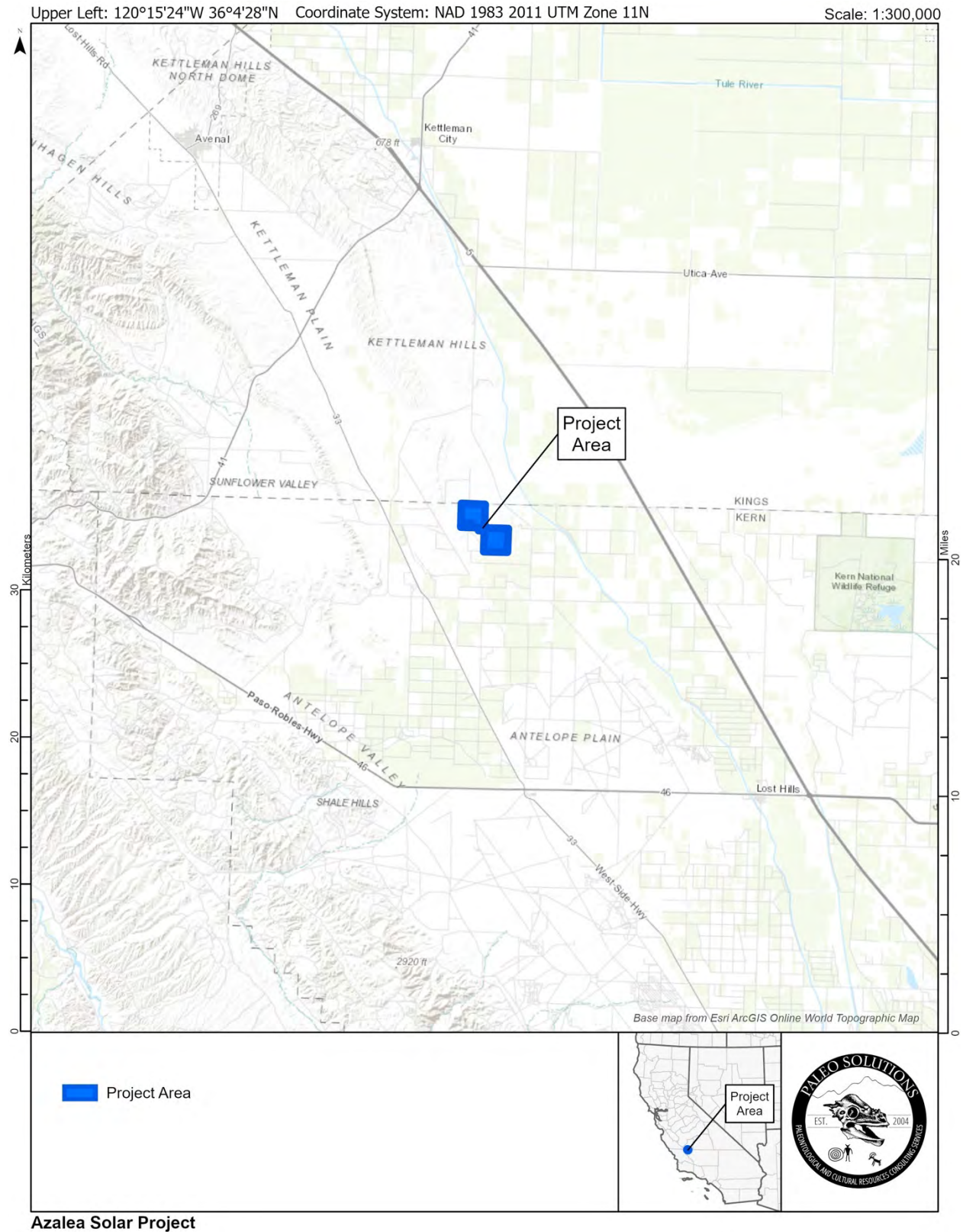


Figure 1: Project Vicinity Map

This Page Intentionally Left Blank

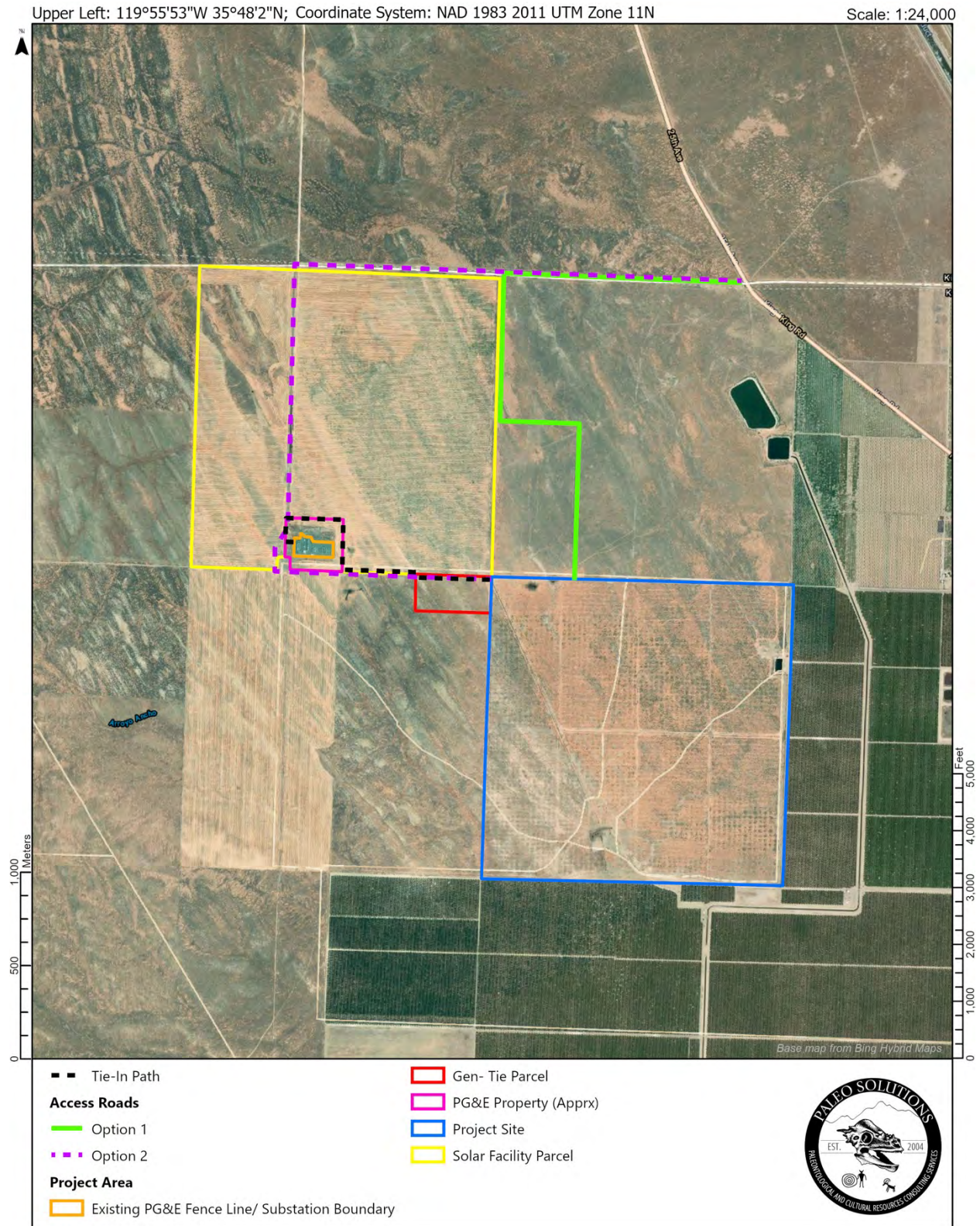


Figure 2: Project Site Map

This Page Intentionally Left Blank

Table 1: Azalea Solar Project Summary

Project Name	Azalea Solar Project			
Project Description	The Project involves construction of a 70-MW utility-scale solar farm that will include solar panels, security fencing, and energy storage battery systems. The Project also involves construction of Gen-Tie lines as well as expansion of the existing PG&E Arco Substation. Further, there are two proposed access roads, both of which would begin at Kings Road, at the Kern County/Kings County boundary line, and trend west to the northeastern corner of the northernmost parcel.			
Project Area	The Project area encompasses two privately owned parcels: 043-210-17 and 043-210-18. The Project area also includes two additional parcels designated for the proposed Gen-Tie lines, the larger of which is also referred to as the Solar Facility parcel. The Project area is approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, and directly south of the Kern County/Kings County boundary line. The Project area is situated on agricultural lands, and the surrounding area is largely dominated by agricultural uses and undeveloped lands.			
Total Acreage/Linear Mileage	043-210-17 and 043-210-18 parcels – 640 acres Solar Facility parcel (larger Gen-Tie parcel) – 618 acres Gen-Tie parcel (smaller) – 20 acres PG&E property parcel – 21 acres Arco Substation – 4.8 acres Access Road Option 1 – 2.1 linear miles Access Road Option 2 – 3.3 linear miles			
Location (PLSS)	Quarter-Quarter	Section	Township	Range
	SWSW, NWSW, SESE, NWSW, SESW, L1, L2	Sec. 02	T25S	R19E
	SESE, SWSE, SESW, SWSW, NESE, NWSE, NESW, NWSW, L1, L2	Sec. 03		
	NENE, NWNE, NENW, NWNW, SESE, NESE, SENE	Sec. 10		
	NWNW, SWSW, SESW, SWSE, SESE, NWSW, NESW, NWSE, NESE, SENE, SWNE, SENW, SWNW, NENE, NWNE	Sec. 11		
	SWSW, NWSW, SWNW	Sec. 12		
Landowner/Surface Management Agency	Undetermined			
Topographic Map(s)	USGS Rio Bravo (1973) 7.5’ Topographic Quadrangle			
Geologic Map(s)	Geologic Map of California: Bakersfield Sheet (Smith, 1964)			
Mapped Geologic Formation(s) and Age(s)	Geologic Formation and Map Symbol	Age	Paleontological Potential (PFYC)	
	Young alluvium (Qa)	Holocene	2 (Low)	

Project Name	Azalea Solar Project		
	Older alluvium (Qoa)	Pleistocene	3 (Moderate)
	Tulare Formation (QTt)	Pleistocene to late Pliocene	4 (High)
	San Joaquin Formation (Tsj)	late Pliocene	4 (High)
	Etchegoin Formation (Te)	Pliocene	4 (High)
Surveyor(s)	Daniel Nolan, B.S., and Anthony Papaccio, B.S.		
Survey Date(s)	Surveying took place on September 17 and 18, 2020.		
Geologic Units Surveyed	Pleistocene-age older alluvium (Qoa), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te)		
Permits	No paleontological permits were required for the work conducted.		
Previously Documented Fossil Localities within the Project area	A record search was requested from the Natural History Museum of Los Angeles County (LACM). The LACM record search yielded no fossil localities recorded within the Project area (Attachment B).		
Paleontological Results	No significant paleontological resources were observed during the survey, although several non-significant invertebrate fossils were documented from late Pliocene-age San Joaquin Formation (Tsj) and Pliocene-age Etchegoin Formation (Te) sediments. Additionally, sediments that were determined to be conducive to fossilization were observed in areas mapped as Pleistocene-age older alluvium (Qoa).		
Disposition of Fossils	Not applicable; no fossils were collected during the survey.		
Recommendation(s)	It is recommended that excavations in areas mapped as Pleistocene-age older alluvium (Qoa), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te) be monitored on a full-time basis. Additionally, it is recommended that areas mapped as Holocene-age young alluvium (Qa) be initially spot-checked during excavations to check for underlying, paleontologically sensitive Pleistocene-age older alluvium (Qoa), Pleistocene- to late Pliocene-age Tulare Formation (QTt), late Pliocene-age San Joaquin Formation (Tsj), and/or Pliocene-age Etchegoin Formation (Te). If it is determined that only Holocene-age young alluvium (Qa) or previously disturbed sediments are impacted, or if sediments are determined to be non-conductive to fossil preservation, the monitoring program should be reduced or suspended. If Pleistocene-age older alluvium (Qoa), Pleistocene- to late Pliocene-age Tulare Formation (QTt), late Pliocene-age San Joaquin Formation (Tsj), and/or Pliocene-age Etchegoin Formation (Te) are observed during spot-checking, then full-time monitoring should be implemented in those areas. Prior to the start of construction, a paleontological resources Workers Environmental Awareness Program (WEAP) training should be presented to all earthmoving personnel to inform them of the possibility for buried resources and the procedures to follow in the event of fossil discoveries. Any subsurface bones or potential fossils that are unearthed during construction should be evaluated by a Qualified Paleontologist. Any fossils determined to be significant or potentially significant should be recovered, prepared, identified, analyzed,		

Project Name	Azalea Solar Project
	and curated at the LACM, or another accredited fossil repository, along with copies of all associated field data. At the completion of ground disturbing activities, a report documenting the methods and results of paleontological monitoring should be prepared.

This Page Intentionally Left Blank

Geologic mapping by T.W. Dibblee and J.A. Minch (2006) indicates that the Project area is underlain by Holocene-age young alluvium (Qa), Pleistocene-age older alluvium (Qoa), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te) (Figure 3). Also mapped within the Project vicinity, within the half-mile buffer, is Pleistocene- to late Pliocene-age Tulare Formation (QTt) (Dibblee and Minch, 2006; Figure 3). This unit may be impacted at depth beneath younger units within the Project area and is, therefore, included in the analysis.

2.0 KERN COUNTY PALEONTOLOGICAL GUIDELINES

Paleontological resources are briefly mentioned in the Land Use, Open Space and Conservation element of the Kern County General Plan (Kern County, 2009) in Section 1.10.3, "Archaeological, Paleontological, Cultural, and Historical Preservation". Policy 25 states that 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 M is the only measure which directly or indirectly addresses paleontological resources, and it states that in areas of known paleontological resources, the County should address the preservation of these resources where feasible.

3 – METHODS

3.0 PERSONNEL

Joey Raum, B.S., completed the background research and authored this report. Courtney Richards, M.S., performed the technical review of this report and oversaw all aspects of the Project as the Project Manager and Paleontological Principal Investigator. Geographic Information System (GIS) maps were prepared by Elisa Barrios, B.S.

Copies of this report will be submitted to S2S, the County, and SF Azalea, LLC. Paleo Solutions will retain an archival copy of all project information including maps and other data.

3.1 LITERATURE AND DATABASE REVIEW

The paleontological analysis of existing data included a geologic map review, a literature search, and a review of Natural History Museum of Los Angeles County (LACM) record searches. Paleo Solutions reviewed geologic mapping of the Project area and 0.5-mile buffer by T.W. Dibblee and J.A. Minch (2006). The literature reviewed included published and unpublished scientific papers. A paleontological museum record search was conducted at the LACM. Alyssa Bell, Ph.D., conducted the LACM search (October 23, 2020). The results of the museum record search are provided as Attachment B. Additionally, two record searches that were completed for the nearby Aera Energy Lost Hills (320 acres) Project (see Paleo Solutions, 2017) were also reviewed. These record searches were conducted at the LACM and the University of California Museum of Paleontology (UCMP) and were performed by Samuel McLeod, Ph.D., and Kenneth Finger, Ph.D., respectively (see Paleo Solutions, 2017). Further, additional searches of online databases were completed by Paleo Solutions staff.

3.2 PALEONTOLOGICAL RECONNAISSANCE SURVEY

The field survey was conducted by Paleo Solutions staff members Daniel Nolan, B.S., and Anthony Papaccio, B.S., on September 17 and 18, 2020. The paleontological survey was performed to search for fossil resources exposed at the Project area surface and to determine the paleontological potential of the geologic deposits underlying the Project area. The survey was conducted after a review of aerial photographs indicated the Project site included areas of undisturbed native sediments. The pedestrian survey included inspection of the Project area with the majority of the focus occurring in areas with native sediment exposures. Sediment exposures as well as the surrounding areas were photographed

and documented. Reference points were acquired using a Trimble Global Positioning System (GPS) unit. Sediment lithologies were recorded and analyzed and used to better interpret the Project's paleontological potential, and thus better understand the Project's potential impact.

3.3 CRITERIA FOR EVALUATING PALEONTOLOGICAL POTENTIAL

Paleontological sensitivity assignments were determined using the PFYC system (BLM, 2016). Because of its demonstrated usefulness as a resource management tool, the PFYC has been utilized for many years for projects across the country, regardless of land ownership. It is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential). This system is intended to aid in predicting, assessing, and mitigating paleontological resources. The PFYC system is summarized in Table 2.

Table 2: Summary of Paleontological Fossil Yield Classification

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary
1 = Very Low Potential	Geologic units are not likely to contain recognizable paleontological resources.
	Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
	Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low Potential	Geologic units are not likely to contain paleontological resources.
	Field surveys have verified that significant paleontological resources are not present or are very rare.
	Units are generally younger than 10,000 years before present.
	Recent aeolian deposits.
	Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely.
3 = Moderate Potential	Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.
	Marine in origin with sporadic known occurrences of paleontological resources.
	Paleontological resources may occur intermittently, but these occurrences are widely scattered.
	The potential for authorized land use to impact a significant paleontological resource is known to be low-to-moderate.
	Management concerns are moderate. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Opportunities may exist for hobby collecting. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources.
4 = High Potential	Geologic units that are known to contain a high occurrence of paleontological resources.
	Significant paleontological resources have been documented but may vary in occurrence and predictability.
	Surface-disturbing activities may adversely affect paleontological resources.
	Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
	Illegal collecting activities may impact some areas.

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.
5 = Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
	Significant paleontological resources have been documented and occur consistently
	Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
	Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U = Unknown Potential	Geologic units that cannot receive an informed PFYC assignment
	Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is unknown.
	Geologic units represented on a map are based on lithologic character or basis of origin but have not been studied in detail.
	Scientific literature does not exist or does not reveal the nature of paleontological resources.
	Reports of paleontological resources are anecdotal or have not been verified.
	Area or geologic unit is poorly or under-studied.
	BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

4 – RESULTS

4.0 GEOLOGICAL BACKGROUND

The Project area is located within the Great Valley Geomorphic Province. A geomorphic province is a geographical area of distinct landscape character, with related geophysical features, including relief, landforms, orientations of valleys and mountains, type of vegetation, and other geomorphic attributes (Harden, 2004). The Great Valley is an elongated and asymmetrical synclinal trough, with an axis off center to the west (Norris and Webb, 1990). The Great Valley extends approximately 800 kilometers from Red Bluff in northern California to Bakersfield in southern California, and it is divided into two sections: the Sacramento Valley, which comprises the northern third portion, and the San Joaquin Valley, which comprises the southern two-thirds portions (Harden, 2004; Norris and Webb, 1990). The Project area is situated in the San Joaquin Valley. The Great Valley separates the Sierra Nevada and the Coast Ranges, located to the east and west, respectively; it is bounded on the south by the Transverse Ranges; and it is drained by both the Sacramento and San Joaquin rivers (Norris and Webb, 1990; Prothero, 2017).

The Great Valley terrain is mostly flat and monotonous, and elevation variances are minimal with an average surface elevation of 10 meters above sea level in Sacramento and 120 meters above sea level in Bakersfield (Norris and Webb, 1990). There are several interludes in the synclinal structure, and these include thrust faults, folds, and an isolated volcanic center (Harden, 2004; Norris and Webb, 1990). Throughout the entire Great Valley, there are two distinct topographic breaks, including the Sutter Buttes located near Marysville in the Sacramento Valley and the Kettleman Hills located in and south of Coalinga along the western margin of the San Joaquin Valley (Harden, 2004; Norris and Webb, 1990). The Sutter Buttes, formed by the only volcano in the Great Valley, have a radial structure covering nearly 25 square kilometers (Harden, 2004). They comprise rhyolitic and andesitic domes surrounded by uplifted and weathered sedimentary rock units as well as pyroclastic flow deposits, and peak elevations of the central dome structures are approximately 700 meters above the valley floor (Harden, 2004). The Kettleman Hills are an elongated dome that is the surface expression of relatively young anticlinal structures, which are the largest of a series of folds in the San Joaquin Valley region (Norris and Webb, 1990). The hills are approximately 8 kilometers wide and span 48 kilometers from Coalinga, where peak elevations are approximately 450 meters above the valley floor, to Avenal, where the hills finally descend into the valley floor (Norris and Webb, 1990).

Despite its generally monotonous surface relief, the Great Valley has a complex history. Beginning in the Late Jurassic, the valley started as an Andean-style forearc-basin, initiated by the migration of the ancient Sierran arc subduction zone from along the Sierra Nevada (formerly Sierran arc) western foothills westward towards the present day California coast (Harden, 2004; Prothero, 2017). As a result of this migration, the basin that developed between the Sierra Nevada and the subduction zone has a floor composed of a large section of Jurassic-age (approximately 145 million to 201.3 million years old) ophiolite, which comprises remnants of oceanic crust and upper mantle (Prothero, 2017). As the basin sank, it filled with eroded sediments and volcanic mixtures derived from the east and northeast by the uplifting and erupting Sierran arc, and this continued for approximately 140 million years, yielding a 12,000 meter thick sequence of Late Jurassic- to Cretaceous-age (approximately 65 million to 201.3 million years old) deep marine deposits and igneous mixtures known as the Great Valley Group (Harden, 2004; Norris and Webb, 1990; Prothero, 2017). Restricted by topographical constraints of the ancient continental shelf that protruded from the Sierran arc margin, deposition along the eastern portion of the basin was relatively lesser and occurred in shallow marine and deltaic environments, while deposition along the western portion was greater and occurred in deeper marine and trench environments, as indicated by sedimentary characteristics and marine fossils (Harden, 2004; Prothero, 2017). Sedimentation continued throughout the Cenozoic, accumulating sediments as thick as 6,000 meters in the San Joaquin Valley and lesser amounts in the Sacramento Valley (Norris and Webb, 1990; Prothero, 2017). During this time, deformation increased due to crustal extension, compressional forces associated with the uplift of the Coast and Transverse ranges, and accelerated strike-slip movement along the San Andreas Fault (Norris and Webb, 1990). Furthermore, deep marine deposits became less regional and more localized, possibly reflecting the presence of deep and narrow seaways that formed as a result of extensional block-faulting (Norris and Webb, 1990). While deposition was generally continuous in the central portions of the Great Valley, deposition along the eastern and western margins was separated by several erosional events that were likely induced by tectonic episodes associated with uplift of the Coast Ranges and Sierra Nevada, respectively (Norris and Webb, 1990). During the Miocene, very thick accumulations of marine sediments developed in the San Joaquin Valley, which generally received more sedimentation and less deformation than the Sacramento Valley (Norris and Webb, 1990; Prothero, 2017). This decrease in sedimentation in the north is attributed to an earlier transition from marine to terrestrial environments, which for the Sacramento Valley began during the early Miocene (Harden, 2004). As the Coast Ranges uplifted to the west, the Great Valley became barred from the

Pacific Ocean, and by the Pliocene, marine waters in the San Joaquin Valley had been entirely replaced by brackish and freshwater lakes, which subsequently dried up between the Pleistocene to present day (Norris and Webb, 1990). Volcanic activity that formed the Sutter Buttes occurred relatively briefly during the Pleistocene, from approximately 1.6 to 1.3 million years ago, and it was also during the Pleistocene that the deformation that resulted in the anticlinal folding and production of the Kettleman Hills occurred (Harden, 2004; Norris and Webb, 1990).

The sediments and sedimentary rock units that comprise the Great Valley Geomorphic Province are relatively undeformed compared to the surrounding highly deformed rock units that are exposed along the margins of the Sierra Nevada and Coast Ranges (Norris and Webb, 1990). As is typical of Andean-style forearc basins, the Great Valley has a lens-shaped lateral cross-section, with the deepest sediments lying below the western-off-centered-axis and thinner, more discontinuous, and more steeply tilted units positioned towards the eastern and western margins (Norris and Webb, 1990; Prothero, 2017). Sediments below the basin axis are as thick as 20,000 meters (~20 kilometers), and sediments are also thicker along the valley's western end compared to the eastern end (Harden, 2004). Furthermore, while both the eastern and western margins have rock units dipping towards the basin axis, the rocks along the western margin are more steeply overturned, while the rocks along the eastern margin are relatively more gently tilted (Harden, 2004). Consequently, the western margin of the Great Valley, along the Coast Range, yields the most prominent surface exposures of the rock units underlying the valley (Prothero, 2017). Below the valley floor, at the base of the trough, lies Jurassic-age ophiolite, which is overlain by an extremely thick sequence of Cretaceous-age deep marine shale, turbidite deposited sandstone, and mixtures of Sierran arc volcanoclastics, volcanic flows, and intrusive rocks (Norris and Webb, 1990; Prothero, 2017). In surface areas where slivers of ophiolite and other deep marine slope and trench deposits are juxtaposed against shallow marine deposits, the causation is understood to be due to long term strike-slip movement along the San Andreas Fault (Norris and Webb, 1990). Paleocene-age rocks are scant and thin in the Cenozoic sequence and comprise deep marine shale, turbidite deposited sandstone, and nearshore deposited submarine fans (Prothero, 2017). Conversely, the Eocene section is thick and complex, represented by deep marine shale and turbidite deposited sandstone as well as nearshore deposited submarine fans and deltas (Prothero, 2017). Similar to the Paleocene section, the Oligocene section is scant and has only a few units, which are thin and discontinuous and consist of nearshore deposits that extend outward into the basin from the Great Valley's southern margin (Prothero, 2017). Sediments of Miocene-age (approximately 5.33 million to 23.0 million years old) are thick and complex and are mostly represented by deep marine shale and interbedded sandstone, although along the valley's southern edge there are also shallow marine and nonmarine deposits that extend outward into the basin (Prothero, 2017). Sediments of Pliocene-age (approximately 2.58 million to 5.33 million years old) consist of marine shale and sandstone as well as shallow marine and nonmarine deposits. Quaternary-age (approximately 0 to 2.58 million years old) sediments comprise a relatively thin veneer that covers the valley surface and consist of unconsolidated nonmarine lacustrine and alluvial deposits (Prothero, 2017).

The Project area is situated on the southern end of the Kettleman Hills, specifically along the southwestern flank of the South Dome. The Kettleman Hills are an elongated approximately 30-mile-long by 5-mile-wide, slightly sinuous anticline that trends southeast from near Coalinga. The Kettleman Hills are separated from the Coastal Ranges to the west by the two- to three-mile-wide grassy Kettleman Plain and to the east by the San Joaquin Valley, which stretches for 60 miles to the Sierra Nevada (Woodring et al., 1940). During the late Cretaceous through the close of the Tertiary the San Joaquin basin was an inland sea; the final marine regression of the basin began in the late Miocene and continued through the Pliocene as propagation and aggradation of coarse clastic sediments outpaced

subsidence (Lettis, 1982). The final regression of the shoreline occurred near the end of the Pliocene and is recorded by the change from marine to brackish and freshwater sediments (Bartow, 1987).

The Kettleman Hills sediments comprise 6,000 feet to over 8,000 feet thick sections of Pliocene-age marine and early Pleistocene-age non-marine rocks (Stewart, 1946; Woodring et al., 1940). The deposits were predominantly derived from sedimentation associated with the uplift of the Diablo Mountain Range to the north and the Temblor Mountain Range to the west and south (1940). The youngest exposed unit is the non-marine Tulare Formation, which is not mapped in the Project area but may be present at depth.

4.1 GEOLOGIC MAP AND LITERATURE REVIEW

Geologic mapping by T.W. Dibblee and J.A. Minch (2006) indicates that the Project area is underlain by Holocene-age young alluvium (Qa), Pleistocene-age older alluvium (Qoa), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te). Also mapped within the Project vicinity, within the 0.5-mile buffer, is Pleistocene- to late Pliocene-age Tulare Formation (QTt). This unit may be impacted at depth beneath younger units within the Project area and is, therefore, included in the analysis.

4.1.0 Young Alluvium (Qa) (Holocene)

Holocene-age deposits consisting of variable compositions of clay, silt, sand, gravel, and larger clasts. These younger sediments are generally unconsolidated, undissected, and less topographically developed than older deposits. Holocene-age young alluvium (Qa) is mapped at the surface of the Project in the low-lying areas, including portions of the north, northeast, and southeast areas of the Solar Facility parcel; the eastern area of the Gen-Tie line; portions of the northwestern and southwestern areas of the Project Site parcel; and portions of both access roads (Access Road Options 1 and 2) (Dibblee and Minch, 2006; Figure 3).

Holocene-age sediments are typically too young to contain fossilized material. Holocene-age young alluvium (Qa) is, therefore, considered to have a low paleontological potential (PFYC 2) using BLM (2016) guidelines. However, these deposits may overlie sensitive older (e.g., Pleistocene- to Pliocene-age) deposits at variable depth.

4.1.1 Older Alluvium (Qoa) (Pleistocene)

Older alluvium (Qoa) is Pleistocene in age (approximately 2.59 million to 11,000 years old) and includes fluvial sediments deposited on broad canyon and valley floors by ancient river and stream systems. Sediments consist of medium- to coarse-grained silt, sand, and gravel from alluvial fans derived from the uplift of adjacent mountains. These deposits are generally characterized by their low-moderate to moderate relief and dissected surfaces. They are relatively elevated and contrast the lower lying Holocene-age deposits, although topography may be subdued by erosion. Pleistocene-age older alluvium (Qoa) is mapped at the surface of the Project in the southeastern area of the Project Site parcel (Dibblee and Minch, 2006; Figure 3).

Numerous Ice Age taxa have been recovered from Pleistocene-age deposits in Kern County, including specimens of extinct horse (*Equus occidentalis*), rabbit (Leporidae), camel (*Procamelus*), dog (Canidae), rodent (*Thomomys*, *Microtus*, *Dipodomys*, *Neotoma*), frog (*Hyla*), and lizard (Lacertilia) (UCMP, 2020; Table 3). Approximately 30,000 fossil specimens have been collected from Pleistocene sediments at McKittrick Tar Pits in western Kern County. These specimens include a diversity of species of rodents, rabbits, birds, camels, horses, bison, pronghorn antelope, and mammoths, as well as plants and

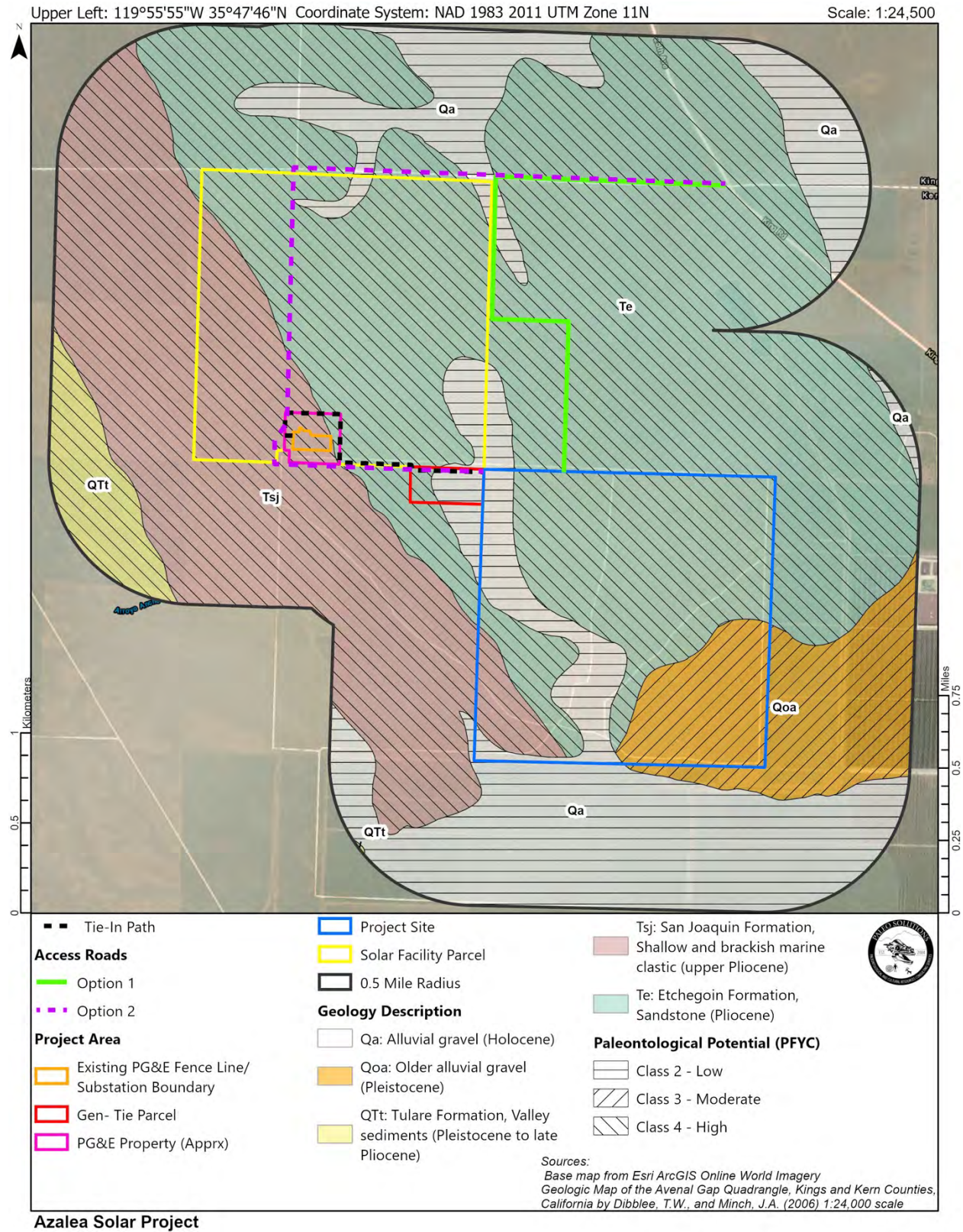


Figure 3: Project Geology Map

This Page Intentionally Left Blank

Table 3: Paleontological Literature and Record Search Results

Institutional Locality Number/ Name	Geologic Formation	Taxon	Common Name	Location	Source
Not Reported	Pleistocene-age older alluvium (Qoa)	Lacertilia <i>Hyla</i> <i>Thomomys</i> <i>Microtus</i> <i>Dipodomys</i> <i>Neotoma</i> Leporidae Canidae <i>Equus occidentalis</i> <i>Procamelus</i>	lizard frog rodent rodent rodent rodent rabbit dog horse camel	Kern County	UCMP, 2020
McKittrick Tar Pits	Pleistocene-age asphaltic seep deposit	- - - - - - - - - -	plant insect bird rodent rabbit camel horse bison pronghorn antelope mammoth	McKittrick Tar Pits (Kern County)	UCMP, 2020
Not Reported	Pleistocene-age sedimentary deposits	<i>Mammuthus</i> <i>Mammot</i> Camelidae Equidae <i>Bison</i> <i>Megatherium</i> Tayassuidae <i>Acinonyx</i> <i>Panthera</i> <i>Smilodon</i> <i>Hydrochoerus</i> <i>Canis dirus</i> Rodentia	mammoth mastodon camel horse bison giant ground sloth peccary cheetah lion saber-tooth cat capybara dire wolf rodent	Southern California	Jahns, 1954; Jefferson, 1991

Institutional Locality Number/ Name	Geologic Formation	Taxon	Common Name	Location	Source
LACM 7844, 7845, 1156	Pleistocene-age older alluvium (Qoa)	Colubridae Iguanidae Aves <i>Lepus</i> <i>Sylvilagus</i> Sciuridae <i>Thomomys</i> <i>Perognathus</i> <i>Dipodomys</i> <i>Odocoileus</i> <i>Equus</i>	snake iguana lizard bird jackrabbit cottontail squirrel pocket gopher pocket mouse kangaroo rat deer horse	Between Antelope Valley and Polonio Pass; North of Delano, Kern County	see Paleo Solutions (2017)
Not Reported	Tulare Formation (QTt) (Pliocene to Pleistocene)	<i>Anodonta</i> <i>Sphaerium</i> <i>kettlemanense</i> <i>Amnicola</i> <i>Fluminicola</i> <i>Planorbis</i> <i>Pyrgulopsis</i> <i>Valvata utahensis</i> <i>Lithoglyphus seminalis</i> <i>Tryonia</i>	freshwater clam freshwater clam fresh/brackish water snail freshwater snail freshwater snail freshwater snail freshwater snail freshwater snail freshwater snail	Not Reported	Page, 1983; Croft, 1972
UCMP V70079, V70080, V70123	Tulare Formation (QTt) (Pliocene to Pleistocene)	<i>Osteichthys</i> <i>Acipenser</i> <i>Orthodon</i> <i>Archoplites</i> <i>Branta</i> Aves <i>Clemmys</i>	bony fish sturgeon blackfish perch goose bird spotted turtle	Alameda and Kings Counties	Jefferson, 1991a
UCMP 1365, 4096, V78041, V6810	Tulare Formation (QTt) (Pliocene to Pleistocene)	<i>Borophagus</i> <i>Ischyrosmilus</i> <i>Felis concolor</i> <i>Mammot americanum</i> <i>Equus occidentalis</i> <i>Hemiauchenia</i>	bone-crushing dog scimitar-toothed cat mountain lion mastodon western horse llama	Kern County	Jefferson, 1991b; UCMP, 2020
Not Reported	Tulare Formation (QTt) (Pliocene to Pleistocene)	<i>Anodonta</i> <i>Gonidea</i> <i>Amicola</i> <i>Brannerillus</i> <i>Hydrobia</i>	freshwater clam freshwater clam fresh/brackish water snail freshwater snail	Kettleman Hills	Woodring et al., 1940

Institutional Locality Number/ Name	Geologic Formation	Taxon	Common Name	Location	Source
		<i>Fluminicola</i> Planorbidae <i>Pyrgulopsis</i> <i>Calipyrgula</i> <i>Littorina</i> <i>Goniobasis</i> Osteichthyes	freshwater snail freshwater snail freshwater snail freshwater snail freshwater snail freshwater snail freshwater snail fresh/brackish water fish		
LACM 5458, 3775	Tulare Formation (QTt) (Pliocene to Pleistocene)	<i>Neotoma</i> Lagomorpha Camelidae	invertebrate woodrat rabbit camel	Kettleman Hills; Elk Hills	see Paleo Solutions (2017)
UCMP A1348	Tulare Formation (QTt) (Pliocene to Pleistocene)	Invertebrata undet.	invertebrate	Near Lost Hills, Kern County	see Paleo Solutions (2017)
Not Reported	San Joaquin Formation (Tsj) (late Pliocene)	<i>Castor californicus</i> <i>Lepus</i> <i>Dromomeryx</i>	extinct beaver hare extinct deer	Kettleman Hills, Kern County	UCMP, 2020
Not Reported	San Joaquin Formation (Tsj) (late Pliocene)	<i>Osteichthyes</i> <i>Chondrichthyes</i> <i>Platygonus</i> <i>Equus</i>	bony fish cartilaginous fish pig horse	Kings County	UCMP, 2020
Not Reported	San Joaquin Formation (Tsj) (late Pliocene)	Plantae Invertebrata	plant mollusk	Central California	Woodring et al., 1940
LACMIP 18193, 18150, 18067	San Joaquin Formation (Tsj) (late Pliocene)	Invertebrata undet.	invertebrate	Southwestern end of South Dome, Kettleman Hills	Bell, 2020
LACMIP 18161	San Joaquin Formation (Tsj) (late Pliocene)	Bivalvia	oyster	Southwestern end of South Dome, Kettleman Hills	Bell, 2020
Not Reported	Etchegoin Formation (Te) (Pliocene)	<i>Osteichthyes</i> <i>Cetacea</i> <i>Protohippus</i> <i>Gomphotherium</i>	bony fish whale or dolphin extinct horse extinct elephant	Kettleman Hills, Kern County	UCMP, 2020
Not Reported	Etchegoin Formation (Te) (Pliocene)	<i>Stoasodon</i> <i>Carcharhinus antiquus</i> <i>Hexanchus</i> <i>Lamna beta</i> <i>Isurus clavatus</i>	ray gray shark deep water shark mackerel shark shark	Kings County	UCMP, 2020

Institutional Locality Number/ Name	Geologic Formation	Taxon	Common Name	Location	Source
		<i>Carcharodon rectus</i> <i>Carcharodon riversi</i> <i>Carcharodon tembloris</i> Cetacea <i>Balaenula</i> <i>Pliopedia pacifica</i> <i>Pliopotomys</i> <i>Mimomys primus</i> <i>Enhydriodon lluecai</i> <i>Castor californicus</i> <i>Lutravus</i> <i>Vulpes</i> <i>Odocoileus</i> <i>Plihippus</i> <i>Equus simplicidens</i> <i>Pliomastodon vexillarius</i> <i>Mammut</i>	extinct shark extinct shark extinct shark whale or dolphin extinct whale extinct walrus rodent extinct vole extinct otter extinct beaver weasel fox deer extinct horse extinct horse mastodon mastodon		
Not Reported	Etchegoin Formation (Te) (Pliocene)	Plantae Invertebrata	plant mollusk	Central California	Woodring et al., 1940
LACM VP 3814*	Etchegoin Formation (Te) (Pliocene)	<i>Pliopedia pacifica</i>	Walrus	Near Oyster Hill, Kettleman Hills	Bell, 2020
LACMIP 20832	Etchegoin Formation (Te) (Pliocene)	Invertebrata undet.	invertebrate	Middle Dome, Kettleman Hills	Bell, 2020
LACMIP 12413, 20860, 20861, 20834	Etchegoin Formation (Te) (Pliocene)	Invertebrata undet.	Invertebrate	Lemoore Road, Kettleman Hills	Bell, 2020
LACM VPCIT 319	Etchegoin Formation (Te) (Pliocene)	<i>Plihippus</i>	horse	~6 miles down canyon from the mouth of Jasper Canyon	Bell, 2020
LACM VPCIT 593	Etchegoin Formation (Te) (Pliocene)	<i>Plihippus</i>	horse	Tumey Gulch	Bell, 2020

preserved insects (UCMP, 2020; Table 3). While the depositional environment of the McKittrick Tar Pit locality differs from that of the Project area, there is the potential for a similar fauna to be recovered during Project excavations. Additional localities recorded from Pleistocene-age sedimentary deposits throughout southern California have produced specimens including mammoth (*Mammuthus*), mastodon (*Mammut*), camel (Camelidae), horse (Equidae), bison (*Bison*), giant ground sloth (*Megatherium*), peccary (Tayassuidae), cheetah (*Acinonyx*), lion (*Panthera*), saber-toothed cat (*Smilodon*), capybara (*Hydrochoerus*), dire wolf (*Canis dirus*), and numerous taxa of smaller mammals (Rodentia) (Jahns, 1954; Jefferson, 1991b; Table 3). Pleistocene-age older alluvium (Qoa) is considered to have moderate paleontological potential (PFYC 3) using BLM (2016) guidelines.

4.1.2 Tulare Formation (QTt) (Pleistocene to Late Pliocene)

The Tulare Formation (QTt) is Pleistocene to late Pliocene in age (approximately 3.6 million years to 11,000 years old) and was described by Woodring et al. (1940) as the youngest stratigraphic unit exposed in the Kettleman Hills, which are an approximately 1,040 square mile area composed of uplifted Pliocene- to Holocene-age terrestrial sediments near Kettleman City, California (Page, 1983). The Pleistocene- to late Pliocene-age Tulare Formation (QTt) has a maximum thickness of approximately 3,500 feet (western flank of Kettleman Hills) and lies somewhat conformably above late Pliocene-age San Joaquin Formation (Tsj) (Hill, 1964; Woodring et al., 1940). The Pleistocene- to late Pliocene-age Tulare Formation (QTt) consists of unconsolidated to well consolidated, clay, silt, sand, and gravel deposited in ancient alluvial fans, deltas, flood plains, lakes, and marshes (Page, 1983). Pebbles consist primarily of Monterey Shale debris and granitic clasts derived from the Coastal Ranges and Sierra Nevada (Smith, 1964). Pleistocene- to late Pliocene-age Tulare Formation (QTt) is mapped to the west and southwest of the Project area and may underlie younger sediments, including Holocene-age young alluvium (Qa) and Holocene- to Pleistocene-age older alluvium (Qoa), at depth within the Project area (Dibblee and Minch, 2006; Figure 3).

Vertebrate fossils known from Pleistocene- to late Pliocene-age Tulare Formation (QTt) include blackfish (*Orthodon*), sturgeon (*Acipenser*), perch (*Archoplites*), bony fish (Osteichthyes), goose (*Branta*), bird (Aves), spotted turtle (*Clemmys*), bone-crushing dog (*Borophagus*), scimitar-toothed cat (*Ischyrosmilus*), llama (*Hemiauchenia*), mountain lion (*Felis concolor*), Western horse (*Equus occidentalis*), and mastodon (*Mammut americanum*) (Jefferson, 1991a,b; UCMP, 2020; Woodring et al., 1940; Table 3). Furthermore, the Tulare Formation has produced many freshwater and brackish water invertebrate fossils. Known invertebrate fossils include freshwater clam (*Anodonta*, *Sphaerium kettlemanense*, *Gonidea*), freshwater-brackish water snail (*Amnicola*), freshwater snail (*Brannerillus*, *Hydrobia*, *Fluminicola*, *Planorbis*, Planorbidae, *Pyrgulopsis*, *Calipyrgula*, *Littorina*, *Goniobasis*, *Valvata utahensis*, *Lithoglyphus seminalis*, *Tryonia*) (Croft, 1972; Page, 1983; Woodring et al., 1940; Table 3). Pleistocene- to late Pliocene-age Tulare Formation (QTt) has a high potential for producing paleontological resources (PFYC 4) using BLM (2016) guidelines.

4.1.3 San Joaquin Formation (Tsj) (Late Pliocene)

The San Joaquin Formation (Tsj) is Pliocene in age (approximately 3.6 million years to 2.59 million years old) and is a brackish marine deposit that was first described by Barbat and Galloway (1934) for exposures on the lower east side of the North Dome of the Kettleman Hills, in Fresno and Kings counties, California. The late Pliocene-age San Joaquin Formation (Tsj) can be divided into an upper part (Tsj-u) and a lower part (Tsj-l), representing fresh water and brackish-marine deposits, respectively; it is further subdivided into zones or members based on faunal assemblages (Dibblee and Minch, 2006; Woodring et al., 1940). Sediments generally consist of weakly lithified, light gray to blue claystone, siltstone, and pebble conglomerate (Woodring et al., 1940). The late Pliocene-age San Joaquin Formation (Tsj) has a

maximum thickness of approximately 3,500 feet and lies somewhat comfortably below the Pleistocene- to late Pliocene-age Tulare Formation (QTt). The late Pliocene-age San Joaquin Formation (Tsj) is mapped at the surface of the Project in portions of the southwestern and western areas of the Solar Facility parcel; the entire PG&E Property parcel; the entire Substation parcel, with the exception of the northeastern corner; a portion of the southwestern area of the Project Site parcel; and a portion of Access Road Option 2 (Dibblee and Minch, 2006; Figure 3).

A review of the online database maintained by the UCMP (UCMP, 2020) found three vertebrate fossil localities attributed to the San Joaquin Formation within the Kettleman Hills. The localities produced fossil extinct beaver (*Castor californicus*), hare (*Lepus*), and extinct deer (*Dromomeryx*) (UCMP, 2020; Table 3). Additionally, numerous localities from the late Pliocene-age San Joaquin Formation have been recorded within Kings County. Fossils recovered from the San Joaquin Formation include bony fish (Osteichthyes), cartilaginous fish (Chondrichthyes), and pig (*Platygonus*) (UCMP, 2020; Table 3). Furthermore, abundant marine mollusks and occasional plant remains are known from the San Joaquin Formation (Woodring et al., 1940; Table 3). The late Pliocene-age San Joaquin Formation (Tsj) is considered to have high paleontological potential (PFYC 4) using BLM (2016) guidelines.

4.1.4 Etchegoin Formation (Te) (Pliocene)

The Etchegoin Formation (Te) is Pliocene in age (approximately 5.3 million years to 2.59 million years old) and is a shallow marine deposit that was first described by Anderson (1905) for exposures near Etchegoin Ranch in Fresno County, California. The formation can be divided into an upper part and lower part and is subdivided into six faunal zones. The Pliocene-age Etchegoin Formation (Te) consists of weakly lithified light gray to light brown, fine- to coarse-grained sandstone, with pebbly and interbedded gray, soft, and micaceous clay shale or mudstone, with distinctive light blue sandstone layers (Woodring et al., 1940). The Pliocene-age Etchegoin Formation (Te) has a maximum thickness of approximately 2,500 feet and is overlain by late Pliocene-age San Joaquin Formation (Tsj) and is underlain by Pliocene-age Coalinga Beds (not mapped). The Pliocene-age Etchegoin Formation (Te) is mapped at the surface of the Project in the majority of the eastern, central, and northern areas of the Solar Facility parcel; the northeastern corner of the Substation parcel; the western area of the Gen-Tie line; the majority of the Project Site parcel, with the exception of portions of the northwestern and southwestern areas; and portions of both access roads (Access Road Options 1 and 2) (Dibblee and Minch, 2006; Figure 3).

A review of the online database maintained by the UCMP (UCMP, 2020) found four localities attributed to the Pliocene-age Etchegoin Formation (Te) within the Kettleman Hills. The localities produced fossil bony fish (Osteichthyes), whale or dolphin (Cetacea), extinct horse (*Protohippus*), and extinct elephant (*Gomphotherium*) (UCMP, 2020; Table 3). Additionally, numerous localities from Pliocene-age Etchegoin Formation (Te) have been recorded within Kings County. Fossils recovered from the Etchegoin Formation (Te) include ray (*Stoasodon*), gray shark (*Carcharhinus antiquus*), deep water shark (*Hexanchus*), mackerel shark (*Lamna beta*), shark (*Isurus clavatus*), extinct shark (*Carcharodon rectus*, *Carcharodon riversi*, *Carcharodon tembloris*), whale or dolphin (Cetacea), extinct whale (*Balaenula*), extinct walrus (*Pliopedia pacifica*), rodent (*Pliopotomys*), extinct vole (*Mimomys primus*), extinct otter (*Enhydriodon lluecai*), extinct beaver (*Castor californicus*), weasel (*Lutravus*), fox (*Vulpes*), deer (*Odocoileus*), extinct horse (*Plihippus*, *Equus simplicidens*), and mastodon (*Pliomastodon vexillarius*, *Mammut*) (UCMP, 2020; Table 3). Furthermore, abundant marine mollusks and occasional plant remains are known from this unit (Woodring et al., 1940; Table 3). The Pliocene-age Etchegoin Formation (Te) is considered to have high paleontological potential (PFYC 4) using BLM (2016) guidelines.

4.2 PALEONTOLOGICAL MUSEUM RECORD SEARCH RESULTS

Paleo Solutions requested paleontological searches of records maintained by the LACM. The museum responded on October 23, 2020 that no vertebrate fossil localities are recorded from within the Project area, although there are several localities recorded from within the vicinity from sediments similar to those that underlie the Project area surface (Bell, 2020). Localities LACMIP 18193, 18150, 18161, and 18067 are recorded from late Pliocene-age San Joaquin Formation (Tsj), and localities LACM VP 3814; LACMIP 20832, 12413, 20860, 20861, 20834; and LACM VPCIT 319 and 593 are recorded from Pliocene-age Etchegoin Formation (Te) (Bell, 2020). Localities LACMIP 18193, 18150, and 18067, located in the southwest end of South Dome in the Kettleman Hills, produced fossil invertebrates (Bell, 2020; Table 3). Locality LACMIP 18161, also located in the southwest end of South Dome, produced fossil oyster shells (Bell, 2020; Table 3). Locality LACM VP 3814, located near Oyster Hill in the Kettleman Hills, produced fossil walrus (*Pliopodia pacifica*) (Bell, 2020; Table 3). Locality LACMIP 20832, located in Middle Dome in the Kettleman Hills, and localities LACMIP 12413, 20860, 20861, and 20834, located along Lemoore Road in the Kettleman Hills, all produced fossil invertebrates (Bell, 2020; Table 3). Locality LACM VPCIT 319, located approximately 6 miles down canyon from the mouth of Jasper Canyon, and locality LACM VPCIT 593, located in Tumey Gulch, both produced fossil horse (*Pliohippus*) (Bell, 2020; Table 3).

Additionally, museum record searches were completed by the LACM and UCMP for the nearby Aera Energy Lost Hills (320 acres) Project located approximately 9 miles southeast of the Azalea Solar Project (Paleo Solutions, 2017). The results of the Aera Energy Lost Hills (320 acres) Project museum record searches (dated June 6, 2017 [LACM]; and May 26, 2017 [UCMP]) indicate that several fossil localities are recorded from Pleistocene- to late Pliocene-age Tulare Formation (QTt) sediments from nearby areas, such as the Kettleman Hills, Elk Hills, and near the City of Lost Hills, and include fossil invertebrate (Invertebrata undet.), woodrat (*Neotoma*), rabbit (Lagomorpha), and camel (Camelidae) (Paleo Solutions, 2017; Table 3). Further, several fossil localities are documented from Pleistocene-age older alluvium (Qoa) from nearby areas, such as between Antelope Valley and Polonio Pass as well as north of Delano, and include fossil snake (Colubridae), iguana lizard (Iguanidae), bird (Aves), jackrabbit (*Lepus*), cottontail (*Sylvilagus*), squirrel (Sciuridae), pocket gopher (*Thomomys*), pocket mouse (*Perognathus*), kangaroo rat (*Dipodomys*), deer (*Odocoileus*), and horse (*Equus*) (Paleo Solutions, 2017; Table 3).

4.3 FIELD SURVEY

The survey area is located near Arco Substation off Kings Road between Lost Hills and Kettleman City, approximately 10 miles east of Interstate 5 and directly south of the Kern County/Kings County boundary line. The survey area comprises four separate work parcels: the Solar Facility parcel (larger Gen-Tie parcel), the PG&E Property parcel, the smaller Gen-Tie parcel, and the Project Site parcel. The work boundaries are primarily situated on open rolling fields with gentle slopes and much vegetation (Attachment A: Photos 1 through 10). The PG&E Property parcel is mostly graded with the Arco Substation present in the center and a large slope cut exposed along the north face of the parcel (Attachment A: Photos 9 and 10).

4.3.0 Geology

Sediments observed included Holocene-age young alluvium (Qa), Pleistocene-age older alluvium (Qoa), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te). Sediment exposures were primarily observed along areas devoid of vegetation, particularly along access road cuts and spoils, and outcropping exposures along the north slope cut in the PG&E Property parcel (Attachment A: Photos 11 through 17).

Holocene-age young alluvium (Qa) was observed starting at the ground surface, where mapped, and the observed thickness was approximately one foot thick. Alluvial gravel sediments consist of gray colored, moderately sorted, fine- to coarse-grained sand with some subangular granules, composed primarily of quartz and mica minerals, and igneous rock fragments (Attachment A: Photo 11). Sediment exposures were observed primarily in the flood basins and lower valley deposits within the Project Site parcel, particularly the western half of the parcel, but were also observed along the eastern half of the Gen-Tie parcel.

Pleistocene-age older alluvium (Qoa) was observed, where mapped, beneath a thin veneer of topsoil, starting at a depth of less than six inches below the ground surface, and the observed thickness was approximately one foot thick or less. No bottom contact was observed. Older alluvial sediments consist of dark grayish brown colored, moderately sorted, medium- to very coarse-grained sand with some subangular granules, composed primarily of quartz, feldspar, and mica minerals. Additionally, a light pink caliche layer is present in some pockets of the exposure (Attachment A: Photos 12 and 13). Sediment outcroppings were not readily observed within the southeast section of the Project Site parcel but were observed below the topsoil in spots devoid of vegetation.

Late Pliocene-age San Joaquin Formation (Tsj) sediments were observed, where mapped, beneath a thin veneer of topsoil, starting at a depth of less than six inches below the ground surface, as well as at the ground surface, and the observed thickness was approximately less than one foot thick to approximately 15 feet thick. No bottom contact was observed. San Joaquin Formation (Tsj) sediments consist of reddish brown, golden brown, and light to dark gray colored, friable bedded, poorly to moderately sorted, fine- to very coarse-grained sandstone, with some subangular to subrounded granules (Attachment A: Photos 14 and 15). Formation outcropping occurred predominantly along the graded slope cut present in the PG&E Property parcel but were also observed outside of animal burrows along the southwest corner of the Project Site parcel.

Pliocene-age Etchegoin Formation (Te) sediments were observed, where mapped, beneath a thin veneer of topsoil, starting at a depth of less than six inches below the ground surface, as well as at the ground surface, and the observed thickness was approximately less than one foot thick to more than 10 feet thick. No bottom contact was observed. Etchegoin Formation sediments consist of light gray to beige colored, moderately to well sorted, fine- to coarse-grained sandstone, with subangular grains (Attachment A: Photos 16 and 17). Formation outcropping occurred primarily along the existing road cuts within the Solar Facility, Gen-Tie, and Project Site parcels.

4.3.1 Paleontology

No significant fossils were observed during the field survey, although several non-significant invertebrate fossil localities were documented. The localities were observed within outcroppings and road cut spoils of late Pliocene-age San Joaquin Formation (Tsj) and Pliocene-age Etchegoin Formation (Te), and fossils include bivalve shells, molds, and casts (Attachment A: Photos 18 through 22). Additionally, while no fossils were observed within Pleistocene-age older alluvium (Qoa), these sediments were determined to be conducive to fossil preservation on the basis of their lithology. No fossils were collected during the field survey. A map showing the locations of the two newly documented localities is provided in Attachment C.

5 – IMPACT DETERMINATIONS

For this analysis, the Project would result in a significant impact on paleontological resources if it would: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Fossil resources vary widely in their relative abundance and distribution and not all are regarded as unique or significant. According to BLM Instructional Memorandum (IM) 2009-011, a “Significant Paleontological Resource” is defined as:

“Any paleontological resource that is considered to be of scientific interest, including most vertebrate fossil remains and traces, and certain rare or unusual invertebrate and plant fossils. A significant paleontological resource is considered to be of scientific interest if it is a rare or previously unknown species, it is of high quality and well-preserved, it preserves a previously unknown anatomical or other characteristic, provides new information about the history of life on earth, or has an identified educational or recreational value. Paleontological resources that may be considered not to have scientific significance include those that lack provenience or context, lack physical integrity due to decay or natural erosion, or that are overly redundant or are otherwise not useful for research. Vertebrate fossil remains and traces include bone, scales, scutes, skin impressions, burrows, tracks, tail drag marks, vertebrate coprolites (feces), gastroliths (stomach stones), or other physical evidence of past vertebrate life or activities” (BLM, 2008).

5.0.0 Direct Impacts

Direct adverse impacts on surface or subsurface paleontological resources are the result of destruction by breakage and crushing as the result of surface disturbing actions including construction excavations. In areas that contain paleontologically sensitive geologic units, ground disturbance has the potential to adversely impact surface and subsurface paleontological resources of scientific importance. Without mitigation, these fossils and the paleontological data they could provide if properly recovered and documented, could be adversely impacted (damaged or destroyed), rendering them permanently unavailable to science and society.

Pleistocene- to late Pliocene-age Tulare Formation (QTt), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te) are considered to have a high paleontological potential (PFYC 4). Additionally, Pleistocene-age older alluvium (Qoa) is considered to have a moderate paleontological potential (PFYC 3). Holocene-age young alluvium (Qa) is estimated to be less than 11,000 years old at the surface and is considered to have a low paleontological potential (PFYC 2), since these sediments are typically too young to contain *in situ* fossils. Previously disturbed sediments or artificial fill will not contain *in situ* fossils, since these sediments have been displaced from their original context. Previously disturbed sediments are, therefore, also considered to have a low paleontological potential (PFYC 2). However, these surficial deposits may shallowly overlie older *in situ* sedimentary deposits of Pleistocene- to Pliocene-age.

Therefore, Project-related ground disturbance throughout the site may well result in adverse direct impacts on scientifically important paleontological resources. Implementation of Mitigation Measure MM PAL-01 (see Section 6) would reduce impacts to paleontological resources to a less-than significant level.

5.0.1 Indirect Impacts

Indirect impacts typically include those effects which result from the continuing implementation of management decisions and resulting activities, including normal ongoing operations of facilities constructed within a given project area. They also occur as the result of the construction of new roads and trails in areas that were previously less accessible. This increases public access and therefore increases the likelihood of the loss of paleontological resources through vandalism and unlawful

collecting. Human activities that increase erosion also cause indirect impacts to surface and subsurface fossils as the result of exposure, transport, weathering, and reburial.

No indirect impacts are anticipated since the Project will not increase public access to the site and ongoing operations of the solar farm will not involve ground-disturbance.

5.0.2 Cumulative Impacts

Cumulative impacts can result from incrementally minor but collectively significant actions taking place over a period of time. The incremental loss of paleontological resources over time as a result of construction-related surface disturbance or vandalism and unlawful collection would represent a significant cumulative adverse impact, because it would result in the destruction of non-renewable paleontological resources and the associated irretrievable loss of scientific information.

Excavation activities associated with the Project in conjunction with other projects in the area could contribute to the progressive loss of fossil remains. However, the Project would have a less than significant impact to paleontological resources with incorporation of Mitigation Measure MM PAL-01. Therefore, the Project's contribution to cumulative impacts to paleontological resources would be less than significant.

6 – MITIGATION AND AVOIDANCE, AND MINIMIZATION OF IMPACTS TO PALEONTOLOGICAL RESOURCES

Based on the ground disturbance necessary to complete the Project, there is potential for impacts to scientifically significant paleontological resources within Pleistocene-age older alluvium (Qoa) (PFYC 3), Pleistocene- to late Pliocene-age Tulare Formation (QTt) (PFYC 4), late Pliocene-age San Joaquin Formation (Tsj) (PFYC 4), and Pliocene-age Etchegoin Formation (Te) (PFYC 4) within the Project area, both where mapped at the surface and where encountered at depth. Mitigation Measure MM PAL-01 would reduce impacts to paleontological resources to a less-than significant level (see Attachment D).

6.0 MITIGATION MEASURES

MM PAL-01: Excavations in areas mapped as Pleistocene-age older alluvium (Qoa), late Pliocene-age San Joaquin Formation (Tsj), and Pliocene-age Etchegoin Formation (Te) will be monitored on a full-time basis. Additionally, it is areas mapped as Holocene-age young alluvium (Qa) will be initially spot-checked during excavations to check for underlying, paleontologically sensitive Pleistocene-age older alluvium (Qoa), Pleistocene- to late Pliocene-age Tulare Formation (QTt), late Pliocene-age San Joaquin Formation (Tsj), and/or Pliocene-age Etchegoin Formation (Te). If it is determined that only Holocene-age young alluvium (Qa) or previously disturbed sediments are impacted, or if sediments are determined to be non-conductive to fossil preservation, the monitoring program should be reduced or suspended. If Pleistocene-age older alluvium (Qoa), Pleistocene- to late Pliocene-age Tulare Formation (QTt), late Pliocene-age San Joaquin Formation (Tsj), and/or Pliocene-age Etchegoin Formation (Te) are observed during spot-checking, then full-time monitoring will be implemented in those areas. Prior to the start of construction, a paleontological resources Workers Environmental Awareness Program (WEAP) training will be presented to all earthmoving personnel to inform them of the possibility for buried resources and the procedures to follow in the event of fossil discoveries. Any subsurface bones or potential fossils that are unearthed during construction will be evaluated by a Qualified Paleontologist. Any fossils determined to be significant or potentially significant will be recovered, prepared, identified, analyzed, and curated at the LACM, or another accredited fossil repository, along with copies of all associated field data. At the completion of ground disturbing activities, a report documenting the methods and results of paleontological monitoring will be prepared.

7 – REFERENCES

- Anderson, G.M. 1905. A Stratigraphic Study in the Mount Diablo Range of California: California Academy of Sciences Proceedings, 3rd Series, v.2, 2 p.
- Barbat, W.F., and J. Galloway. 1934. San Joaquin clay, California: American Association of Petroleum Geologists Bulletin, v. 18, no. 4, p. 476-499.
- Bartow, J.A. 1987. The Cenozoic evolution of the San Joaquin Valley, California: U.S. Geological Survey, Open-File Report OF-87-581, scale 1:500,000.
- Bell, A. 2020. Paleontological resources for the Pacific Legacy: Azalea Solar Project, Kern County, California project area. Search of paleontological records maintained by the Natural History Museum of Los Angeles County. Dated October 23, 2020.
- Bureau of Land Management (BLM). 2008. Assessment and Mitigation of Potential Impacts to Paleontological Resources: BLM Instruction Memorandum No. 2009-011.
- Bureau of Land Management (BLM). 2016. Potential Fossil Yield Classification system: BLM Instruction Memorandum No. 2016-124 (PFYC revised from USFS, 2008).
- Croft, M.G. 1972. Subsurface Geology of the Late Tertiary and Quaternary Water-Bearing Deposits of the San Joaquin Valley, California: U.S. Geological Survey Water-Supply Paper 1999-H, 29 p.
- Dibblee, T.W., and J.A. Minch. 2006. Geologic map of the Avenal Gap quadrangle, Kings and Kern Counties, California. Dibblee Geological Foundation Map DF-283, Scale (1:24,000).
- Harden, D.R. 2004. California Geology, 2nd Edition: Pearson Prentice Hall. Upper Saddle River. Pp. 258-279.
- Hill, F.L. 1964. Harvester gas field: California Department of Conservation, Division of Oil and Gas, Summary of Operations, California Oil Fields, v. 50, no. 1, p. 17-20.
- Jahns, R.H., ed. 1954. Geology of Southern California. State of California, Department of Natural Resources, Bulletin 170, Volume 1.
- Jefferson, G.T. 1991a. A Catalogue of late Quaternary vertebrates from California: Part One, nonmarine lower vertebrate and avian taxa. Natural History Museum of Los Angeles County, Technical Reports, No. 5.
- Jefferson, G.T. 1991b. A Catalogue of late Quaternary Vertebrates from California: Part two, Mammals. *Natural History Museum of Los Angeles, Technical Report #7.*
- Kern County. 2009. Kern County General Plan. Available online:
https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGP_Complete.pdf

- Lettis, W.R. 1982. Late Cenozoic stratigraphy and structure of the western margin of the central San Joaquin Valley, California: U.S. Geological Survey Open-File Report 82-526, 203 p.
- Murphey, P.C., G.E. Knauss, L.H. Fisk, T.A. Deméré, and R.E. Reynolds. 2019. Best practices in mitigation paleontology: Proceedings of the San Diego Society of Natural History, No. 47.
- Norris, R. M. and R.W. Webb. 1990. Geology of California, 2nd Edition: John Wiley and Sons, Inc. New York. Pp. 412-435.
- Page, R.W. 1983. Geology of the Tulare Formation and Other Continental Deposits, Kettleman City Area, San Joaquin Valley, California. US Geological Survey Water Resources Investigation Report 83-4000.
- Paleo Solutions, Inc. (Paleo Solutions) (Aron, G.A., C.D. Richards, and J.T. Raum). 2017. Paleontological Technical Study for the Lost Hills Lease (320 Acres) Project, Kern County, California. Prepared for the Bureau of Land Management Bakersfield Field Office and South Valley Biology. Dated June 2017.
- Prothero, D.R. 2017. California's Amazing Geology: CRC Press. Boca Raton. Pp. 189-203.
- Smith, A.R. 1974. Geologic map of California: Bakersfield sheet. California Division of Mines and Geology. Scale 1:250,000.
- Stewart, R.B. 1946. Geology of Reef Ridge, Coalinga district, California. U.S. Geological Survey, Professional Paper 205-C: 81-115 p.
- UCMP. 2020. Online records search of the University of California Museum of Paleontology Database, performed September 17-20, 2020.
- Woodring, W.P., R. Steward, and R.W. Richards. 1940. *Geology of the Kettleman Hills Oil field, California*. U.S. Geological Survey Professional. Paper 195, 170 p.

Attachment A: Representative Photographs

This Page Intentionally Left Blank

Representative Photographs



Photograph 1:

September 18, 2020.

Overview of the survey area from the central north section of the Solar Facility Parcel; mapped as Pliocene-age Etchegoin Formation (Te). View to the north.



Photograph 2:

September 18, 2020.

Overview of the survey area from the central west section the Solar Facility Parcel looking towards the Arco Substation; mapped as late Pliocene-age San Joaquin Formation (Tsj). View to the southeast.

Photographs Continued



Photograph 3:

September 18, 2020.

Overview of the survey area from the southwest corner the Solar Facility Parcel; mapped as late Pliocene-age San Joaquin Formation (Tsj). View to the northeast.



Photograph 4:

September 18, 2020.

Overview of the survey area from the central north side of the PG&E Property parcel looking towards Arco Substation; mapped as late Pliocene-age San Joaquin Formation (Tsj). View to the south.

Photographs Continued



Photograph 5:

September 17, 2020.

Overview of the survey area from the western half of the Gen-Tie Parcel; mapped as Pliocene-age Etchegoin Formation (Te). View to the northeast.



Photograph 6:

September 17, 2020.

Overview of the survey area from the southwest corner of the Project Site parcel; mapped as late Pliocene-age San Joaquin Formation (Tsj). View to the east.

Photographs Continued



Photograph 7:

September 17, 2020.

Overview of the survey area from the southeast corner the Project Site parcel; mapped as Pleistocene-age older alluvium (Qoa). View to the northeast.



Photograph 8:

September 17, 2020.

Overview of the survey area from the central west section the Project Site parcel; mapped as Holocene-age young alluvium (Qa). View to the north.

Photographs Continued



Photograph 9:

September 17, 2020.

Sediment exposure of Holocene-age young alluvium (Qa) composed primarily of gray, fine- to coarse-grained sand; located in the west side of the Project Site parcel. View to the southeast.



Photograph 10:

September 17, 2020.

Sediment exposure of Pleistocene-age older alluvium (Qoa) composed primarily of gray, fine- to coarse-grained sand; observed in the southeast corner of the Project Site parcel. View down.

Photographs Continued



Photograph 11:

September 17, 2020.

Sediment exposure of light pink caliche within Pleistocene-age older alluvium (Qoa) composed primarily of gray, fine- to coarse-grained sand; observed in the south side of the Project Site parcel. View down.



Photograph 12:

September 18, 2020.

Exposure of late Pliocene-age San Joaquin Formation (Tsj) along the graded slope face on the north side of the PG&E Property parcel. View to the north.



Photograph 13:

September 18,
2020.

Exposure of late
Pliocene-age
San Joaquin
Formation (Tsj)
sandstone along
the graded
slope face on
the north side
of the PG&E
Property parcel.
View to the
north.



Photograph 14:

September 18,
2020.

Exposure of late
Pliocene-age
San Joaquin
Formation (Tsj)
sandstone along
the graded
slope face on
the north side
of the PG&E
Property parcel.
View to the
northeast.



Photograph 15:

September 18,
2020.

Exposure of
Pliocene-age
Etchegoin
Formation (Te)
along the access
road on the
central-north
side of the Solar
Facility parcel.
View to the
northwest.



Photograph 16:

September 18,
2020.

Exposure of
Pliocene-age
Etchegoin
Formation (Te)
sandstone along
the access road
on the central-
north side of
the Solar Facility
parcel. View to
the east.



Photograph 17:

September 17,
2020.

Exposure of
Pliocene-age
Etchegoin
Formation (Te)
exposed in the
access road on
the north side
of the Project
Site parcel. View
to the west.



Photograph 18:

September 17,
2020.

Fossil bivalve
shell within an
exposure of late
Pliocene-age
San Joaquin
Formation (Tsj)
along the
graded slope
cut on the north
side of the
PG&E Property
parcel. View
down.



Photograph 19:

September 17, 2020.

Fossil bivalve shell within an exposure of late Pliocene-age San Joaquin Formation (Tsj) along the graded slope cut on the north side of the PG&E Property parcel. View down.



Photograph 20:

September 17, 2020.

Fossil bivalve shell fragments within an *ex-situ* clast of Pliocene-age Etchegoin Formation (Te) discovered in previously graded road spoils on the north side of the Project Site parcel. View down.



Photograph 21:

September 17, 2020.

Fossil bivalve shell fragments, molds, and casts within an *ex-situ* clast of Pliocene-age Etchegoin Formation (Te) discovered in previously graded road spoils on the north side of the Project Site parcel. View down.



Photograph 22:

September 17, 2020.

Fossil bivalve shell fragments, molds, and casts within an *ex-situ* clast of Pliocene-age Etchegoin Formation (Te) discovered in previously graded road spoils on the north side of the Project Site parcel. View down.



Photograph 23:

September 17, 2020.

Fossil bivalve cast within *ex-situ* sediments of Pliocene-age Etchegoin Formation (Te) discovered in previously graded road spoils on the north side of the Project Site parcel. View down.

This Page Intentionally Left Blank

Attachment B: Natural History Museum of Los Angeles County Record Search Results

This Page Intentionally Left Blank



Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007
tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

October 23, 2020

Paleo Solutions

Attn: Elisa Barrios

re: Paleontological resources for the Pacific Legacy: Azalea Solar Project

Dear Elisa:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Pacific Legacy: Azalea Solar Project records search area as outlined on the portion of the Avenal Gap, Emigrant Hill, and West Camp USGS topographic quadrangle maps that you sent via e-mail on October 19, 2020. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County.

Locality Number	Location	Formation	Taxa	Depth
LACMIP 18193, 18150	Kettleman Hills. SW end South Dome, Sec 10 of T25S R19E (Avenal Gap Quad)	San Joaquin Formation (Limey bed)	Invertebrates	Unknown
LACMIP 18161	Kettleman Hills. SW flank South Dome, Sec 9 of T25S, R19E (Avenal Gap Quad)	San Joaquin Formation	Oyster shells	Surface
LACMIP 18067	Kettleman Hills. SW corner South Dome, Sec 15 of T25S, R19E (Avenal Gap Quad)	San Joaquin Formation (unconsolidated siltstone overlying claystone)	Invertebrates	Unknown
LACM VP 3814*	Kettleman Hills, near Oyster Hill. Sec 5 T24S R19E (Avenal Gap Quad)	Etchegoin Formation	Walrus (<i>Pliopodia pacifica</i>)	Unknown
LACMIP 20832	Kettleman Hills, Middle Dome, Sec 4 of T24S R19E (Avenal Gap Quad)	Etchegoin Formation	Invertebrates	Unknown

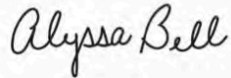
LACMIP 12413, 20860, 20861, 20834	Kettleman Hills, Lemoore Road, Secs 31-34 of T23S R19E (Middle Dome Quad)	Etchegoin Formation (uppermost)	Invertebrates	Unknown
LACM VPCIT 319	6 mi. down canyon from mouth of Jasper Canyon; Sec 7 of T22S R15E (Coalinga Quad)	Etchegoin Formation	Horse family (<i>Pliohippus</i>)	Unknown
LACM VPCIT 593	Tumey Gullch, Sec 8 of T16S R13E (Monocline Ridge Quad)	Etchegoin Formation	Horse family (<i>Pliohippus</i>)	Unknown

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

** This is loc. # 350 of Woodring et al. 1940. U.S. Geol. Surv. Prof. Paper 195.*

This records search covers only the records of the Natural History Museum of Los Angeles County ("NHMLA"). It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,



Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

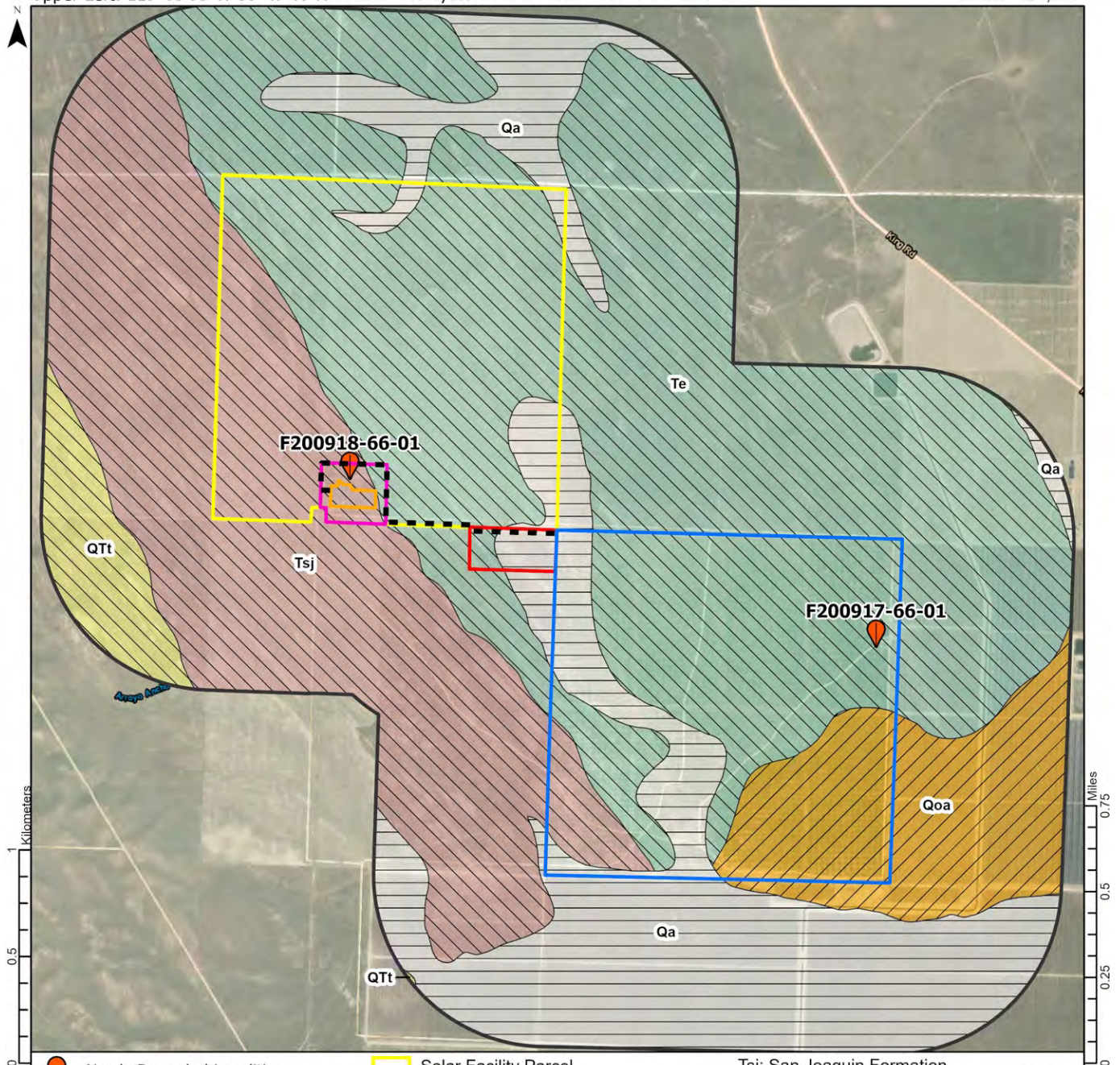
enclosure: invoice

Attachment C: Newly Documented Fossil Localities – CONFIDENTIAL

This Page Intentionally Left Blank

Upper Left: 119°55'53"W 35°47'46"N Coordinate System: NAD 1983 2011 UTM Zone 11N

Scale: 1:24,000



Newly Recorded Localities

Tie-In Path

Project Area

Existing PG&E Fence Line/ Substation Boundary

Gen- Tie Parcel

PG&E Property (Apprx)

Project Site

Solar Facility Parcel

0.5 Mile Radius

Geology Description

Qa: Alluvial gravel (Holocene)

Qoa: Older alluvial gravel (Pleistocene)

QTt: Tulare Formation, Valley sediments (Pleistocene to late Pliocene)

Tsj: San Joaquin Formation, Shallow and brackish marine clastic (upper Pliocene)

Te: Etchegoin Formation, Sandstone (Pliocene)

Paleontological Potential (PFYC)

Class 2 - Low

Class 3 - Moderate

Class 4 - High

Sources:

Base map from Esri ArcGIS Online World Imagery
Geologic Map of the Avenal Gap Quadrangle, Kings and Kern Counties, California by Dibblee, T.W., and Minch, J.A. (2006) 1:24,000 scale



This Page Intentionally Left Blank

Attachment D: CEQA Checklist

This Page Intentionally Left Blank

CEQA Environmental Checklist

PROJECT DESCRIPTION AND BACKGROUND

Project Title:	
Lead agency name and address:	
Contact person and phone number:	
Project Location:	
Project sponsor's name and address:	
General plan description:	
Zoning:	
Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation.)	
Surrounding land uses and setting; briefly describe the project's surroundings:	
Other public agencies whose approval is required (e.g. permits, financial approval, or participation agreements):	
<p>Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?</p> <p>Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.</p>	

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project. Please see the checklist beginning on page 3 for additional information.

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

DETERMINATION:

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	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.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	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:	Date:
Printed Name:	For:

CEQA Environmental Checklist

Dist.-Co.-Rte.

P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IV. 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, U.S. Fish and Wildlife Service, or NOAA Fisheries?	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VI. ENERGY: Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VII. GEOLOGY AND SOILS: Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input 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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 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 type="checkbox"/>	<input type="checkbox"/>
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 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 type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XII. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XIII. NOISE: Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XIV. POPULATION AND HOUSING: Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XVI. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION: Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric 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 type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XVIII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XX. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input 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 considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix I

Phase 1 Environmental Site Assessment

Phase I

Environmental Site Assessment

APN 043-210-17
APN 043-210-18
APN 043-210-28
APN 043-220-01
APN 048-350-017
APN 048-350-020

Lost Hills, California 93249

Prepared for:
SF Azalea, LLC
50 California Street, Suite 820
San Francisco, California 94111

June 2021



S2S Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583
www.s2serm.com

TABLE OF CONTENTS

1 – EXECUTIVE SUMMARY	1
2 – BACKGROUND	2
3 – STANDARDS.....	2
4 – OBJECTIVES.....	4
5 – ASSESSMENT.....	4
5.0 Site Reconnaissance.....	4
5.1 Site Research.....	6
5.2 Interviews.....	7
5.3 User Requirements	8
5.4 Topography, Geology, Hydrogeology, and Water Quality Survey.....	9
5.5 Site Vicinity Reconnaissance and Off-Site Source Survey.....	10
5.6 Historical Land Use Review	15
6 – CONCLUSIONS AND RECOMMENDATIONS.....	18
7 – REPORT USAGE AND FUTURE SITE CONDITIONS	20
8 – LIKELIHOOD STATEMENTS.....	20
9 – SPECIAL CONTRACTUAL CONDITIONS	21
10 – ENDNOTES	21

LIST OF FIGURES

- 1 Vicinity Map**
- 2 Project Location Map**

LIST OF TABLES

- 1 Specific Details of Six Parcels Comprising the Site and Access**
- 2 General Information Relative to the Site**
- 3 On-site Utilities**
- 4 Interviews and Contacts with Previous Owners and/or Occupants**
- 5 User Questionnaire and Responses**
- 6 Summary of Site Topography**
- 7 Summary of Site Geology**
- 8 Summary of Site Hydrogeology**
- 9 Summary of Water Quality in the Site Vicinity**
- 10 Summary of Land Use and Observations in the Site Vicinity**
- 11 Summary of Reviewed Databases**
- 12 Summary of Wells in Site Vicinity**
- 13 Summary of Resources for Evaluation of Historical Land Use**
- 14 Chronology of Site Land Use**
- 15 Chronology of Historical Use of Lands in the Vicinity of the Site**

LIST OF APPENDICES

- A. Site Visit Photographs**
- B. City Directory Data Report**
- C. Correspondence Records**
- D. Client/User Questionnaire**
- E. Topographic Maps**
- F. Environmental Regulatory Database Report**
- G. Site Oil Well Location Map**
- H. Historical Aerials Photographs**
- I. Sanborn Maps – No Coverage Letter**
- J. Sample CEQA Checklist**

List of Abbreviations and Acronyms

AAI	All Appropriate Inquiries
APN	Assessor's Parcel Number
AST	Above Ground Storage Tank
ASTM	American Society for Testing and Materials
CalGEM	California Geologic Energy Management Division
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERS	California Environmental Reporting System
CFR	Code of Federal Regulations
CORRACTS	RCRA Corrective Actions
CREC	Controlled Recognized Environmental Condition
DDT	Dichlorodiphenyltrichloroethane
DMC	De Minimis Condition
DTSC	California Department of Toxic Substances Control
EDR	Environmental Data Resources, LLC
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FINDS	Facility Index System Database
HREC	Historical Recognized Environmental Condition
IC/EC	Federal Engineering and Institutional Controls
KCBD	Kern County Building Department
KCFD	Kern County Fire Department
MGP	Manufactured Gas Plant
NFRAP	No Further Remedial Action Planned
NPL	National Priorities List
OCP	Organochlorine Pesticide
PG&E	Pacific, Gas, & Electric Company
RCRA	Resource Conservation and Recovery Act
RCRA GEN	RCRA Generators
RCRA TSDF	RCRA Treatment and Disposal Facilities
REC	Recognized Environmental Condition
RWQCB	Central Valley Regional Water Quality Control Board
S2S	Surf to Snow Environmental Resource Management
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWL	Solid Waste List
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program

1 – EXECUTIVE SUMMARY

SF Azalea contracted with Surf to Snow Environmental Resource Management (S2S) to perform a Phase I Environmental Site Assessment (ESA) of the following parcels located in Lost Hills, California (herein referred to as “Site”): APNs 043-210-17, -18, -28; 043-220-01. Also included in this scope is the project access roads currently located at APNs 048-350-017 and 048-350-020. This Phase I ESA was performed in general conformance with the scope and limitations of the following:

- United States Environmental Protection Agency (EPA), 40 Code of Federal Regulations (CFR) 312, Standards and Practices for All Appropriate Inquiries; Final Rule (AAI);
- American Society for Testing and Materials (ASTM) Standard Practice for Phase I Environmental Site Assessment Process E1527-13;
- ASTM Standard Practice for Phase I Environmental Site Assessment Process for Forested or Rural Property E2247-16; and,
- ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14).

Representatives from S2S conducted a site visit on September 21, 2020. The Site and access consists of six (6) parcels of land totaling approximately 2,238 acres of open grazing and dry farming land and a existing access road to the Pacific, Gas, & Electric company (PG&E) power substation currently located in an a parcel adjacent to APN 043-210-28. The PG&E substation, including buildings and associated transmission power lines were not included as part of this ESA.

The Site is located in an agricultural area in Northeast Kern County. The Site is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (Figs, Pistachios, and Almonds).

Historical research indicates that from the early 1900s through the early 2000s, the Site was largely open area periodically used for grazing. In the late 1960’s or early 1970’s, a PG&E power substation and associated transmission lines were constructed on two parcels (APN 043-210-27 and -28). Orchards have been planted toward the east and south of the Site in the late 1960’s/early 1970’s. By the 2000’s, the Site appeared to also be used for occasional dry farming, including irrigation.

Based on S2S’s review of environmental database listings, inquiries with county and state agencies, assessment of publicly available information, interviews with property owners and interested parties, and a Site reconnaissance visit, no recognized environmental condition (REC), controlled recognized environmental condition (CREC), or historical recognized environmental condition (HREC) were identified for the Site.

The following de minimis conditions (DMCs) were identified during this ESA:

- A total of 1 water disposal well and 27 historical oil wells were identified within approximately 1 mile of the Site. Only 5 of the 27 wells are currently active, with all others appearing to have been dry and plugged following drilling. Two out of service above ground storage tanks are also located approximately 1 mile east of the Site. Oil field operations must always be considered a potential source of environmental contamination. Typical contaminants can include crude and refined petroleum hydrocarbons, heavy metals, biocides, and possibly polychlorinated biphenyls. Given all oil and water disposal wells are downgradient from the Site, as well as their proximity to the Site, S2S considers oil field operations a DMC.
- Historical research indicates that the Site has been utilized for agricultural land use, primarily dry farming, grazing, and occasional irrigation (on the eastern portion). It has been S2S's

experience that residual concentrations of organochlorine and metal-based pesticides such as dichlorodiphenyltrichloroethane (DDT), dieldrin, toxaphene, and arsenic may have used, as is common throughout many agricultural regions of the United States. These classes of pesticides are known to have the potential to remain in detectable concentrations in the subsurface for extended periods of time. Based on the current Site use of the Site, and planned redevelopment as a solar facility, the potential presence of residual concentrations of pesticides in the shallow on-site soils is considered a DMC, since (in S2S's opinion), the pesticides have a low potential to exceed regulatory action levels for agricultural or commercial properties.

- During the Site visit, an area of impacted soil was observed near the eastern boundary of the Site. Subsequent interviews identified this area as a land farm for sediment ("organics") removed from the bottom of a settling pond directly south of this area. The pond is owned and operated by the Wonderful Company. It has been S2S's experience that residual concentrations of organochlorine and metal-based may be present in agricultural water stored in settling ponds, along with the associated sediment at the bottom of those ponds. Based on the current use of the Site, the potential presence of residual concentrations of pesticides in the area of the land farm is considered a DMC, since (in S2S's opinion) the pesticides have a low potential to exceed regulatory action levels for agricultural or commercial properties.

2 – BACKGROUND

Based on conversations with SF Azalea, LLC (Client) and a review of in-house databases, Surf to Snow Environmental Resource Management (S2S) understands that the site, including access, consists of six parcels comprising approximately 2,238 acres of vacant and undeveloped land, identified as APNs 043-210-17, -18, -28; 043-220-01; and, 048-350-017, -020 in Lost Hills, California (Site) (Figure 1). The Site is undeveloped and consists of vacant land used for grazing purposes. The Client is proposing to purchase and develop the Site into a solar power generation and battery storage facility identified as the Azalea Solar Project.

A review of the Kern County Geographic Information System (GIS) database provided the following information in connection with the Site. APNs 043-210-17, -18, -28; 043-220-01; and, 048-350-017, -020

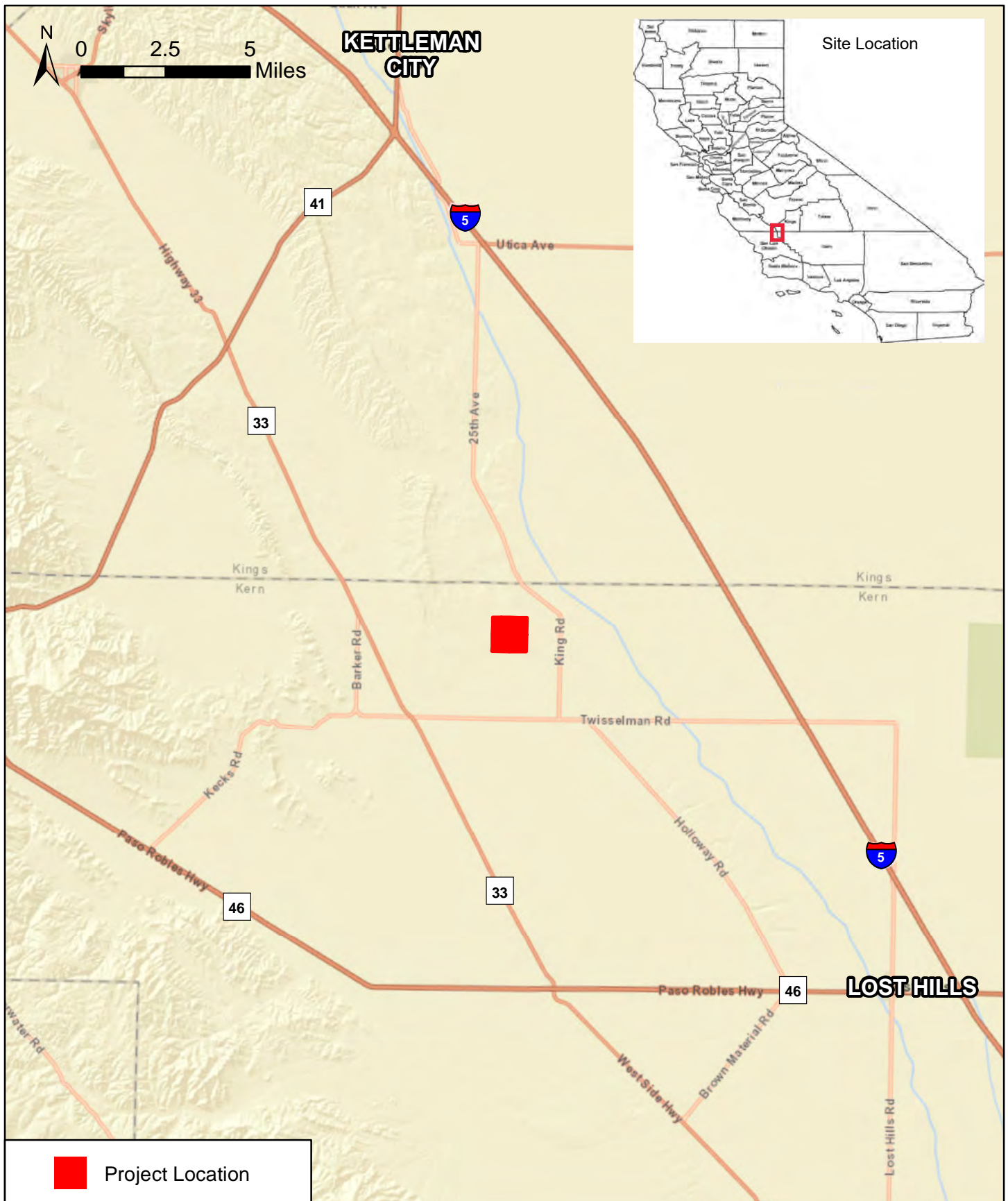
Table 1: Specific Details of the Six Parcels Comprising the Site and Access

APN	Address	Acre	Description	Project Use
043-210-17	n/a	480	Agricultural	Site
043-210-18	n/a	160	Agricultural	Site
043-210-28	n/a	618.38	Agricultural	Site
043-220-01	n/a	20	Agricultural	Site
048-350-017	n/a	320	Agricultural	Access
048-350-020	n/a	640	Agricultural	Access

3 – STANDARDS

This ESA was conducted in general accordance with the following:

- United States (U.S.) Environmental Protection Agency (EPA), 40 Code of Federal Regulations (CFR) 312, Standards and Practices for All Appropriate Inquiries; Final Rule (AAI);



Surf to Snow ERM
 2246 Camino Ramon
 San Ramon, CA 94583
 (925) 326-3041

Figure 1
Vicinity Map
Azalea Solar Facility Project
Kern County, CA

- American Society for Testing and Materials (ASTM) Standard Practice for Phase I Environmental Site Assessment Process E1527-13;
- ASTM Standard Practice for Phase I Environmental Site Assessment Process for Forested or Rural Property E2247-16;
- ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14).

The Client understands that the above-referenced EPA and ASTM standards were not developed to identify all environmental risk to property. The standards were developed to allow a user (Client) to qualify for the innocent purchaser defense, bona fide prospective purchaser defense, and contiguous property owner defense to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, a.k.a. Superfund) liability. This ESA is intended to constitute an appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice, as part of the due diligence process required by CERCLA, the Superfund Amendments and Reauthorization Act of 1986, and the Small Business Liability Relief and Brownfields Revitalization Act of 2002 (collectively, Acts).

While this ESA may initially qualify the Client for a CERCLA defense, after purchase, there may be continuing obligations that must be implemented in order to preserve this defense through the term of property ownership. There may be additional requirements under state law that also apply. The Client should contact qualified legal counsel regarding matters of liability, interpretation of the Acts, and potential continuing obligations. Although it is outside the scope of this ESA, S2S would be pleased to work with the Client's legal counsel to develop and implement a strategy to preserve the Client's CERCLA liability defenses through the term of its ownership.

This ESA focused on potential sources of hazardous substances and petroleum products that could be considered either a recognized environmental condition¹ (REC), controlled recognized environmental condition² (CREC), or historical recognized environmental condition³ (HREC), and potentially a liability due to their presence in significant concentrations (e.g., above acceptable limits set by the federal, state, or local government) or due to the potential for exposure and risk due to contaminant migration and complete exposure pathways (e.g., soil vapor inhalation or groundwater ingestion). Materials that

¹ Recognized environmental conditions, as defined by ASTM, include the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any 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. However, the term is not intended to include de minimis conditions (a condition that generally does not present a threat to human health or the environment and that generally would not be subject to an enforcement action if brought to the attention of appropriate governmental agencies). A condition considered de minimis is not a recognized environmental condition.

² Controlled recognized environmental condition, as defined by ASTM, is 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 use limitations, institutional controls, or engineering controls).

³ Historical recognized environmental condition, as defined by ASTM, is 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).

contain substances that are not currently deemed hazardous by the EPA or the California EPA were not considered as part of this ESA.

Unless specifically included in S2S' scope of services, building materials such as asbestos, lead-based paint, urea formaldehyde, and pressure-treated lumber, as well as lead in drinking water, are not considered in this ESA, nor are building issues such as fire safety, indoor air quality (with the possible exception of vapor intrusion), mold, or similar matters. S2S did not evaluate the Site for compliance with land use, zoning, wetlands, or similar laws. This ESA also excludes regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, and high-voltage power lines. This ESA is not intended to be an environmental compliance audit.

Hazardous substances occurring naturally in plants, soils, and rocks (e.g., heavy metals, naturally occurring asbestos, and radon) are not typically considered in these investigations. Similarly, construction debris (e.g., discarded concrete, asphalt) is not considered, unless obvious indications suggest that hazardous substances are likely to be present in significant concentrations or likely to migrate.

An evaluation of business environmental risk associated with a parcel of commercial real estate may necessitate investigation beyond that included herein.

4 – OBJECTIVES

The objective of this ESA is to identify the likelihood⁴ that recognized environmental conditions are present at the Site as a result of the current or historical Site land use or from a known and reported off-Site source.

5 – ASSESSMENT

The scope of services designed and conducted to meet the objective was as follows:

- Site Reconnaissance, Site Research, Interviews, and User Requirements
- Topography, Geology, Hydrogeology, and Water Quality Survey
- Site Vicinity Reconnaissance and Off-site Source Survey
- Historical Site and Site Vicinity Land Use Review
- Identification of Data Gaps
- Data Evaluation, Figure Preparation, and Assessment Report Preparation

5.0 SITE RECONNAISSANCE

On September 21, 2020, S2S personnel conducted a Site reconnaissance to observe and document existing Site conditionsⁱ. The general Site vicinity is shown in Figure 1, and a Site Project Location is shown in Figure 2. Selected color photographs from the Site reconnaissance are presented in Appendix A.

The Site grounds and Site perimeter were systematically traversed on foot during the Site reconnaissance. Due to the size of the properties (2,238 acres) and the nature of the Site as predominantly undeveloped land, the Site reconnaissance for open space/undeveloped portions of the

⁴ Statements of likelihood are made in this Assessment, based on the professional judgment of S2S. A description of likelihood statements, as made in this Assessment, is included in the "Likelihood Statements" section.

Site was conducted in accordance with ASTM Standard Practice E2247-16, Phase I Environmental Site Assessment Process for Forested or Rural Property.

5.0.0 General Information

Table 2: General Information Relative to the Site

APN	APNs 043-210-17, -18, -28; 043-220-01; and, 048-350-017, -020
Area	2,238 acres
Site Land Use	Grazing
Occupant	None
Figure Reference	Figure 2

5.0.1 Site Buildings

No buildings were observed at the Site.

5.0.2 Site Grounds

The Site grounds were observed to consist of five, gently sloping, vacant, and undeveloped parcels of land covered with sparse to moderately dense native vegetation that is currently used for grazing. Metal fencing, with gates at the entry and exit points, was observed around each of the three large parcels (043-210-17, 043-210-28, and 048-350-020) with dirt roads bisecting the perimeter and central portions of the Site. Although dirt paths were observed onsite, no livestock were present during the Site reconnaissance. A watering trough area where livestock appear to gather was observed in the northwest corner of parcel 043-210-17.

A settling pond was observed along the eastern boundary of parcel 043-210-17. The pond appeared to be used to contain excess water runoff from adjacent pistachio orchards. The water in the pond was being pumped to a sprinkler system and sprayed over the area of parcel 043-210-18. North of the pond, dark soil was observed on the ground in trails originating from a linear sprinkler line. Distressed vegetation was observed in the area south of the eastern end of the sprinkler line. Between the sprinkler line and the property boundary, dark, abnormal soil was observed over an area of approximately 100 ft by 200 ft. Photos of the discolored soil and vegetation are provided in Appendix A. The area appeared to be a land farm for the soil, which was darker than surrounding soil. No other areas of distressed vegetation or discolored soil were observed.

5.0.3 Hazardous Materials/Petroleum Products

No obvious indications of the storage or use of hazardous materials and/or petroleum products were observed at the Site during the Site reconnaissance.

5.0.4 Hazardous Wastes

No obvious indications of the generation of hazardous wastes were observed at the Site during the Site reconnaissance.

5.0.5 Evidence of Hazardous Materials/Waste or Petroleum Release

No obvious indications of releases of hazardous materials/wastes or petroleum products were observed at the Site during the Site reconnaissance.

5.0.6 On-Site Utilities

Table 2: On-site Utilities

Gas and Electricity	Signs indicating a high-pressure gas line were observed transecting the site along the central parcel boundaries.
High-power Transmission Lines	Transmission lines associated with the PG&E substation were observed on parcel 043-210-28
Storm Drains	None observed to be located at the Site
Source of Heating and Cooling	Not Applicable
Potable Water Source	None observed to be located at the Site
Wastewater Conveyance	Not Applicable

No obvious indications of wells, cisterns, sumps, or dry wells were observed at the Site.

Markers indicating a high-pressure gas line were observed running East/West along the northern boundary of parcel 043-210-17 and the southern boundary of parcel 043-210-28 (see Figure 2). No operational information or other details (e.g. condition and depth) about the gas line were discovered.

A water trough for grazing animals was observed near the northwest corner of Parcel APN 043-210-17. A storage tank (Figure 2), assumed to store water for the trough was observed east of the water trough.

5.1 SITE RESEARCH

5.1.0 Preliminary Title Report

No title report was provided for this ESA. Based on a database review of property locations with environmental liens for California where California Department of Toxic Substances Control (DTSC) is a lien holder, no obvious indications of environmental liens or land use restrictions are present for the Site. A report of available city directory data regarding Site and adjacent property ownership is provided in Appendix B.

5.1.1 Department of Public Health Services File Review

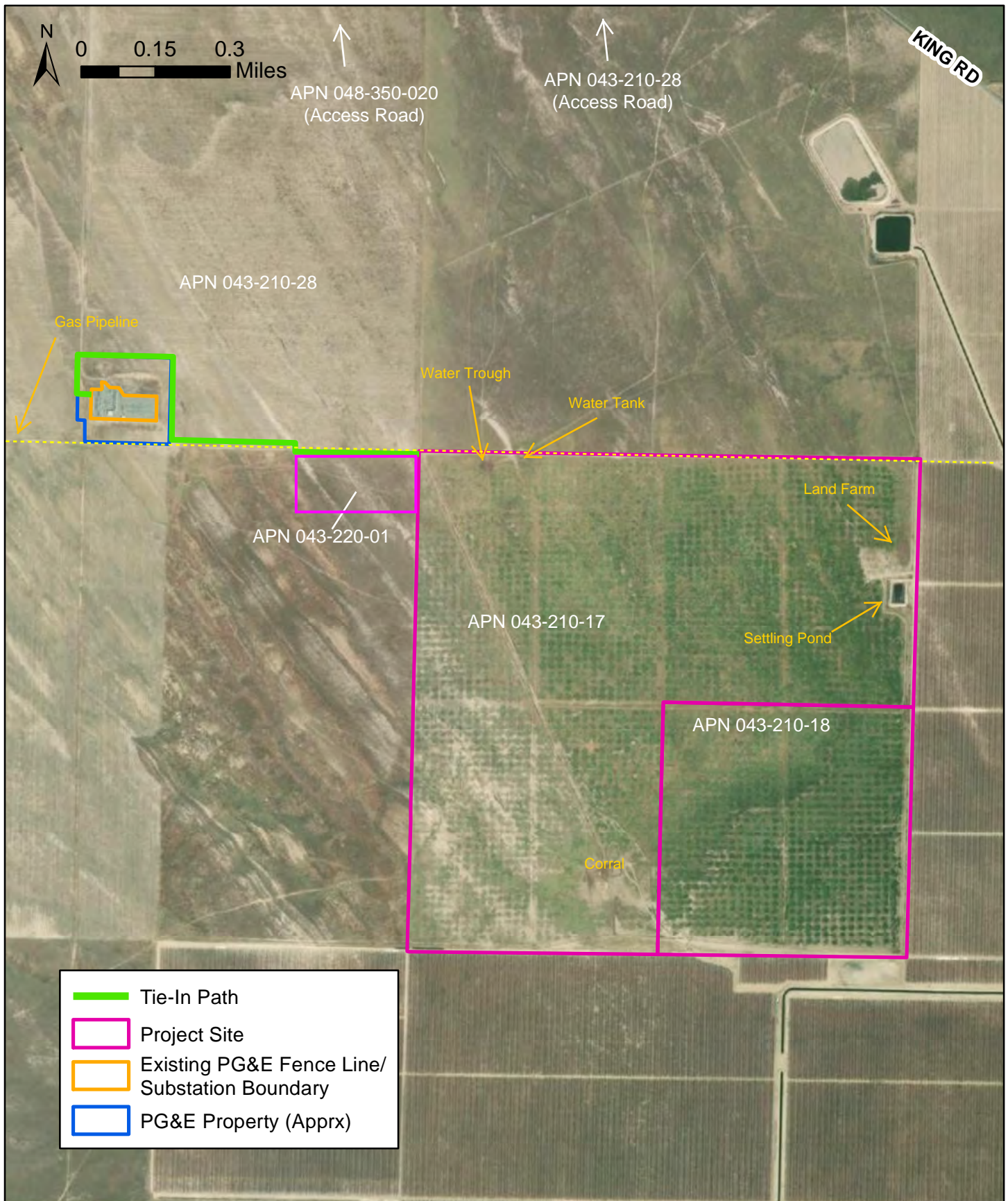
The Kern County Public Health Services Department was contactedⁱⁱ who indicated that there are no files associated with the Site. A copy of the correspondence with the Kern County Public Health Services Department for the Site is included in Appendix C.

5.1.2 Fire Department Records Review

The Kern County Fire Department (KCFD) was contacted regarding hazardous materials/waste or underground storage tank (UST) records for Site.ⁱⁱⁱ The KCFD responded that no records were available for the Site. A copy of the KCFD records request is included in Appendix C.

5.1.3 Building Department Records Review

Kern County Building Department (KCBD) records were requested for the Site.^{iv} The KCBD indicated that there are no files associated with the Site. A copy of the KCBD correspondence for the Site is included in Appendix C.



Surf to Snow ERM
 2246 Camino Ramon
 San Ramon, CA 94583
 (925) 326-3041

Figure 2
Project Location
Azalea Solar Facility Project
Kern County, CA

5.1.4 San Joaquin Valley Air Pollution Control District (SJVAPCD) Records Review

The SJVAPCD was contacted^v regarding records for the Site. According to the SJVAPCD there are no files associated with the Site. A copy of the SJVAPCD response for the Site is included in Appendix C.

5.1.5 Department of Agriculture and Measurement Standards Records Review

The Kern County Department of Agriculture and Measurement Standards was contacted^{vi} regarding records for the Site. A response from the Kern County Department of Agriculture and Measurement Standards indicated they do not maintain records based on parcel numbers. The response also indicated that their staffing structure does permit them to provide individual records. A voicemail left by S2S to Kern County Department of Agriculture and Measurement Standards requesting clarification was not returned. A copy of the Kern County Department of Agriculture and Measurement Standards records request for the Site is included in Appendix C.

5.1.6 Regional Water Quality Control Board (RWQCB) Records Review

The Central Valley RWQCB was contacted^{vii} regarding records for the Site. According to the RWQCB, no records are maintained for the Site. A copy of the RWQCB response for the Site is included in Appendix C.

5.1.7 Department of Toxic Substances Control (DTSC) Records Review

The DTSC was contacted^{viii} regarding records for the Site. According to the DTSC, they are unable to search records based on APNs, therefore no records are maintained for the Site. A copy of the DTSC response for the Site is included in Appendix C.

5.2 INTERVIEWS

The previously referenced EPA and ASTM standards require that attempts be made to conduct interviews with past and present owners and occupants of the Site to obtain information indicating recognized environmental conditions in connection with the Site. As part of this ESA, the following contacts were either interviewed or attempts were made to conduct interviews.

Table 3: Interviews and Contacts with Previous Owners and/or Occupants

Contact	Affiliation to Site	Description	Interview Date
Unknown	Unknown	Apparent employee of Neighboring Pistachio Farm	September 21, 2020
Jim Anderson	Landowner		November 16, 2020

During the site visit on September 21, 2020, Tim Naughton observed water being pumped into the settling pond east of parcel 043-210-17, presumably from the adjacent pistachio farm, and then to a sprinkler system to the south where it was being sprayed on the surface. Three men were working on the sprinkler system pumps when Mr. Naughton was conducting his visit. After viewing what appeared to be abnormal soil with high organic content or chemicals on the ground surface north of the Pond, Mr. Naughton approached the men to inquire about the origin of this soil. One said the area north of the pond was where they distributed the solids from the bottom of the settling pond. No other information was provided, nor was a name given.

On November 20, 2020, Mr. Naughton interviewed Jim Anderson, the Site Landowner over the phone. Mr. Anderson stated that, to his knowledge, hazardous materials and petroleum products were not used

or stored at the Site and that hazardous wastes were not generated at the Site. Also, to his knowledge, there have been no releases of hazardous materials, petroleum products, and/or hazardous waste at the Site. Mr. Anderson stated he was not aware of the installation of any oil wells or other petroleum exploration related facilities on or near the Site.

Mr. Anderson stated that the property was used for grazing, dry farming, and occasionally for growing wheat. The Site was irrigated to facilitate cultivation of wheat. Mr. Anderson confirmed that the pond located near the eastern boundary of the Site is owned and operated by the Wonderful Company. Per Mr. Anderson, the pond is used for collected surface runoff of agricultural water. Occasionally the sediment and “organics” on the bottom of the pond is excavated and placed on the ground north of the pond by representatives from the Wonderful Company. To his knowledge, the water has never been tested.

5.3 USER REQUIREMENTS

To qualify for one of the landowner liability protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (discussed in the “Background” section), 40 CFR 312 requires that the user (Client) provide the following information to the environmental professional. Mr. Diego Osnaya, with Idemitsu Renewables, completed the User Questionnaire on November 12, 2020. The following table summarizes the responses by the Client. A copy of the questionnaire is provided in Appendix D.

Table 4: User Questionnaire and Responses

Questions	Response
Have environmental cleanup liens been filed or recorded against the Site?	No
Are activity or land use limitations in place at the Site, or have they been filed or recorded in the registry?	Yes ^{5, 6}
Does the user have specialized knowledge or experience in connection with the Site?	No
Does the purchase price being paid for the Site reasonably reflect the fair market value of the Site?	Yes
Is the Client aware of commonly known or reasonably ascertainable information about the Site that would indicate releases or threatened releases?	No
Are there obvious indications that point to the presence of contamination at the Site?	No

5.3.0 Data Gaps in Connection with Current Site Land Use

Based on observations and research, and with the possible exceptions discussed below, there are no obvious indications of data gaps in connection with the current Site land use:

Findings and Opinions—Current Site Land Use
Based on observations and research, it is our opinion that there are no recognized environmental conditions at the Site as a result of the current Site land use. The soil in the apparent land farm near the eastern boundary of parcel 043-210-17 may contain concentrated salts, pesticides, and/or insecticides from agricultural runoff contained in the settling

⁵ Mr. Osnaya stated that the Site is currently encumbered by a Williamson Act contract.

⁶ Mr. Osnaya stated that the Site is used as grazing land, and occasional non-irrigated wheat farming during wet periods.

pond near this area. The placement of soil in this area appears to be intentional and does not appear to present a threat to human health or the environment.

5.4 TOPOGRAPHY, GEOLOGY, HYDROGEOLOGY, AND WATER QUALITY SURVEY

5.4.0 Topography

A topographic map for the Site vicinity was reviewed and is summarized in the following table. Topographic maps reviewed are provided in Appendix E.

Table 6: Summary of Site Topography

Reported Elevation	Approximately 462 to 584 feet above mean sea level
Reported Slope Direction	Slopes gently down to the southwest
Source	United States Geological Survey 7.5 Minute Topographic Map, Avenal Gap/Emigrant Hill Quadrangles, California – Kern County 2012

5.4.1 Geology

A geological map for the Site vicinity was reviewed and is summarized in the following table.

Table 7: Summary of Site Geology

Reported Formation	Pliocene (P)
Reported Description	Marine sedimentary rocks: Sandstone, siltstone, shale, and conglomerate; mostly moderately consolidated
Source	California Department of Conservation, California Geologic Survey http://maps.conservation.ca.gov/cgs/gmc/

5.4.2 Hydrogeology

Data regarding depth to groundwater and flow direction for the Site were not readily available. In the absence of Site-specific data, depth to groundwater and flow direction information was reviewed for properties within the Site vicinity using the State Water Resources Control Board GeoTracker database. The following table summarizes the results of this review.

Table 5: Summary of Site Hydrogeology

Property Location	Robertson's Market – 21124 HWY 46 (Formerly 62160 HWY 46), Lost Hills, CA 93249 (located approximately 18 miles to the southeast of the Site)
Reported Depth to Groundwater	Groundwater was encountered during drilling activities at a depth of approximately 55 feet below ground surface
Reported Groundwater Flow Direction	Varies, predominant groundwater gradient has been toward the west and northeast
Source	Second Quarter 2020 Progress Report, Robertson's Market, 21124 State Highway 46, Lost Hills, CA 93246, prepared by Krazan-VEIR and dated August 5, 2020

Many variables influence depth to groundwater and flow direction, and the actual depth to groundwater and flow direction at the Site may be different than presented in this section.

5.4.3 Water Quality Survey

Table 6: Summary of Water Quality in the Site Vicinity

Reported Hydrologic Sub-basin	San Joaquin Valley - Kettleman Plain 5-022.17
Reported Hydrologic Watershed	Tulare Lake Bed (Sub Watershed - Antelope Valley-Antelope Plain)
Reported Beneficial Use	Municipal, Agricultural, Industrial, and Process Supply
Source	California RWQCB GeoTracker website: https://geotracker.waterboards.ca.gov/

5.5 SITE VICINITY RECONNAISSANCE AND OFF-SITE SOURCE SURVEY

5.5.0 Current Site Vicinity Conditions

The following table summarizes land use and observations in the immediate Site vicinity.^{ix} For the purpose of this Report, the immediate Site vicinity includes those properties judged to be adjacent⁷ to the Site.

Table 7: Summary of Land Use and Observations in the Site Vicinity

Direction	Land Use	Comments
North	Agricultural	No obvious indications of the use, storage, or generation of hazardous materials/wastes or petroleum products were observed. Power transmission lines originating at the PG&E Substation travel east and north from the Site.
East	Agricultural	No obvious indications of the use, storage, or generation of hazardous materials/wastes or petroleum products were observed.
South	Agricultural	No obvious indications of the use, storage, or generation of hazardous materials/wastes or petroleum products were observed.
West	Agricultural	No obvious indications of the use, storage, or generation of hazardous materials/wastes or petroleum products were observed.

5.5.1 Environmental Regulatory Database Report

Environmental Data Resources, LLC (EDR) prepared an environmental regulatory database report (Radius Map™ report^x) for the Site. Local, state, and federal regulatory databases were reviewed for the Site and for those facilities within up to 1.5 mile of the Site. The Radius Map™ report was reported to have been prepared in general accordance with the ASTM standard for the regulatory database review for Phase I Environmental Site Assessments. The locations of the referenced facilities relative to the Site

⁷ Adjacent is defined by ASTM E1527-13 as any real property or properties the border of which is contiguous or partially contiguous with that of the Site or that would be contiguous or partially contiguous with that of the Site but for a street, road, or other public thoroughfare separating them.

are shown on the overview maps, included in the Radius Map™ report. A description of the various databases, as well as the date each database was most recently updated, is included in the Radius Map™ report. The Radius Map™ report is included in Appendix F.

Based on a review of the Radius Map™ report, the following table summarizes the facilities within the selected search radii and whether the Site or a facility that was interpreted to be adjacent to the Site was listed on each database.

Table 8: Summary of Reviewed Databases

Federal or State Government Database	Search Radius	Number of Reported Facilities	On Site	Adjacent to the Site
National Priorities List (NPL)	2.50 mile	0	No	No
NPL Delisted	2.50 mile	0	No	No
Federal CERCLIS List	2.00 mile	0	No	No
No Further Remedial Action Planned (NFRAP)	2.00 mile	0	No	No
Resource Conservation and Recovery Act–Corrective Action (CORRACTS)	2.50 mile	0	No	No
RCRA Treatment and Disposal Facilities (RCRA TSDF)	2.00 mile	0	No	No
RCRA Generators (RCRA GEN)	1.75 mile	0	No	No
Federal Engineering and Institutional Controls (IC/EC)	2.00 mile	0	No	No
Emergency Response Notification System (ERNS)	1.50 mile	0	No	No
State/Tribal-Equivalent NPL	2.50 mile	0	No	No
State/Tribal-Equivalent CERCLIS (ENVIROSTOR)	2.50 mile	0	No	No
State/Tribal Solid Waste List (SWL)	2.00 mile	0	No	No
State/Tribal Leaking Underground Storage Tanks List	2.00 mile	0	No	No
State/Tribal Underground/Aboveground Storage Tanks (USTs/ASTs)	1.75 mile	0	No	No
State/Tribal Voluntary Cleanup Program (VCP)	2.00 mile	0	No	No
State/Tribal Brownfields	2.00 mile	0	No	No
Federal Brownfields	2.00 mile	0	No	No
Local Lists of Hazardous Waste/Contaminated Sites	1.50 mile	0	No	No
Local Lists of Registered Storage Tanks	1.75 mile	0	No	No
Local Land Records (DEED and LIENS)	1.50 mile	0	No	No
Records of Emergency Release Reports	1.50 mile	0	No	No
Other Ascertainable Records (e.g., Facility Index System database [FINDS], Wastewater Pits, and California Environmental Reporting System [CERS])	1.50 mile	0	No	No
EDR High Risk Historical Records (Historic Auto, Historic Cleaner, Manufactured Gas Plant [MGP])	1.625 mile	0	No	No
EDR Recovered Government Archives	1.50 mile	0	No	No

The EDR Radius Map™ report states “The target property was not listed in any of the databases searched by EDR.”

The Off-Site facility listed in the Radius Map™ report was evaluated as to its potential to impact the Site. The databases included in the Radius Map™ report can be grouped into two general categories: databases reporting unauthorized releases of hazardous substances or petroleum products (e.g., Leaking Underground Storage Tanks, RCRA COR ACT facilities, NPL [a.k.a. Superfund] sites) and databases reporting permitted hazardous materials users and hazardous waste generators for which a release has not been reported to, and recorded by, the regulatory agency. S2S evaluated the off-Site facility based on the following factors:

- Reported distance of the facility from the Site⁸;
- The nature of the database on which the facility is listed, and/or whether the facility was listed on a database reporting unauthorized releases of hazardous materials;
- Petroleum products, or hazardous wastes;
- Reported case type (e.g., soil only, failed UST test only);
- Reported substance released (e.g., chlorinated solvents, gasoline, metals);
- Reported regulatory agency status (e.g., case closed, “no further action”); and,
- Location of the facility with respect to the reported groundwater flow direction and depth to groundwater (discussed in the “Hydrogeology” section of this Report).

Based on one or more of the factors listed above, and with possible exceptions discussed in the “Additional S2S Research” section below, there is a low likelihood that the off-Site facility listed in the Radius Map™ report represents a recognized environmental condition in connection with the Site. EDR did not list any facilities as being “orphans,” which are facilities for which EDR does not have sufficient information to accurately locate them on a map.

5.5.2 Additional Research

California Division of Oil and Gas

S2S personnel reviewed the California Division of Oil and Gas Map regarding oil and gas well locations within 1 mile of the Site.^{xi} Available oil and gas well maps from the California Geologic Energy Management Division (CalGEM) were reviewed to identify oil and gas wells on the Site or in the nearby area. According to the Online Wellfinder (WellSTAR) mapping tool, a total of 1 water disposal well and 27 oil wells were identified. Information files for the wells are available on the CalGEM website.

Documents reviewed for the wells near the Site state that 22 wells were abandoned due to no oil or gas being found. There are 5 active wells east-southeast of Site. Two out of service above ground storage tanks are also located approximately 1 mile east of the Site. Oil field operations are considered a potential source of environmental contamination. Typical contaminants can include crude and refined

⁸ Based on the State Water Resources Control Board’s “Technical Justification for Groundwater Media-Specific Criteria,” (Groundwater Study) (April 2012), developed to support the State of California “Low Threat Closure Policy” (adopted May 2012), “plume length studies recognize that petroleum plumes stabilize in length due to natural attenuation.” The Groundwater Study goes on to cite Shih T., Y. Rong, T. Harmon, and M. Suffet, 2004, “Evaluation of the impact of fuel hydrocarbons and oxygenates on groundwater resources” (Environmental Science & Technology. Vol. 38, No. 1: 42-48) that a peer-reviewed study of plume lengths at 500 petroleum UST sites in the Los Angeles area is widely accepted as representative of plume lengths at California UST sites. Shih et al. reports methyl tertiary butyl ether (MTBE), with 90th percentile maximum plume lengths of 540 feet. Therefore, the detailed review radius for open groundwater cases has been conservatively established by S2S at 0.20 mile (approximately 1,000 feet). For non-release cases (e.g., permitted facilities), only those facilities that were judged to be immediately adjacent to the Site were interpreted to have the potential to represent a recognized environmental condition.

petroleum hydrocarbons, heavy metals, biocides, and possibly polychlorinated biphenyls. These contaminants may be associated with the following sources: oil wells; well cellars (pits next to oil wells that held brine and generated oil); sumps; above ground storage tanks; and piping.

Table 12: Summary of Wells in Site Vicinity

API	Well Number	Status	Operator
0402936422	1	Drilled, Dry Hole, Plugged	James Ebert
0403100813	36	Drilled, Dry Hole, Plugged	Helm Co. & Robert Sumpf
0403100814	123	Drilled, Dry Hole, Plugged	Occidental Petroleum Corporation
0403120317	1	Drilled, Dry Hole, Plugged	Shell Western E&P Inc.
0403100818	1	Drilled, Dry Hole, Plugged	Chevron U.S.A. Inc.
0403100810	1	Drilled, Dry Hole, Plugged	Bristol Oil Co.
0403100815	18A-35	Drilled, Dry Hole, Plugged	Occidental Petroleum Corporation
0403100817	1	Drilled, Dry Hole, Plugged	South Dome Oil Co.
0403120001	1	Drilled, Dry Hole, Plugged	Robert Sumpf
0402952197	41	Drilled, Dry Hole, Plugged	New Chaparral Petroleum, Inc.
0402936366	1	Drilled, Dry Hole, Plugged	Bristol Oil Corporation
0402935282	131X-2	Drilled, Dry Hole, Plugged	Occidental Petroleum Corporation
0402979274	1	Drilled, Dry Hole, Plugged	Triton Oil & Gas Corp.
0402936400	1	Drilled, Dry Hole, Plugged	Crescent Petroleum Co.
0402935281	16-1	Drilled, Dry Hole, Plugged	Occidental Petroleum Corporation
0402913615	1	Drilled, Dry Hole, Plugged	Shell Western E&P Inc.
0402936430	62	Drilled, Dry Hole, Plugged	D. W. Elliott and Pexco Inc.
0403023548	E2-12	Active	Harvest Petroleum, Inc.
0402903644	1	Drilled, Dry Hole, Plugged	Chevron U.S.A. Inc.
0402903645	4-2	Drilled, Dry Hole, Plugged	Chevron U.S.A. Inc.
0403009674	86X-12	Active	Harvest Petroleum, Inc.
0403020990	E1-12	Active	Harvest Petroleum, Inc.
0403009908	W1-1-12	Water Disposal	Harvest Petroleum, Inc.
0403006311	76X-12	Active	Harvest Petroleum, Inc.
0402936431	58	Drilled, Dry Hole, Plugged	Elliott Classen & Mickle
0402967969	B-1	Active	Harvest Petroleum, Inc.
0402939381	41	Drilled, Dry Hole, Plugged	Los Nietos Producing and Refining Co., Ltd.
0402950727	81-13	Drilled, Dry Hole, Plugged	Chevron U.S.A. Inc.

A map showing the oil wells on and surrounding the Site is provided in Appendix G. Well installation logs and summary reports, records of abandonment, and operational reports are available on the CalGEM Online Wellfinder (WellSTAR) website:

(<https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-119.90214/35.77411/14>)

Active wells were observed to be approximately 1 mile east of the Site. Two out of service tanks are also located approximately 1 mile east of the Site. Oil field operations must always be considered a potential source of environmental contamination. Typical contaminants can include crude and refined petroleum hydrocarbons, heavy metals, biocides, and possibly polychlorinated biphenyls. These contaminants may be associated with the following sources:

- **Oil Wells** – Both producing and abandoned oil wells can be the source of petroleum hydrocarbon wastes. Contamination, while most common near the soil surface, can occur anywhere along the casing. Most of the contamination consists of the heavier petroleum hydrocarbon fractions associated with Southern California crude oils. These crudes can also contain low levels of aromatic hydrocarbons (benzene, xylenes, ethylbenzene, etc.).
- **Well Cellars** – Well cellars are pits dug adjacent to completed oil wells in which brine and oil generated during oil production are stored prior to removal. These cellars are usually concrete lined, but water and oil can be released into the surrounding soil through cracks and joints in the concrete and overflow. If diesel or gasoline-powered pumps were located at or near the cellars, spillage may have occurred resulting in the presence of refined petroleum products in the soil. No physical evidence of well cellars was noted during the on-Site inspection.
- **Sumps** – Sumps are generally unlined excavations into which petroleum-related wastes are disposed of during the exploration, production, and abandonment processes. Typically, sumps are found of two general types. One is a relatively small excavation near an oil well used for the temporary storage of drilling mud, extracted oil, and brine. The second type of sump is generally much larger, perhaps up to an acre or more in size. These large sumps can contain virtually any type of liquid oil-field wastes, including crude oil, refined petroleum products, drilling muds (containing heavy metals, solvents, and biocides), paint wastes, pesticides, industrial solvents, and so forth. No physical evidence of sumps was noted during the on-Site inspection.
- **Aboveground storage tanks (ASTs)** – ASTs were used extensively to store crude oil prior to removal to the refinery by vacuum truck. Typically, the tanks were enclosed by low earthen or concrete berms designed to contain spillage of petroleum hydrocarbons. As a result of spillage, surface and subsurface soils in many tank enclosures would often contain high concentrations of petroleum hydrocarbons. Tanks were observed approximately 1 mile east of the Site.
- **Piping** – Product piping, which connects individual oil wells to temporary storage or to a refinery, can also be a source of contamination. Holes or breaks in piping can occur at intersections, elbows, and joints. In addition, metal fatigue can occur at any point along a run of pipe. No physical evidence of oil or gas pipelines was noted during the on-Site inspection.

The extent to which any of these sources may have caused potential impacts to the Site is unknown at this time. Although records were not obtained indicating that the former wells permitted near the Site were actively producing oil, as they appear to have been drilled, plugged, and abandoned in the same year, the existence of possible oil field operations near the Site is considered a possible recognized environmental condition. In addition, the accumulation of natural gas (i.e., methane) in subsurface soils from abandoned oil wells is not unusual at former petroleum exploration and production sites.

Data Gaps in Connection with Off-Site Sources

Based on the Site vicinity reconnaissance and off-Site source survey, there are no obvious indications of data gaps in connection with off-Site sources.

Findings and Opinions—Off-Site Source Survey

Based on the off-Site source survey there are no recognized environmental conditions at the Site as a result of known and reported releases of hazardous materials/wastes or petroleum products from an off-Site source. This opinion is based on one or more of the following: reported regulatory status (e.g., case closed), media affected (e.g., soil contamination only), distance from the Site, direction from the Site with respect to reported groundwater flow direction, and lack of reports or open cases regarding releases from off-Site sources.

S2S personnel reviewed the California Division of Oil and Gas Map regarding oil and gas well locations within 1 mile of the Site.^{xi} Available oil and gas well maps from the California Geologic Energy Management Division (CalGEM) were reviewed to identify oil and gas wells on the Site or in the nearby area. According to the Online Wellfinder (WellSTAR) mapping tool, a total of 1 water disposal well and 27 historical oil wells were identified. Information files for the wells are available on the CalGEM website.

Documents reviewed for the wells near the Site state that 22 wells were abandoned due to no oil or gas being found. There are five active wells east-southeast of Site. Oil field operations are considered a potential source of environmental contamination. Typical contaminants can include crude and refined petroleum hydrocarbons, heavy metals, biocides, and possibly polychlorinated biphenyls. These contaminants may be associated with the following sources: oil wells; well cellars (pits next to oil wells that held brine and generated oil); sumps; above ground storage tanks; and piping. The extent to which any of these sources may have caused potential impacts to the Site is unknown at this time. Although records were not obtained indicating that the former wells permitted near the Site were actively producing oil, as they appear to have been drilled, plugged, and abandoned in the same year, the existence of possible oil field operations near the Site is considered a De Minimis Condition (DMC). In addition, the accumulation of natural gas (i.e., methane) in subsurface soils from abandoned oil wells is not unusual at former petroleum exploration and production sites. Given their distance from the Site, and their location, either cross- or down-gradient from the Site, it is unlikely that there are impacts to the Site from these wells.

5.6 HISTORICAL LAND USE REVIEW

In accordance with the ASTM Standard and AAI rule, numerous reasonably ascertainable standard historical information sources were reviewed, and an attempt was made to interpret the historical Site and Site vicinity land use back to the obvious first developed use of the Site. The following table summarizes the historical resources reviewed as part of this ESA.

Table 9: Summary of Resources for Evaluation of Historical Land Use

Resource	Source	Years Available
Aerial Photographs	http://www.historicaerials.com/ Google Earth, EDR	1937, 1940, 1942, 1950, 1960, 1974, 1976, 1984, 1994, 2005, 2009, 2010, 2012, 2014, 2016
Sanborn Fire Insurance Maps	EDR	No coverage
Topographic Maps	EDR	1914, 1930, 1932, 1933, 1935, 1943, 1954, 1973, 2012.
Previous Environmental Report	Not applicable	None available
Interviews	Not applicable	Discussed in the “Interviews” section above

Historic Aerials Photographs reviewed for this ESA are provided in Appendix H. A letter indicating that there is no available Sanborn Fire Insurance Map information for this Site is provided in Appendix I.

5.6.0 Historical Site Land Use

Historical Site land uses, were interpreted from a review of information from the referenced sources.

Table 10: Chronology of Site Land Use

Year	Interpreted Site Tenants	Interpreted Site Use
1914 to 2005	None	Vacant. Land use interpreted to be vacant or used for grazing and possible dry farming purposes.
2005 to 2016	None	Dry farming, occasional irrigation, and grazing.

Because many of the dates listed above are based on a limited selection of historical resources, they are considered to be approximations only; the actual beginning/ending dates for many of the Site uses listed above may have been earlier or later than indicated.

With the possible exception of historical dry farming and occasional irrigation (described below), no obvious historical facilities, features of concern, or land uses indicative of the use, storage, or generation of hazardous materials/wastes or petroleum products were found in the historical resources reviewed.

Historical Agricultural Land Use

Based on a review of historical aerial photographs, the Site is interpreted to have been used for dry farming/grazing and/or agricultural purposes from approximately 1937 to present, with the presence of irrigation observed in 2005. In addition, possible dry farming/grazing activities may have occurred prior to 1937 as well. If the Site was used for agricultural land use, such as for irrigated land uses with row crops that were observed circa 2005, then there is a possibility that organochlorine and metal-based pesticides such as dichlorodiphenyltrichloroethane (DDT), dieldrin, toxaphene, arsenic, and others were used. These classes of pesticides are known to have the potential to remain in detectable concentrations in the subsurface for extended periods of time.

The 1937 aerials show apparent grazing animal paths but no developed roads or discernable boundaries. Dirt paths along property lines begin to appear in the 1940 and 1942 aerials, but little appears to change through 1960. The 1974 aerials show the power substation on parcel 043-210-27, transmission lines on parcel 043-210-28, and the corral near the southern boundary of parcel 043-201-017, both built sometime between 1960 and 1974. Little change is observed on all parcels through 1994. Aerial images in 2005 show the following changes to parcel 043-210-17: the water trough area in the northwest corner, the irrigation pond near the western boundary, and apparent irrigation in the western half (and parcel 043-210-18). There are few changes between 2005 and 2016, with the exception of irrigation patterns over a few parcels. The 2016 aerial shows the land farming of soil on the eastern boundary of parcel 043-210-17.

Based on our experience, there is a moderate likelihood that residual concentrations of organochlorine and metal-based pesticides are present in the shallow surface soil beneath the Site (parcel 043-210-17). Assuming the legal and permitted application of these pesticides, and assuming existing Site use remains the same (i.e., agricultural or commercial), this common occurrence is, in our experience, unlikely to lead to a health risk or an enforcement action and is therefore likely to be considered a DMC, as defined by ASTM.

During the Site visit, an area of impacted soil was observed near the eastern boundary of the Site. Subsequent investigation identified this area as a land farm for sediment removed from the bottom of a settling pond directly south of this area. It has been S2S's experience that residual concentrations of

pesticides may be present in agricultural water stored in settling ponds, along with the associated sediment at the bottom of those ponds. Based on the current use of the Site, the potential presence of residual concentrations of pesticides in the area of the land farm is considered a DMC, since (in S2S's opinion) the pesticides have a low potential to exceed regulatory action levels for agricultural or commercial properties.

S2S recommends that limited soil sampling for total petroleum hydrocarbons (TPH), organochlorine pesticides (OCPs), and arsenic should be conducted as a precautionary measure to ensure that current and future occupants of Site buildings, construction workers, and others are not exposed to elevated concentrations of pesticides, if present. In addition, if soil is to be excavated and exported as part of development activities, then the presence of pesticides and/or metals may result in the soil being considered a regulated or hazardous waste and the soil may need to be properly characterized and disposed of at an appropriate receiving facility.

5.6.1 Historical Site Vicinity Land Use

Historical uses of lands in the vicinity of the Site land were interpreted from a review of information from the referenced sources.

Table 11: Chronology of Historical Use of Lands in the Vicinity of the Site

Year	Interpreted Site Vicinity Tenants	Interpreted Site Vicinity Use
Properties North of Site		
1937 to 2016	None	Dry farming/grazing
Properties East of Site		
1937 to 1960	None	Dry farming/grazing
1974 to 2016	Agricultural Companies, Wonderful company and Debenedetto Farms or predecessors.	Agricultural land use – row crops present in portions of the Site.
Properties South of Site		
1937 to 1960	None	Dry farming/grazing
1974 to 2016	Agricultural Company, Wonderful Company or predecessor.	Agricultural land use – row crops present in portions of the Site.
Properties West of Site		
1937 to 2016	None	Dry farming/grazing

Many of the dates listed above are considered to be approximations only as they are based on a limited selection of historical resources; therefore, the actual beginning/ending dates for many of the Site vicinity uses/development described above may have been earlier or later than indicated.

The 1937 aerial images show apparent grazing animal paths but no developed roads or discernable boundaries. Dirt paths along property lines begin to appear in the 1940 and 1942 aerials, but little appears to change through 1960. The 1974 aerials show orchards have been planted toward the east and south of parcel 043-210-17. Other than expansion of orchards there are no observed adjacent site use changes in the aerials from 1974 to 2016.

With the possible exception of agricultural/dry farming land uses (further described in Section 5.6.0 above), no obvious historical facilities, features of concern, or land uses indicative of the use, storage, or generation of hazardous materials/wastes or petroleum products were found in the historical resources reviewed.

Data Gaps in Connection with the Historical Site Vicinity Land Use

Readily available historical information was limited, and information was not available that would provide 5-year data intervals between the following years: 1942 and 1974, and 1976 to 2005. Based on the corroborating data from the historical information reviewed, S2S judged it likely that the historical Site land use during this time period was not significantly different from the interpretation presented in the table above.

Findings and Opinions—Historical Site and Site Vicinity Land Use

Based on a review of historical resources and with the possible exception below, it is our opinion that there are no recognized environmental conditions at the Site as a result of a release of hazardous materials/wastes or petroleum products from a known or interpreted historical Site or Site vicinity land use.

- S2S personnel reviewed the California Division of Oil and Gas Map regarding oil and gas well locations within 1 mile of the Site.^{xi} Available oil and gas well maps from CalGEM were reviewed to identify oil and gas wells on the Site or in the nearby area. According to the Online Wellfinder (WellSTAR) mapping tool, a total of 1 water disposal well and 27 historical oil wells were identified. Available files are available on the CalGEM website.
- Based on a review of historical aerial photographs, the Site is interpreted to have been used for dry farming/grazing and/or agricultural purposes from approximately 1937 to present, with the evidence of irrigation observed in 2005. In addition, possible dry farming/grazing activities may have occurred prior to 1937 as well. If the Site was used for agricultural land use, such as for irrigated land uses with row crops that were observed circa 1985, then there is a possibility that organochlorine and metal-based pesticides such as dichlorodiphenyltrichloroethane (DDT), dieldrin, toxaphene, arsenic, and others were used. These classes of pesticides are known to have the potential to remain in detectable concentrations in the subsurface for extended periods of time.

Based on our experience, there is a moderate likelihood that residual concentrations of organochlorine and metal-based pesticides are present in the shallow surface soil beneath the Site. Assuming the legal and permitted application of these pesticides, and assuming existing Site use remains the same (i.e., agricultural), this common occurrence is, in our experience, unlikely to lead to a health risk or an enforcement action and is therefore likely to be considered de minimis, as defined by ASTM.

Based on our experience, if portions of the Site were, in fact, used for agricultural purposes, there is a moderate likelihood that residual concentrations of OCPs and metal-based pesticides are present in the shallow surface soil beneath the Site.

S2S recommends that limited soil sampling for OCPs and arsenic should be conducted as a precautionary measure to ensure that future occupants of Site buildings, construction workers, and others are not exposed to elevated concentrations of pesticides, if present. In addition, if soil is to be excavated and exported as part of development activities, then the presence of pesticides and/or metals may result in the soil being considered a regulated or hazardous waste and the soil may need to be properly characterized and disposed of at an appropriate receiving facility.

6 – CONCLUSIONS AND RECOMMENDATIONS

S2S has performed an ESA of APNs 043-210-17, -18, -28; 043-220-01; and, 048-350-017, -020 in Lost Hills, California (Site), in general conformance with the ASTM Standard Practice for Phase I

Environmental Site Assessment Process E 1527-13 and the EPA, 40 CFR 312, Standards and Practices for AAI. Any exceptions to, or deletions from, the ASTM and AAI Scope of Work were previously described in this Report where applicable.

This ESA has revealed no evidence of a REC, CREC, or HREC in connection with the Site. The following are considered DMCs based on their potential to impact the Site or present a health hazard.

The following DMCs were identified during this ESA:

- A total of 1 water disposal well and 27 historical oil wells were identified within approximately 1 mile of the Site. Only 5 of the 27 wells are currently listed as active, with all others appearing to have been dry and plugged following drilling. Oil field operations must always be considered a potential source of environmental contamination. Typical contaminants can include crude and refined petroleum hydrocarbons, heavy metals, biocides, and possibly polychlorinated biphenyls. Given all oil and water disposal wells are downgradient from the Site, as well as their distance from the Site, S2S considers this a DMC.
- Historical research indicates that the Site has been utilized for agricultural land use, primarily dry farming, grazing, and occasional irrigation (on the eastern portion). It has been S2S's experience that residual concentrations of organochlorine and metal-based pesticides such as dichlorodiphenyltrichloroethane (DDT), dieldrin, toxaphene, arsenic, and may have used, as is common throughout many agricultural regions of the United States. These classes of pesticides are known to have the potential to remain in detectable concentrations in the subsurface for extended periods of time. Based on the current Site use of the Site, and planned redevelopment as a solar facility, the potential presence of residual concentrations of pesticides in the shallow on-site soils is considered a DMC, since (in S2S's opinion), the pesticides have a low potential to exceed regulatory action levels for agricultural or commercial properties.
- During the Site visit, an area of impacted soil was observed near the eastern boundary of the Site. Subsequent interviews identified this area as a land farm for sediment removed from the bottom of a settling pond directly south of this area. It has been S2S's experience that residual concentrations of pesticides may be present in agricultural water stored in settling ponds, along with the associated sediment at the bottom of those ponds. Based on the current use of the Site, the potential presence of residual concentrations of pesticides in the area of the land farm is considered a DMC, since (in S2S's opinion) the pesticides have a low potential to exceed regulatory action levels for agricultural or commercial properties.

S2S recommends that limited soil sampling for TPH, OCPs and arsenic should be conducted as a precautionary measure to ensure that future occupants of Site buildings, construction workers, and others are not exposed to elevated concentrations of pesticides, if present. In addition, if soil is to be excavated and exported as part of development activities, then the presence of pesticides and/or metals may result in the soil being considered a regulated or hazardous waste and the soil may need to be properly characterized and disposed of at an appropriate receiving facility.

This ESA has been conducted by an environmental professional whose qualification were made known to the Client. The conclusions presented above are based on the review of readily available data obtained as part of this ESA, current regulatory guidelines, the Site and Site vicinity reconnaissance, and S2S' experience.

Though not required in a Phase I ESA, a draft California Environmental Quality Act Initial Study Checklist for Hazards and Hazardous Materials for the proposed Solar Facility development project on this Site has been provided in Appendix J.

7 – REPORT USAGE AND FUTURE SITE CONDITIONS

This Report is intended for the sole usage of the Client and other parties designated by S2S. The methodology used during this ESA was in general conformance with the requirements of the Client and the specifications and limitations presented in the Consulting Agreement (Contract) between the Client and S2S. This Report contains information from a variety of public and other sources, and S2S makes no representation or warranty about the accuracy, reliability, suitability, or completeness of the information. Any use of this Report, whether by the Client or by a third party, shall be subject to the provisions of the Contract between the Client and S2S. Any misuse of or reliance upon the Report shall be without risk or liability to S2S.

ESAs are qualitative, not comprehensive, in nature and may not identify all environmental problems or eliminate all risk. For every property it is possible for there to be unknown, unreported recognized environmental conditions, USTs, or other features of concern that might become apparent through demolition, construction, or excavation activities, etc. In addition, the scope of services for this project was limited to those items specifically named in the scope of services for this Report. Environmental issues not specifically addressed in the scope of services for this project are not included in this Report.

Land use, condition of the properties within the Site, and other factors may change over time. The information and conclusions of this Report are judged to have been relevant at the time the work described in this Report was conducted. This Report should not be relied upon to represent future Site conditions unless a qualified consultant familiar with the practice of Phase I ESAs in the County of Kern is consulted to assess the necessity of updating this Report.

The property owners at the Site are solely responsible for notifying all governmental agencies and the public of the existence, release, or disposal of any hazardous materials/wastes or petroleum products at the Site, whether before, during, or after the performance of S2S' services.

S2S assumes no responsibility or liability for any claim, loss of property value, damage, or injury that results from hazardous materials/wastes or petroleum products being present or encountered within the Site.

Although this ESA has attempted to assess the likelihood that the Site has been impacted by a hazardous material/waste release, potential sources of impact may have escaped detection for reasons that include, but are not limited to, (1) inadequate or inaccurate information rightfully provided to S2S by third parties, such as public agencies and other outside sources; (2) the limited scope of this ESA; and (3) the presence of undetected, unknown, or unreported environmental releases.

8 – LIKELIHOOD STATEMENTS

Statements of "likelihood" have been made in this report. Likelihood statements are based on professional judgments of S2S. The term "likelihood," as used herein, pertains to the probability of a match between the prediction for an event and its actual occurrence. The likelihood statement assigns a measure for a "degree of belief" for the match between the prediction for the event and the actual occurrence of the event.

The likelihood statements in this Report are made qualitatively (expressed in words). The qualitative terms can be approximately related to quantitative percentages. The term "low likelihood" is used by S2S to approximate a range of 10 to 20 percent; the term "moderate likelihood" refers to an approximate range of 40 to 60 percent; and the term "high likelihood" refers to an approximate range of 80 to 90 percent.

9 – SPECIAL CONTRACTUAL CONDITIONS

There were no special contractual conditions between the user of this ESA and S2S.

10 – ENDNOTES

- i Site reconnaissance conducted by Tim Naughton (S2S) on September 21, 2020.
- ii Records request—Kern County Public Health Services Department by Tim Naughton (S2S) on November 6, 2020.
- iii Records request—Kern County Fire Department by Tim Naughton (S2S) on November 6, 2020.
- iv Records request—Kern County Building Department by Tim Naughton (S2S) on November 6, 2020.
- v Records request—San Joaquin Valley Air Pollution Control District (SJVAPCD) by Tim Naughton (S2S) on November 6, 2020.
- vi Records request—Kern County Department of Agriculture and Measurement Standards by Tim Naughton (S2S) on November 6, 2020.
- vii Records request—Central Valley Regional Water Quality Control Board (RWQCB) by Tim Naughton (S2S) on November 6, 2020.
- viii Records request—Department of Toxic Substances Control Board (DTSC) by Tim Naughton (S2S) on November 6, 2020.
- ix Site vicinity reconnaissance conducted by Tim Naughton (S2S) on September 21, 2020.
- x EDR, “Radius Map™ Report,” unpublished report prepared for vacant parcels surrounding Latitude (North): 35.7743690 / Longitude (West): 119.9032450, dated September 30, 2020.
- xi. California Geologic Energy Management Division (CalGEM) Online Wellfinder (WellSTAR): <https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-119.87887/35.76247/14>

APPENDIX A

Site Visit Photographs

Representative Photographs



Photograph 1:

Sept. 21, 2020

Northern
boundary of
APN 043-210-
17, facing West.

Water trough
visible in center
of photo.

PG&E
Substation
visible at right
of the photo.



Photograph 2:

Sept. 21, 2020

Northern
boundary of
APN 043-210-
17, facing
South.

Water tank for
water trough in
center of photo
(trough not
visible right of
the tank).

Photographs Continued



Photograph 3:

Sept. 21, 2020

APN 043-220-21, facing North.

PG&E Substation visible in right of photo. Transmission Power lines can be seen in center of the photo.



Photograph 4:

Sept. 21, 2020

Northwest corner of APN 043-210-17, facing Southeast, toward Corral.

Photographs Continued



Photograph 5:

Sept. 21, 2020

Southern
boundary of
APN 043-210-
17, facing
North.

Corral partially
visible in center
of photo.



Photograph 6:

Sept. 21, 2020

Western
boundary of
APN 043-210-
17, facing
Southwest.

Settling Pond.

Photographs Continued



Photographs Continued



Photograph 9:

Sept. 21, 2020

Near Western boundary of APN 043-210-17, facing South.

Distressed vegetation from irrigation water seen in center of photo.



Photograph 10:

Sept. 21, 2020

Near Western boundary of APN 043-210-17, facing North.

Apparent land farm of settling pond sediment. Pistachio orchard visible in left side of photo.

Photographs Continued



Photograph 11:

Sept. 21, 2020

Near Western boundary of APN 043-210-18, facing West.

Area being irrigated with settling pond water in center of photo.



Photograph 12:

Sept. 21, 2020

One mile east of Southeast corner of APN 043-210-18, facing West from King Road.

Out of service oil tanks near King Road.

APPENDIX B

City Directory Data Report

Azalea Solar Facility Project

Kern County
Lost Hills, CA 93249

Inquiry Number: 6210219.5
October 02, 2020

The EDR-City Directory Image Report

TABLE OF CONTENTS

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.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2020 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

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.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.

Data by

infoUSA[®]

Copyright©2008
All Rights Reserved

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>
2017	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2014	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2010	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2005	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1995	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1992	<input type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1985	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Haines Criss-Cross Directory
1975	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Kern County
Lost Hills, CA 93249

No Addresses Found

FINDINGS

CROSS STREETS

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

KING RD

2017	pg. A1	EDR Digital Archive
2014	pg. A2	EDR Digital Archive
2010	pg. A3	EDR Digital Archive
2005	pg. A4	EDR Digital Archive
2000	pg. A5	EDR Digital Archive
1995	pg. A6	EDR Digital Archive
1992	pg. A7	EDR Digital Archive
1985	pg. A8	Haines Criss-Cross Directory
1980	pg. A9	Haines Criss-Cross Directory
1975	pg. A10	Haines Criss-Cross Directory

City Directory Images

KING RD 2017

10262 HERNANDEZ, VICTOR
10268 HEREDIA, MARIA
10429 PARAMOUNT FARMS KINGS FACILITY
10455 DEBENEDETTO FARMS INC
 SALTO, JUAN

KING RD 2014

10262 HERNANDEZ, VICTOR
10268 HEREDIA, MARIA
10284 PENA, MIRELLA
10408 OCCUPANT UNKNOWN,
10429 PARAMOUNT FARMS KINGS FACILITY
10455 DEBENEDETTO FARMS INC
 OCCUPANT UNKNOWN,

KING RD**2010**

10262 HERNANDEZ, VICTOR
10268 HEREDIA, MARIA
10284 PENA, MIREYA
10429 PARAMOUNT FARMSKINGS FACILITY
10455 DEBENEDETTO FARMS INC
SANCHEZ, ANGELA

KING RD 2005

10262	HERNANDEZ, VICTOR
10268	HEREDIA, MARIA
10284	OCCUPANT UNKNOWN,
10408	OCCUPANT UNKNOWN,
10429	HOMA RANCH
	PARAMOUNT FARM
10455	GUTIERREZ, ESTEBAN

KING RD**2000**

10284 GAMINO, G J
10408 GOLDEN STATE VINTNERS
10429 HOMA FARMS
HOMA RANCH

KING RD 1995

10429 HOMA RANCH
10444 SIMPSON, JOHN
10455 LOST HILLS RANCH

KING RD**1992**

10429 HOMA RANCH
10444 SIMPSON, JOHN
10455 AREVALO, M L
TODD, TED

KING RD 1985

KING RD 93249

LOST HILLS

61513	XXXX	00	
61550	POLLARD C C	797-2358	1
61715	FORCE LEWIS M	797-2322	0
NO #	DUDLEY RIDGE FARMS	797-2788	3
NO #	FLORES H	797-2588	3
NO #	GARZA HECTOR	797-2842	4
NO #	LOST HLS RANCH	797-9992	2
NO #	LOST HLS WATER DIST	797-2364	1
NO #	SIMAS EDWARD	797-2285	3
NO #	STCLAIR FLOYD	797-2353	
NO #	TODD THEODORE J	797-2353	
★	3 BUS	8 RES	0 NEW

KING RD 1980

KING RD 93249 LOST HILLS

61550	XXXX	00	
61715	FORCE LEWIS M	797-2322	+0
NO #	CLOYD J C	797-2231	+0
NO #	STCLAIR FLOYD	797-2353	3
NO #	TODD THEODORE J	797-2353	3
NO #	WHEAT KEITH	797-2375	8
★	0 BUS	6 RES	2 NEW

KING RD 1975

* 4 BUS 39 RES 6 NEW

KING RD 93249 LOST HILLS

61715 CAGEL CALVIN B 797-2321+5
NO # KAIN BOB M 797-2465+5
NO #*LOST HLS WATER DIST 797-2364
NO # POLLARD JAMES D 797-2491 3
NO #*SAN JOAQUIN CTTN OIL 797-2326
NO # STCLAIRE FLOYD 797-2353 3
NO # TODD THEODORE J 797-2353 3
* 2 BUS 5 RES 2 NEW

APPENDIX C

Correspondence Records

Re: 11062020_TIM NAUGHTON (7 APNS)

EH <eh@kerncounty.com>

Tue 11/10/2020 2:47 PM

To: Tim Naughton <Tim.Naughton@s2serm.com>

Good a. ernoons,

There were no records found.

Thank you.

From: EH <eh@kerncounty.com>**Sent:** Friday, November 6, 2020 3:28 PM**To:** Bilal Korin <KorinB@ph.kerncounty.com>**Subject:** 11062020_TIM NAUGHTON (7 APNS)

From: "Information Request" <noreply@kernpublichealth.com>**Sent:** Friday, November 6, 2020 3:18 PM**To:** EH <eh@kerncounty.com>**Subject:** New submission from Environmental Health: Information Request

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Describe the records you are requesting in as much detail (business name, address, type of record desired, etc.) as possible:

I am seeking any records or permits tied to tanks, hazardous materials, or hazardous waste for the following APNs:

043-210-17

043-210-18

043-210-27

043-210-28

043-220-01

043-220-21

043-220-22

.

Name

Tim Naughton

Address

2246 Camino Ramon

San Ramon, California 94583

United States

[Map It](#)

Email

RE: KCFD Records Request

Jennifer Springman <jspringman@kerncountyfire.org>

Tue 11/10/2020 1:16 PM

To: Tim Naughton <Tim.Naughton@s2serm.com>

Preven. on has notified me that there are no permits tied to that address.

From: Tim Naughton <Tim.Naughton@s2serm.com>

Sent: Tuesday, November 10, 2020 10:58 AM

To: Jennifer Springman <jspringman@kerncountyfire.org>

Subject: Re: KCFD Records Request

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Thank you.

Here is the only known address associated with this request: 10011 Kings Rd, Lost Hills, CA.

Regards,

Tim Naughton

Senior Engineer

S2S Environmental Resource Management

2246 Camino Ramon

San Ramon, CA 94583

Cell: (714) 697-8994

Office: (925) 362-3041

www.s2serm.com



From: Jennifer Springman <jspringman@kerncountyfire.org>

Sent: Tuesday, November 10, 2020 9:46 AM

To: Tim Naughton <Tim.Naughton@s2serm.com>

Subject: RE: KCFD Records Request

Good morning,

We are still unable to look up the property by parcels, APNs, etc. We have to have a numerical address to search by. If you're able to provide that, please let me know.

Thank you.



Jennifer Springman

Office Services Specialist
jspringman@kerncountyfire.org

Kern County Fire Department

Investigation Unit

Office: (661) 391-3482 / Fax: (661) 326-8392

NOTICE: This e-mail message is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure and distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

To contact our e-mail administrator directly, send to kcfadmin@kerncountyfire.org

From: Tim Naughton <Tim.Naughton@s2serm.com>

Sent: Monday, November 9, 2020 11:46 PM

To: Jennifer Springman <jspringman@kerncountyfire.org>

Subject: Re: KCFD Records Request

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Jennifer,

Thank you for responding. The nearest address is 10011 Kings Rd, Lost Hills, CA. Attached is a figure of the parcels that are adjacent to the address provided.

Tim Naughton

Senior Engineer

S2S Environmental Resource Management

2246 Camino Ramon

San Ramon, CA 94583

Cell: (714) 697-8994

FW: New submission from Contact Us

Inspection, Building <BID@kerncounty.com>

Mon 11/9/2020 10:48 AM

To: Tim Naughton <Tim.Naughton@s2serm.com>

From: Stephanie Wood <swood@kerncounty.com>**Sent:** Monday, November 9, 2020 10:41 AM**To:** Inspection, Building <BID@kerncounty.com>**Subject:** RE: New submission from Contact Us

We have no permit for all the APN's listed below.

Thank you

Stephanie D. Wood
Kern County Public Works
Building Inspection Department
Office Services Assistant
2700 "M" St., 1st Floor
Bakersfield, CA 93301
661-862-8677 (phone)
661-862-8651 (fax)
E-mail swood@kerncounty.com

From: Inspection, Building <BID@kerncounty.com>**Sent:** Monday, November 9, 2020 7:59 AM**To:** Stephanie Wood <swood@kerncounty.com>**Subject:** FW: New submission from Contact Us

Eleanor Lara

Kern County Public Works**Building Inspection****2700 M St.****Bakersfield, CA 93301****661-862-8630****larae@kerncounty.com**

From: "Kern County Public Works Website" <admin@pixsym.com>**Sent:** Friday, November 6, 2020 4:30 PM**To:** Inspection, Building <BID@kerncounty.com>**Subject:** New submission from Contact Us

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Choose One

Building Inspection & Permits

Name

Tim Naughton

Email

tim.naughton@s2serm.com

Phone

(714) 697-8994

Preferred Method of Contact:

- Email

Brief Description

I am seeking any records or permits you may have for the following parcels:

043-210-17

043-210-18

043-210-27

043-210-28

043-220-01

043-220-21

043-220-22

Consent

I agree to be contacted by Kern County Public Works employees.

RE: Records Request

Kyle Perez <PerezKy@kerncounty.com>

Fri 11/20/2020 3:21 PM

To: Tim Naughton <Tim.Naughton@s2serm.com>

Residen al Permit Info in regard to the following Permits (as per your request):

043-210-17: No Residenal Permits

043-210-18: No Residenal Permits

043-210-27: No Residenal P ermits

043-210-28: No Residenal Permits

043-220-01: No Residenal Permits

043-220-21: No Residenal P ermits

043-220-22: No Residenal P ermits

I apologize for the tardiness of this response. Our sewer/water division should be ge. ng back to you in the next few business days.

Best Regards,

Kyle Perez

Engineer

Kern County Public Works

(661) 862-8852 Office

(661) 304-1517 (work cell)

From: Tim Naughton <Tim.Naughton@s2serm.com>

Sent: Monday, November 9, 2020 11:57 AM

To: Kyle Perez <PerezKy@kerncounty.com>

Subject: Re: Records Request

CAUTION: This email originated from outside of the organizaon. Do not click links, open a. achments, or provide informaon unless you recognize the sender and know the content is safe.

Thank you for responding Mr. Perez.

I am actually seeking informaon on an y Residenal permits (of which I suspect ther e will be none on record) as well as sewer and water connecons. If y ou can forward that request, I would very much appreciate it.

Again, I appreciate your response on this.

Tim Naughton

Senior Engineer

S2S Environmental Resource Management

2246 Camino Ramon

San Ramon, CA 94583

Cell: (714) 697-8994

Office: (925) 362-3041

www.s2serm.com



From: Kyle Perez <PerezKy@kerncounty.com>
Sent: Monday, November 9, 2020 8:24 AM
To: Tim Naughton <Tim.Naughton@s2serm.com>
Subject: RE: Records Request

Mr. Naughton,

You will have to be more specific in your request. What exactly are you looking for, because I am a Plan Checker that deals with Residential Permits? In the past I reviewed Sewer requests, so I could forward your request if it has to do with sewer or water. But if you looking for information other than those, I will not be able to help you directly, other than directing you towards a particular person or more that are responsible for those items.

Best Regards,

Kyle Perez
Engineer
Kern County Public Works
(661) 862-8852 Office
(661) 304-1517 (work cell)

From: Tim Naughton <Tim.Naughton@s2serm.com>
Sent: Friday, November 6, 2020 4:21 PM
To: Kyle Perez <PerezKy@kerncounty.com>
Subject: Records Request

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hello Kyle,

I received your information from a colleague.

I am seeking any records or permits you may have for the following parcels:

043-210-17
043-210-18
043-210-27
043-210-28
043-220-01
043-220-21

043-220-22

I am hoping you might be able to assist me. However, I was not sure if I should reach out to you directly, or if I should use the records inquiry on the Kern County Building Department website.

Your support is appreciated.

Thank you,

Tim Naughton

Senior Engineer

S2S Environmental Resource Management

2246 Camino Ramon

San Ramon, CA 94583

Cell: (714) 697-8994

Office: (925) 362-3041

www.s2serm.com



Public Records Request C-2020-11-35

Nannette Diaz <Nannette.Diaz@valleyair.org>

Fri 11/13/2020 9:51 AM

To: Tim Naughton <Tim.Naughton@s2serm.com>

November 13, 2020

Tim Naughton
Surf to Snow Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583

SUBJECT: Public Records Request

LOCATION: APN's:

043-210-17

043-210-18

043-210-27

043-210-28

043-220-01

043-220-21

043-220-22

Dear Tim Naughton:

The District has processed your request for information regarding the above mentioned site address/location. A search of the District's databases has returned no records on file for this location.

If you have any questions, or need additional information, please contact me at the number below.

Respectfully,

Nannette Diaz
Senior Office Assistant
San Joaquin Valley Air Pollution Control District
34946 Flyover Court, Bakersfield, CA 93308-9725
phone (661) 392-5506 fax (661) 392-5585
nannette.diaz@valleyair.org



DEPARTMENT OF AGRICULTURE AND MEASUREMENT STANDARDS

GLENN FANKHAUSER
Agricultural Commissioner
Sealer of Weights and Measures

1001 South Mount Vernon Avenue · Bakersfield, California 93307
Telephone 661-868-6300 · Fax 661-868-6301 · agcomm@kerncounty.com

REQUEST FOR PUBLIC RECORDS

Date Submitted: 11/06/2020

Your Name: Tim Naughton Company: Surf to Snow Environmental Resource Management

Phone Number: 714-697-8994 Email: tim.naughton@s2serm.com

Mailing Address: 2246 Camino Ramon, San Ramon, CA 94583

Describe records to be viewed or specific copies requested in as much detail as possible:

I am seeking any records or permits you may have for the following parcels:

043-210-17
043-210-18
043-210-27
043-210-28
043-220-01
043-220-21
043-220-22

Unfortunately, these parcels do not have an address. Thank you for your support.

Reason for Request: Environmental Assessment

I, the undersigned, request to view certain specified records in the possession of this agency.


Requester's Signature

11/06/2020
Date

You will receive a response within 10 working days.

Copies will be charged at \$.75 for the first page of each document and \$.10 for each additional page of the same document.

OFFICE USE ONLY- No. Copies made _____ Fee Paid \$ _____
Authorized By: _____ Date _____

Records request by parcel

Darin Heard <heardd@kerncounty.com>

Tue 11/10/2020 9:27 AM

To: Tim Naughton <Tim.Naughton@s2serm.com>

Hi Tim,

We are in receipt of your request for public records.

In response to availability of information requested in your letter, we would like to begin by saying that it will always be our goal to promote maximum disclosure of the conduct of governmental operations and obey the fundamental precept that governmental records shall be disclosed to the public, thereby granting right of access to and inspection of public records free of charge, unless there is a legal basis not to do so.

Our understanding of the rights provided by the California Public Records Act compel public agencies to disclose all records prepared, owned, used, or retained by the department thereby granting right of access to and inspection of public records free of charge – but does not compel the agency to glean specific records nor to create lists or reports in response to questions. We do not maintain records based on parcel numbers. We are happy to help, but please be understanding of the fact that we have limited resources and our staffing structure does not permit us the luxury of gleaning specific individual records. Even if we were able to specifically find and break out whatever information you are looking for, we could not recover costs associated with our staff's time - county legal counsel has informed us that we are not allowed to charge any fees other than the direct cost of duplication or a statutory fee (which does not appear to apply in this case). Moreover, since we do not maintain records based on parcel number, the County unfortunately cannot act as a research service as to documents which may be kept under a different parent-child relationship. Therefore, unfortunately, we are only able to meet our legal obligation of disclosing all records prepared, owned, used, or retained by our department to you thereby granting right of access to and inspection of public records free of charge.

Sincerely,

Darin Heard
Assistant Commissioner/Sealer
Kern County Department of Agriculture and Measurement Standards
1001 South Mount Vernon Avenue
Bakersfield, California 93307
Main 661-868-6300
Fax 661-868-6301
Cell 661-333-7007
email heardd@kerncounty.com

RE: Records Inquiry

Martin, Kelly@Waterboards <Kelly.Martin@Waterboards.ca.gov>

Tue 11/10/2020 9:52 AM

To: Tim Naughton <Tim.Naughton@s2serm.com>

To Tim Naughton,

Central Valley Regional Water Quality Control Board does not have records for the following parcels:

- 043-210-17
- 043-210-18
- 043-210-27
- 043-210-28
- 043-220-01
- 043-220-21
- 043-220-22

Thank You,

Kelly Martin
Scientific Aid
Central Valley Regional Water Quality Control Board
Fresno Office
(559) 444-2489
Kelly.Martin@Waterboards.ca.gov

From: Tim Naughton <Tim.Naughton@s2serm.com>

Sent: Monday, November 9, 2020 11:48 PM

To: MarÃn, Kelly@Waterboards <Kelly.MarÃn@Waterboards.ca.gov>

Subject: Re: Records Inquiry

EXTERNAL:

Kelly,

Thank you for responding. Please see the attached image with the parcels outlined along with the adjacent street names.

I appreciate your support.

Tim Naughton

Senior Engineer

S2S Environmental Resource Management

2246 Camino Ramon

San Ramon, CA 94583

Cell: (714) 697-8994

Office: (925) 362-3041

www.s2serm.com



From: MarĀn, Kelly@Waterboards <Kelly.MarĀn@Waterboards.ca.gov>
Sent: Friday, November 6, 2020 5:49 PM
To: Tim Naughton <Tim.Naughton@s2serm.com>
Subject: Re: Records Inquiry

Hi Tim,

Could you please send maps of parcel locations with visible streets.

Thank You,

Kelly

From: Tim Naughton <Tim.Naughton@s2serm.com>
Sent: Friday, November 6, 2020 4:58 PM
To: MarĀn, Kelly@Waterboards <Kelly.MarĀn@Waterboards.ca.gov>
Subject: Records Inquiry

EXTERNAL:

Ms. Marn,

I received your contact information from a colleague.

I am seeking any records or permits you may have for the following parcels in Kern County; however I am not sure any exist:

043-210-17
043-210-18
043-210-27
043-210-28
043-220-01
043-220-21
043-220-22

Any help you can provide me is appreciated.



Jared Blumenfeld
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

November 10, 2020

Tim Naughton
S2s Environmental Resource Management
Tim.Naughton@s2serm.com

Public Records Request Number: 1-110920-01

**Location(s): 043-210-17, 043-210-18, 043-210-27, 043-210-28, 043-220-01,
043-220-21, and 043-220-22, Lost Hills, CA**

Dear Requestor:

On November 9, 2020 the Department of Toxic Substances Control (DTSC) received your email of November 6, 2020 requesting records under the Public Records Act. After a thorough review of our files, no site records were found pertaining to the sites/facilities referenced above.

We were unable to locate an address in the county database using the APNs provided and we are unable to search our records using APNs as our databases do not include this information. If you have a specific address or cross streets, please let us know.

A large number of our records are available on EnviroStor, an online database that provides non-confidential, public access to DTSC's data management system. It tracks our cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known or suspected contamination issues. EnviroStor is available 24/7, 365 days a year. The data reflects the latest updates as they are entered in the system. Access it from your computer or smartphone, the local library – anywhere Internet access is available. Just go to www.envirostor.dtsc.ca.gov. You'll find a step-by-step tour of EnviroStor under the "How to Use EnviroStor" menu on the website.

If you have any questions or would like further information regarding your request, please contact me at 916-255-4159 or via email at PubRegAct@dtsc.ca.gov.

Sincerely,
Choua Her

Choua Her
Regional Records Coordinator

APPENDIX D

Client/User Questionnaire

ASTM E 1527-13 User Questionnaire

In order to qualify for the protection offered under the EPA All Appropriate Inquiry (AAI) Standard, the **User** (entities seeking to use the ASTM E1527-13 Practice to complete an environmental site assessment of the property; i.e. Lenders and/or Borrowers) must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that AAI is not complete. This information should be the collective knowledge of the entities relying on the Phase I. **Please note that you are not being asked to evaluate the property, but rather to provide your knowledge of information on the property.**

Site Name/Address: Azalea Solar Power Generation Facility

Person Interviewed/Title: Diego Osnaya, Project Manager Date: 11/12/2020

If known, when was the property initially developed? The property has not been developed

If different, when were the current building(s) on the property constructed? _____

1. Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25).

Did a search of *recorded land title records* (or judicial records where appropriate, see note 1 below) identify any environmental liens filed or recorded against the *property* under federal, tribal, state or local law?

Yes ☐ No ☒ If you answer yes, please include an explanation in the space provided below:

2. Activity and land use limitations that are in place on the *property* or that have been filed or recorded in a registry (40 CFR 312.26).

Did a search of *recorded land title records* (or judicial records where appropriate, see note 1 below) identify AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the *property* and/or have been filed against the *property* under federal, tribal, state, or local law?

Engineering Controls are defined as physical modifications to a site or facility to reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil or ground water on the property). *Institutional Controls* are defined as a legal or administrative restriction on the use of, or access to, a site or facility to 1) reduce or eliminate the potential for exposure to hazardous substances or petroleum products in the soil or ground water on the property, or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment.

Yes ☒ No ☐ If you answer yes, please include an explanation in the space provided below:

The Site is currently encumbered by a Williamson Act contract.

Note 1 - In certain jurisdictions, federal, tribal, state, or local statutes, or regulations specify that environmental liens and AULs be filed in judicial records rather than land title records. In such cases judicial records must be searched for environmental liens and AULs.

3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).

Do you have any specialized knowledge or experience related to the *property* or nearby properties?

For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an adjoining *property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

Yes ☐ No ☒ If you answer yes, please include an explanation in the space provided below:

4. Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29).

a) Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*?

Yes ☒ No ☐ If you answer no, please include an explanation in the space provided below, including whether the lower purchase price is because contamination is known or believed to be present at the *property*?

5. Commonly known or *reasonably ascertainable* information about the *property* (40 CFR 312.30).

Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example, as *User*:

a. Do you know the past uses of the *property*?

Yes ☒ No ☐

b. Do you know of specific chemicals that are present or once were present at the *property*?

Yes ☐ No ☒

c. Do you know of spills or other chemical releases that have taken place at the *property*?

Yes ☐ No ☒

d. Do you know of any environmental cleanups that have taken place at the *property*?

Yes ☐ No ☒

If you answered yes to any of the questions above, please include an explanation in the space provided below:

6. The degree of obviousness of the presence of likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

Based on your knowledge and experience related to the *property*, are there any *obvious* indicators that point to the presence or likely presence of contamination at the *property*?

Yes ☐ No ☒ If you answer yes, please include an explanation in the space provided below:

Please provide the following property contact information:

Property Owner: _____

Phone Number: _____

Key Site Personnel: _____

Phone Number: _____

Past Owner: _____

Phone Number: _____

APPENDIX E

Topographic Maps



Azalea Solar Facility Project

Kern County

Lost Hills, CA 93249

Inquiry Number: 6210219.4

September 30, 2020

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

09/30/20

Site Name:

Azalea Solar Facility Project
Kern County
Lost Hills, CA 93249
EDR Inquiry # 6210219.4

Client Name:

Surf to Snow Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583
Contact: Tim Naughton



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Surf to Snow Environmental Resource Management 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.#	NA	Latitude:	35.774369 35° 46' 28" North
Project:	1260	Longitude:	-119.903245 -119° 54' 12" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	237558.26
		UTM Y Meters:	3962812.13
		Elevation:	462.00' above sea level

Maps Provided:

2012
1973
1954
1943
1933, 1935
1930, 1932
1914

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2020 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Avenal Gap
2012
7.5-minute, 24000

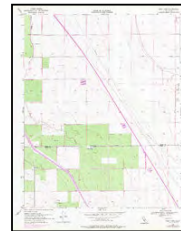


Emigrant Hill
2012
7.5-minute, 24000

1973 Source Sheets



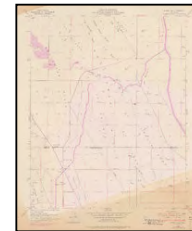
Emigrant Hill
1973
7.5-minute, 24000
Aerial Photo Revised 1973



West Camp
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Antelope Plain
1973
7.5-minute, 24000
Aerial Photo Revised 1973

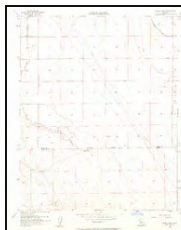


Avenal Gap
1973
7.5-minute, 24000
Aerial Photo Revised 1973

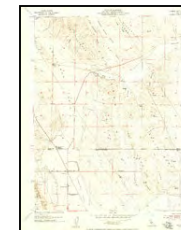


AVENAL GAP
7.5-minute, 24000

1954 Source Sheets



West Camp
1954
7.5-minute, 24000



Avenal Gap
1954
7.5-minute, 24000
Aerial Photo Revised 1950

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1943 Source Sheets

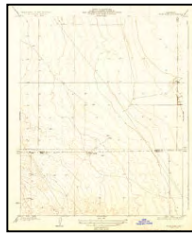


La Rambla
1943
15-minute, 62500
Aerial Photo Revised 1937

1933, 1935 Source Sheets



Avenal Gap
1933
7.5-minute, 31680

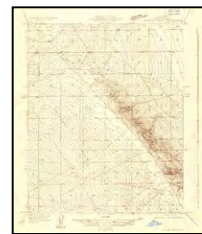


West Camp
1935
7.5-minute, 31680

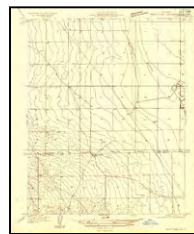
1930, 1932 Source Sheets



Avenal Gap
1930
7.5-minute, 31680



Antelope Plain
1932
7.5-minute, 31680

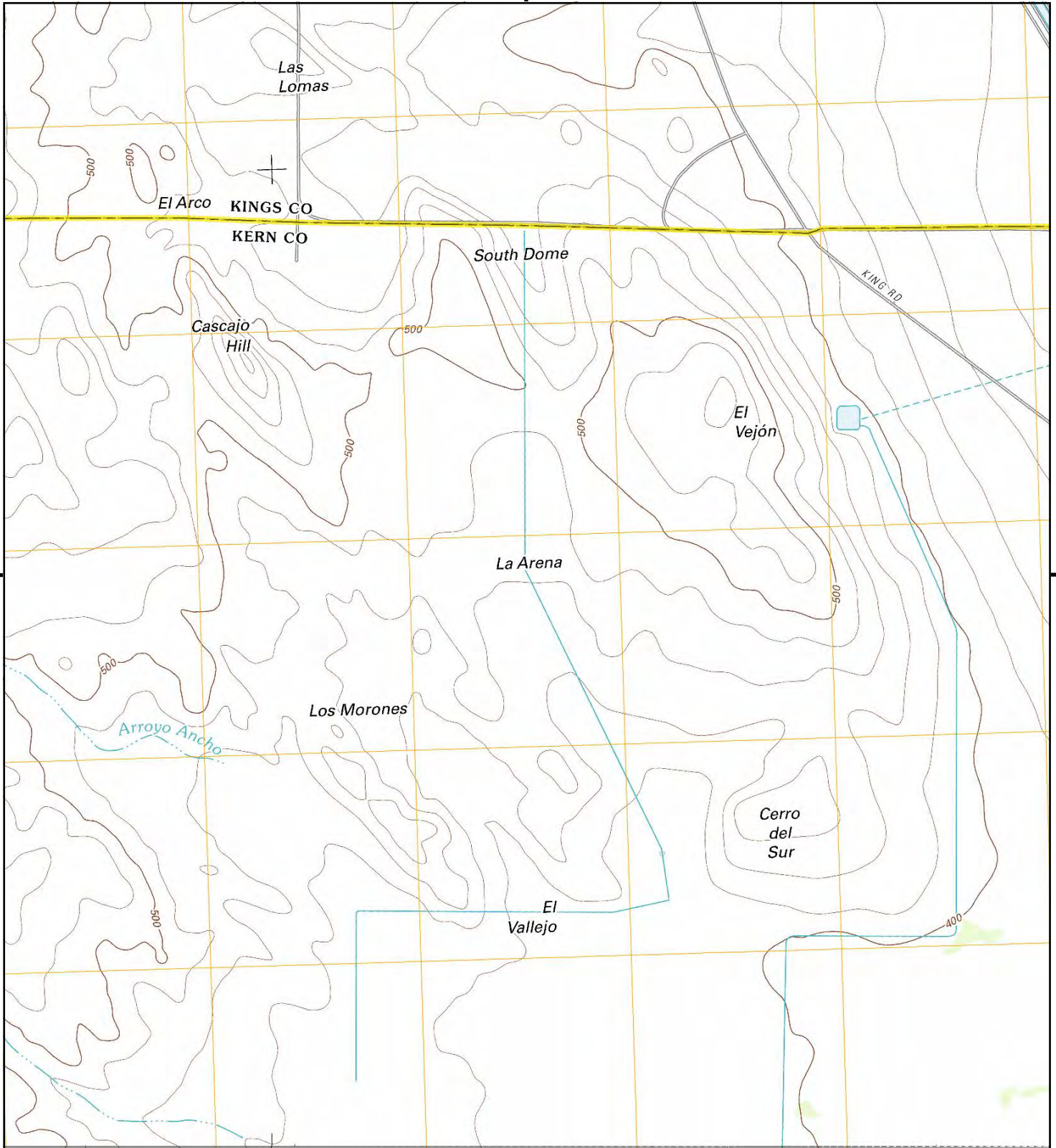


West Camp
1932
7.5-minute, 31680

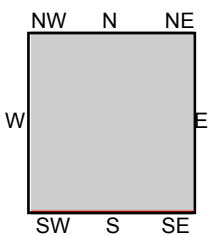
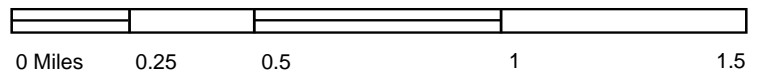
1914 Source Sheets



Lost Hills
1914
30-minute, 125000



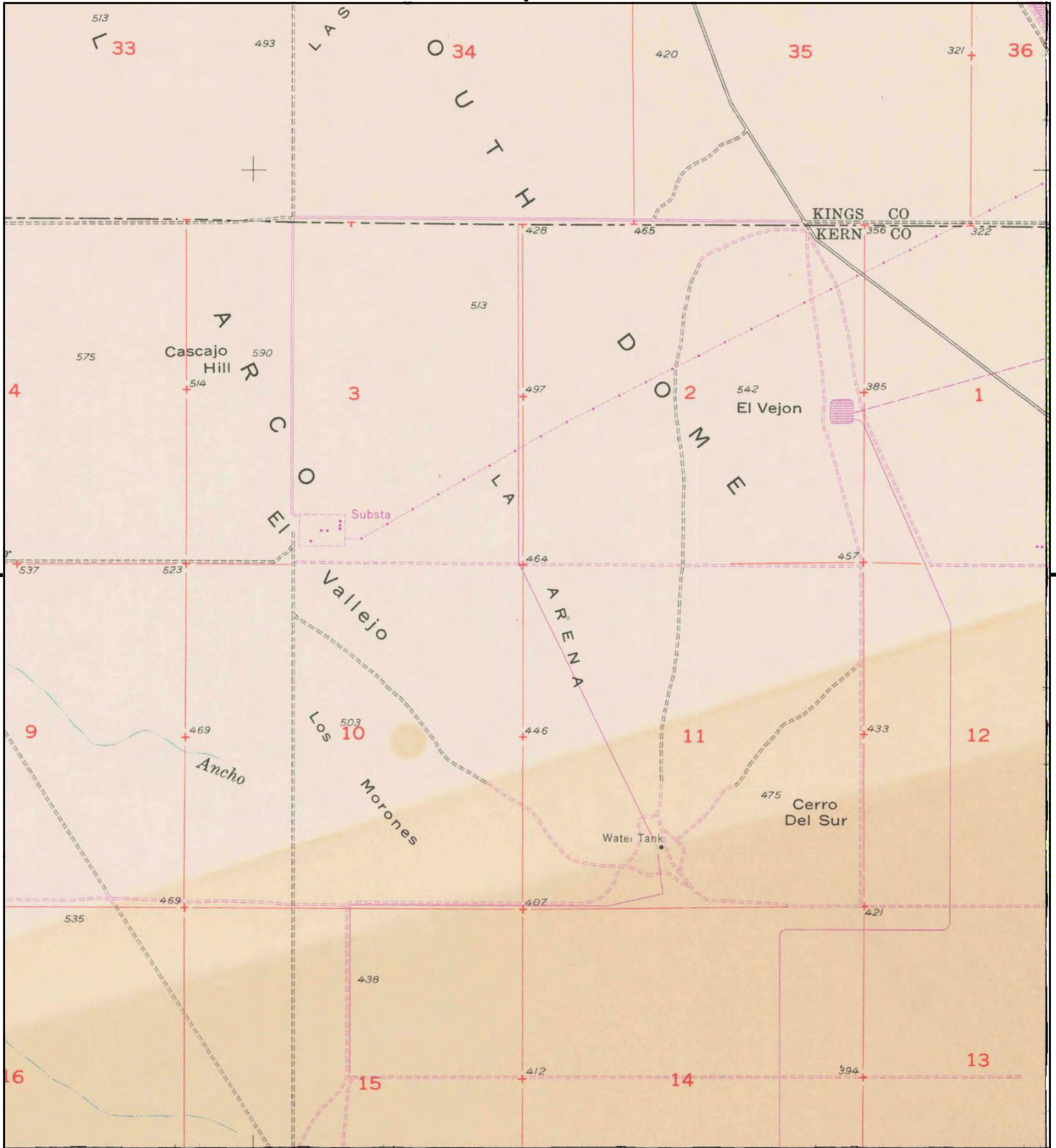
This report includes information from the following map sheet(s).



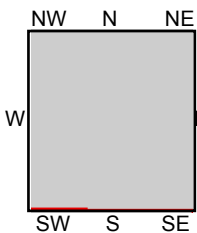
TP, Avenal Gap, 2012, 7.5-minute
S, Emigrant Hill, 2012, 7.5-minute

SITE NAME: Azalea Solar Facility Project
ADDRESS: Kern County
Lost Hills, CA 93249
CLIENT: Surf to Snow Environmental Resource M:





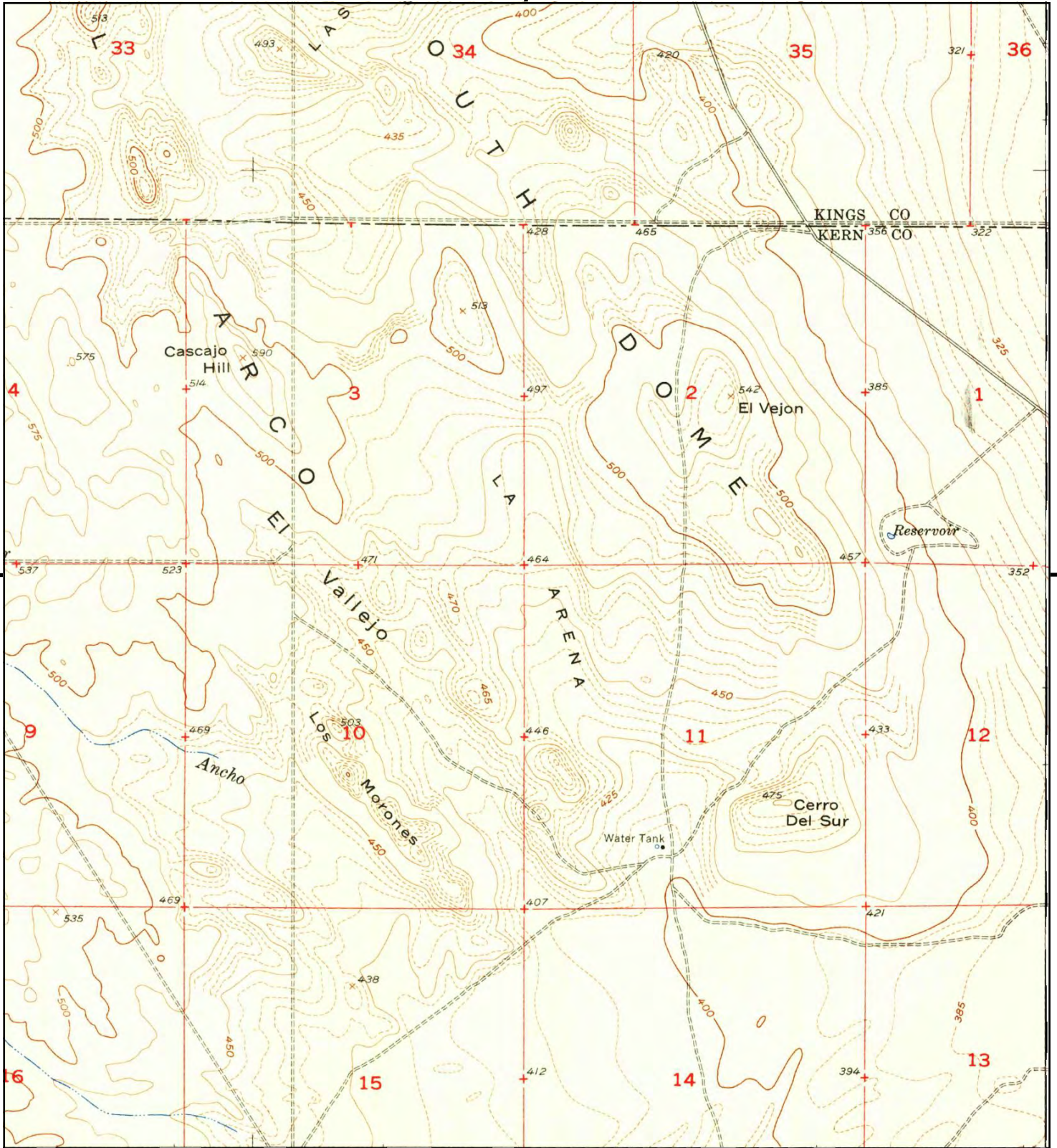
This report includes information from the following map sheet(s).



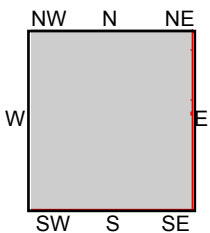
TP, Avenal Gap, 1973, 7.5-minute
NE, West Camp, 1973, 7.5-minute
SE, Antelope Plain, 1973, 7.5-minute
S, Emigrant Hill, 1973, 7.5-minute

SITE NAME: Azalea Solar Facility Project
ADDRESS: Kern County
Lost Hills, CA 93249
CLIENT: Surf to Snow Environmental Resource M:





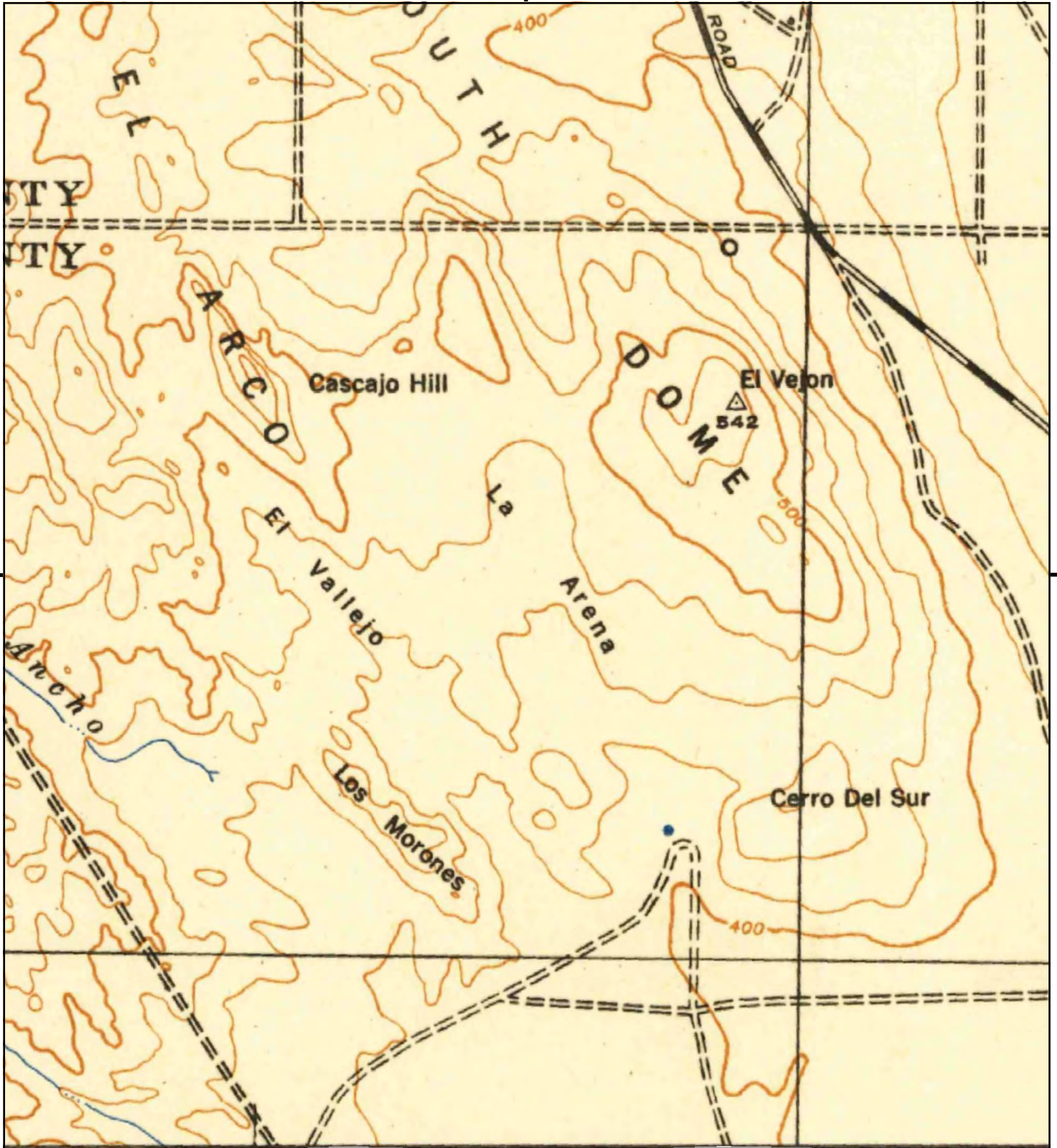
This report includes information from the following map sheet(s).



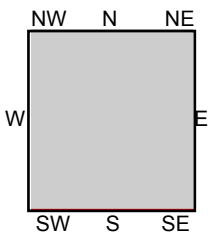
TP, Avenal Gap, 1954, 7.5-minute
NE, West Camp, 1954, 7.5-minute

SITE NAME: Azalea Solar Facility Project
ADDRESS: Kern County
Lost Hills, CA 93249
CLIENT: Surf to Snow Environmental Resource M:





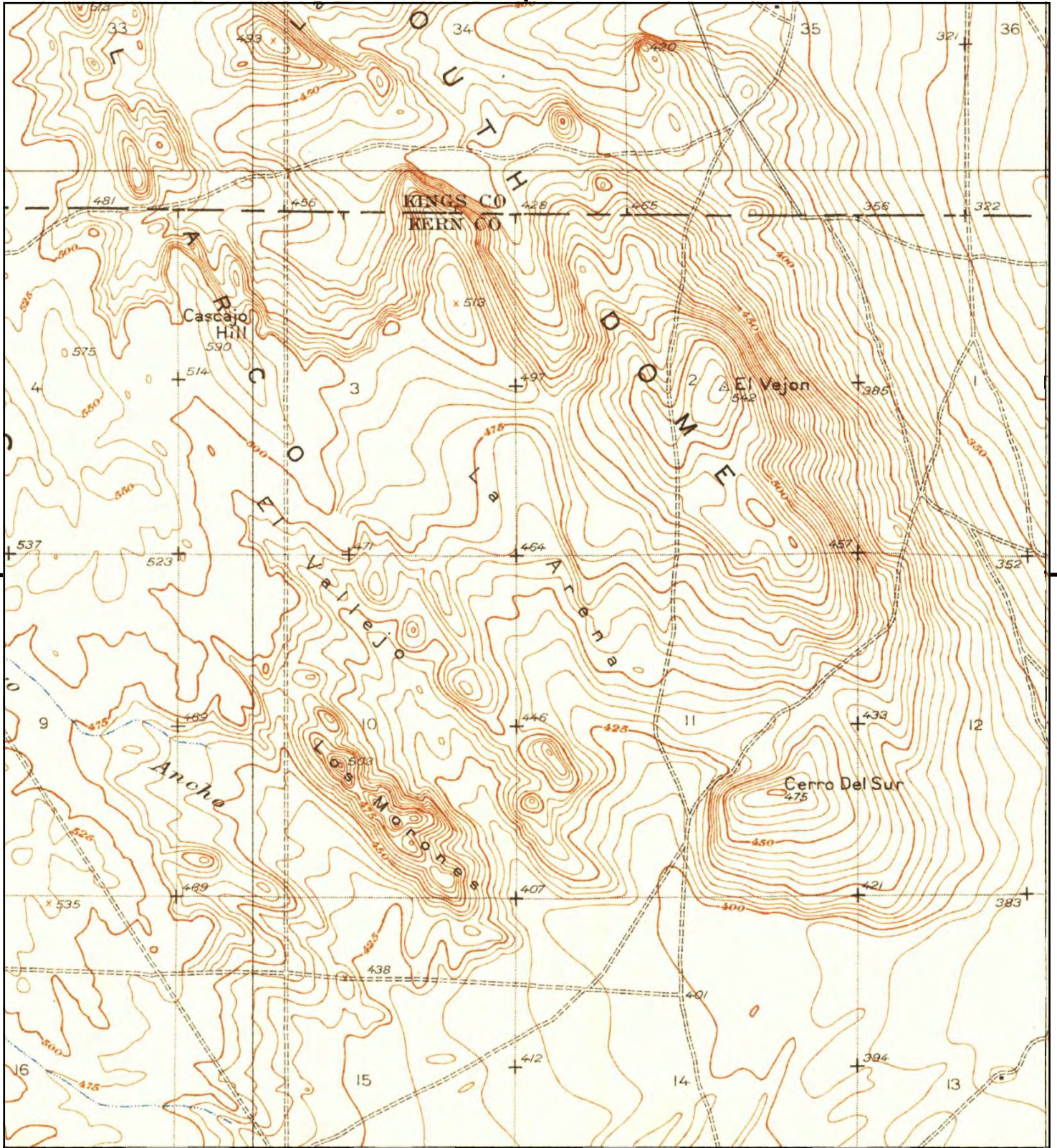
This report includes information from the following map sheet(s).



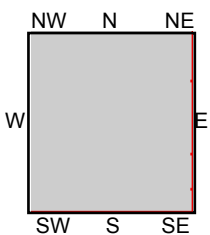
TP, La Rambla, 1943, 15-minute

SITE NAME: Azalea Solar Facility Project
 ADDRESS: Kern County
 Lost Hills, CA 93249
 CLIENT: Surf to Snow Environmental Resource M:





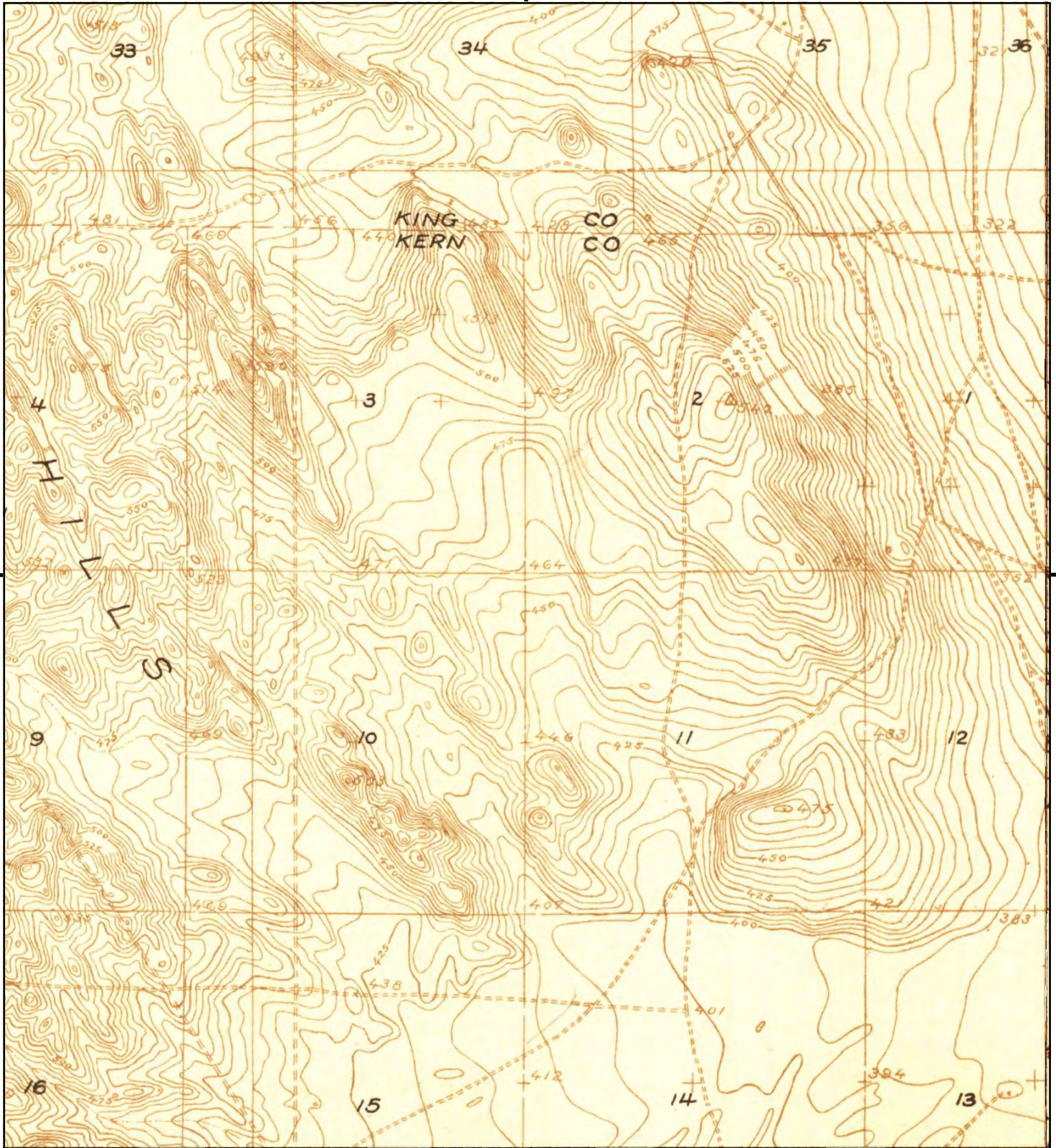
This report includes information from the following map sheet(s).



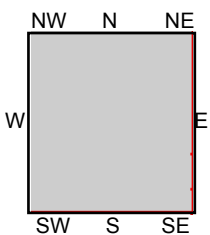
TP, Avenal Gap, 1933, 7.5-minute
NE, West Camp, 1935, 7.5-minute

SITE NAME: Azalea Solar Facility Project
ADDRESS: Kern County
Lost Hills, CA 93249
CLIENT: Surf to Snow Environmental Resource M:





This report includes information from the following map sheet(s).



TP, Avenal Gap, 1930, 7.5-minute
NE, West Camp, 1932, 7.5-minute
SE, Antelope Plain, 1932, 7.5-minute

SITE NAME: Azalea Solar Facility Project
ADDRESS: Kern County
Lost Hills, CA 93249
CLIENT: Surf to Snow Environmental Resource M:





This report includes information from the following map sheet(s).



TP, Lost Hills, 1914, 30-minute

SITE NAME: Azalea Solar Facility Project
 ADDRESS: Kern County
 Lost Hills, CA 93249
 CLIENT: Surf to Snow Environmental Resource M:



APPENDIX F

Environmental Regulatory Database Report

Azalea Solar Facility Project

Kern County

Lost Hills, CA 93249

Inquiry Number: 6210219.2s

September 30, 2020

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	12
Government Records Searched/Data Currency Tracking	GR-1
 <u>GEOCHECK ADDENDUM</u>	
Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-10
Physical Setting Source Map Findings	A-12
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2020 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

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), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

KERN COUNTY
LOST HILLS, CA 93249

COORDINATES

Latitude (North): 35.7743690 - 35° 46' 27.72"
Longitude (West): 119.9032450 - 119° 54' 11.68"
Universal Transverse Mercator: Zone 11
UTM X (Meters): 237552.1
UTM Y (Meters): 3962612.5
Elevation: 462 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5639058 AVENAL GAP, CA
Version Date:	2012
Northeast Map:	5639114 WEST CAMP, CA
Version Date:	2012
Southeast Map:	5639056 ANTELOPE PLAIN, CA
Version Date:	2012
South Map:	5639076 EMIGRANT HILL, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140619
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
KERN COUNTY
LOST HILLS, CA 93249

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	WARREN FARMS	1/2 MILE WEST OF KIN	CUPA Listings, CERS	Lower	7967, 1.509, East

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

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

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-VSQG..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

EXECUTIVE SUMMARY

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROLS..... Institutional Controls Sites List

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
CPS-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

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

EXECUTIVE SUMMARY

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
CERS HAZ WASTE..... CERS HAZ WASTE
US CDL..... National Clandestine Laboratory Register
PFAS..... PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST..... SWEEPS UST Listing
HIST UST..... Hazardous Substance Storage Container Database
CA FID UST..... Facility Inventory Database
CERS TANKS..... California Environmental Reporting System (CERS) Tanks

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
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)

EXECUTIVE SUMMARY

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
FINDS.....	Facility Index System/Facility Registry System
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
ECHO.....	Enforcement & Compliance History Information
UXO.....	Unexploded Ordnance Sites
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
DRYCLEANERS.....	Cleaner Facilities
EMI.....	Emissions Inventory Data
ENF.....	Enforcement Action Listing
Financial Assurance.....	Financial Assurance Information Listing
HAZNET.....	Facility and Manifest Data
ICE.....	ICE
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
UIC GEO.....	UIC GEO (GEOTRACKER)
WASTEWATER PITS.....	Oil Wastewater Pits Listing
WDS.....	Waste Discharge System
WIP.....	Well Investigation Program Case List
MILITARY PRIV SITES.....	MILITARY PRIV SITES (GEOTRACKER)
PROJECT.....	PROJECT (GEOTRACKER)
WDR.....	Waste Discharge Requirements Listing
CIWQS.....	California Integrated Water Quality System
CERS.....	CERS
NON-CASE INFO.....	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS.....	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS.....	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT.....	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ.....	Well Stimulation Project (GEOTRACKER)
HWTS.....	Hazardous Waste Tracking System
MINES MRDS.....	Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Hist Auto..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS 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. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

CUPA Listings: 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.

A review of the CUPA Listings list, as provided by EDR, has revealed that there is 1 CUPA Listings site within approximately 1.75 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>WARREN FARMS</i>	<i>1/2 MILE WEST OF KIN</i>	<i>E 1 - 2 (1.509 mi.)</i>	<i>1</i>	<i>9</i>
Database: KERN CO CUPA, Date of Government Version: 04/29/2020				

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

Site Name

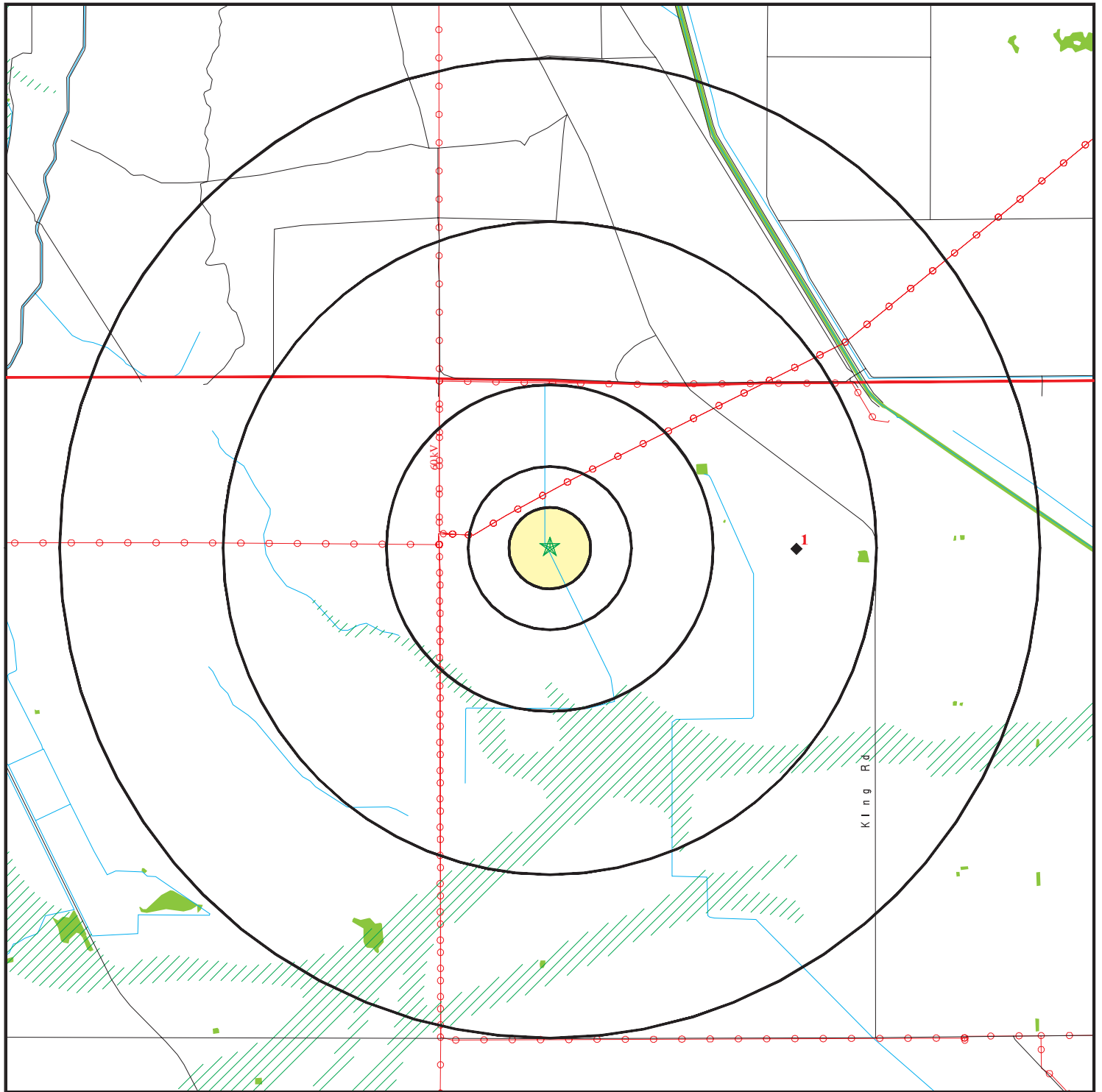
Database(s)

CDL

CDL

CDL

OVERVIEW MAP - 6210219.2S



- ★ 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
- County Boundary
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands

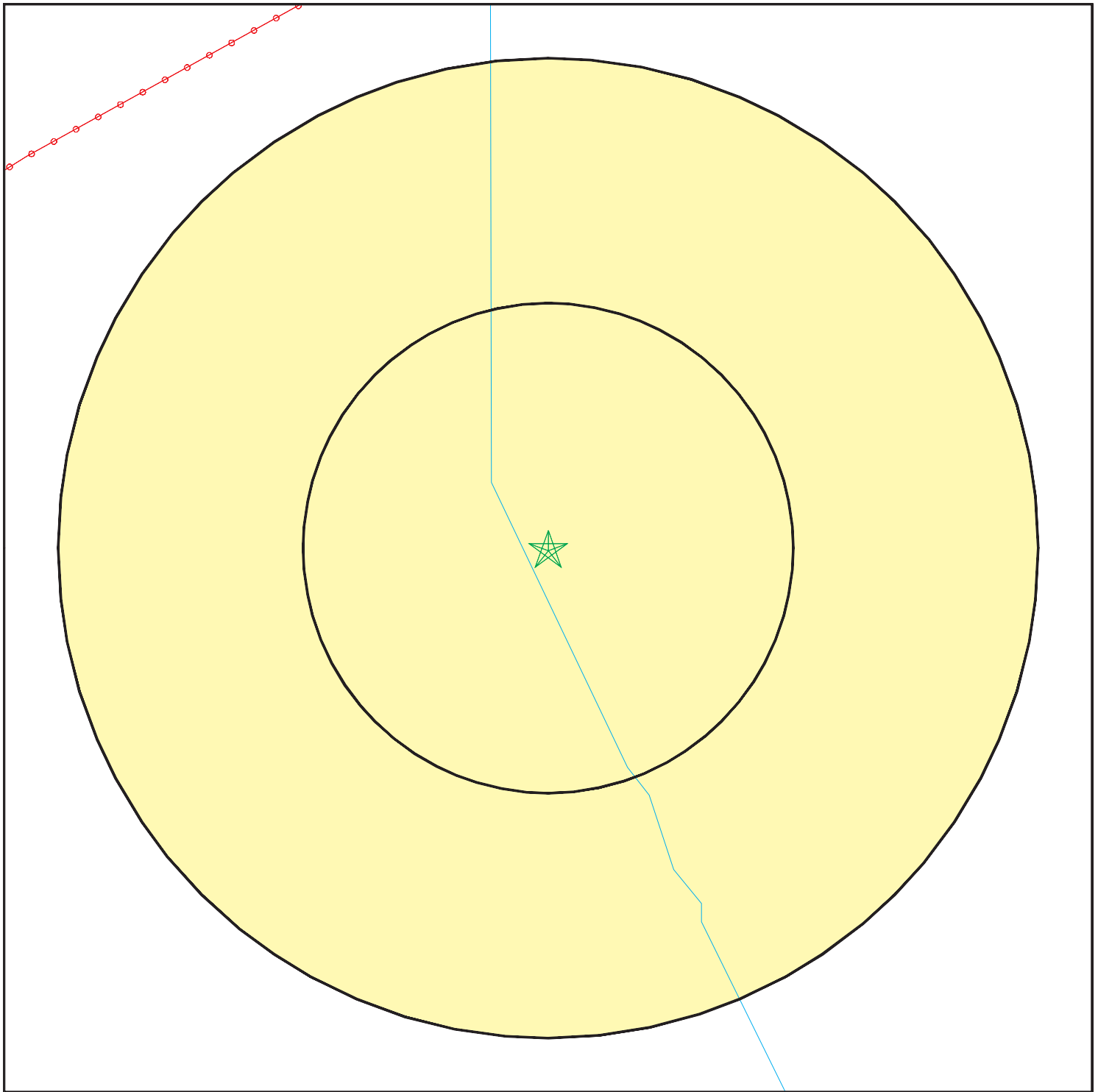
- Areas of Concern

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: Azalea Solar Facility Project
 ADDRESS: Kern County
 Lost Hills CA 93249
 LAT/LONG: 35.774369 / 119.903245

CLIENT: Surf to Snow Environmental Resource Management
 CONTACT: Tim Naughton
 INQUIRY #: 6210219.2s
 DATE: September 30, 2020 11:41 am

DETAIL MAP - 6210219.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🏠 National Priority List Sites
- 🏠 Dept. Defense Sites

- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard

- 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: Azalea Solar Facility Project
 ADDRESS: Kern County
 Lost Hills CA 93249
 LAT/LONG: 35.774369 / 119.903245

CLIENT: Surf to Snow Environmental Resource Management
 CONTACT: Tim Naughton
 INQUIRY #: 6210219.2s
 DATE: September 30, 2020 11:42 am

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	2.500		0	0	0	0	0	0
Proposed NPL	2.500		0	0	0	0	0	0
NPL LIENS	2.500		0	0	0	0	0	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	2.500		0	0	0	0	0	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	2.000		0	0	0	0	0	0
SEMS	2.000		0	0	0	0	0	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	2.000		0	0	0	0	0	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	2.500		0	0	0	0	0	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	2.000		0	0	0	0	0	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	1.750		0	0	0	0	0	0
RCRA-SQG	1.750		0	0	0	0	0	0
RCRA-VSQG	1.750		0	0	0	0	0	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	2.000		0	0	0	0	0	0
US ENG CONTROLS	2.000		0	0	0	0	0	0
US INST CONTROLS	2.000		0	0	0	0	0	0
<i>Federal ERNS list</i>								
ERNS	1.500		0	0	0	0	0	0
<i>State- and tribal - equivalent NPL</i>								
RESPONSE	2.500		0	0	0	0	0	0
<i>State- and tribal - equivalent CERCLIS</i>								
ENVIROSTOR	2.500		0	0	0	0	0	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	2.000		0	0	0	0	0	0
<i>State and tribal leaking storage tank lists</i>								
LUST	2.000		0	0	0	0	0	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	2.000		0	0	0	0	0	0
CPS-SLIC	2.000		0	0	0	0	0	0
State and tribal registered storage tank lists								
FEMA UST	1.750		0	0	0	0	0	0
UST	1.750		0	0	0	0	0	0
AST	1.750		0	0	0	0	0	0
INDIAN UST	1.750		0	0	0	0	0	0
State and tribal voluntary cleanup sites								
INDIAN VCP	2.000		0	0	0	0	0	0
VCP	2.000		0	0	0	0	0	0
State and tribal Brownfields sites								
BROWNFIELDS	2.000		0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	2.000		0	0	0	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	2.000		0	0	0	0	0	0
SWRCY	2.000		0	0	0	0	0	0
HAULERS	1.500		0	0	0	0	0	0
INDIAN ODI	2.000		0	0	0	0	0	0
DEBRIS REGION 9	2.000		0	0	0	0	0	0
ODI	2.000		0	0	0	0	0	0
IHS OPEN DUMPS	2.000		0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	1.500		0	0	0	0	0	0
HIST Cal-Sites	2.500		0	0	0	0	0	0
SCH	1.750		0	0	0	0	0	0
CDL	1.500		0	0	0	0	0	0
Toxic Pits	2.500		0	0	0	0	0	0
CERS HAZ WASTE	1.750		0	0	0	0	0	0
US CDL	1.500		0	0	0	0	0	0
PFAS	2.000		0	0	0	0	0	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	1.750		0	0	0	0	0	0
HIST UST	1.750		0	0	0	0	0	0
CA FID UST	1.750		0	0	0	0	0	0
CERS TANKS	1.750		0	0	0	0	0	0
Local Land Records								
LIENS	1.500		0	0	0	0	0	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
LIENS 2	1.500		0	0	0	0	0	0
DEED	2.000		0	0	0	0	0	0
Records of Emergency Release Reports								
HMIRS	1.500		0	0	0	0	0	0
CHMIRS	1.500		0	0	0	0	0	0
LDS	1.500		0	0	0	0	0	0
MCS	1.500		0	0	0	0	0	0
SPILLS 90	1.500		0	0	0	0	0	0
Other Ascertainable Records								
RCRA NonGen / NLR	1.750		0	0	0	0	0	0
FUDS	2.500		0	0	0	0	0	0
DOD	2.500		0	0	0	0	0	0
SCRD DRYCLEANERS	2.000		0	0	0	0	0	0
US FIN ASSUR	1.500		0	0	0	0	0	0
EPA WATCH LIST	1.500		0	0	0	0	0	0
2020 COR ACTION	1.750		0	0	0	0	0	0
TSCA	1.500		0	0	0	0	0	0
TRIS	1.500		0	0	0	0	0	0
SSTS	1.500		0	0	0	0	0	0
ROD	2.500		0	0	0	0	0	0
RMP	1.500		0	0	0	0	0	0
RAATS	1.500		0	0	0	0	0	0
PRP	1.500		0	0	0	0	0	0
PADS	1.500		0	0	0	0	0	0
ICIS	1.500		0	0	0	0	0	0
FTTS	1.500		0	0	0	0	0	0
MLTS	1.500		0	0	0	0	0	0
COAL ASH DOE	1.500		0	0	0	0	0	0
COAL ASH EPA	2.000		0	0	0	0	0	0
PCB TRANSFORMER	1.500		0	0	0	0	0	0
RADINFO	1.500		0	0	0	0	0	0
HIST FTTS	1.500		0	0	0	0	0	0
DOT OPS	1.500		0	0	0	0	0	0
CONSENT	2.500		0	0	0	0	0	0
INDIAN RESERV	2.500		0	0	0	0	0	0
FUSRAP	2.500		0	0	0	0	0	0
UMTRA	2.000		0	0	0	0	0	0
LEAD SMELTERS	1.500		0	0	0	0	0	0
US AIRS	1.500		0	0	0	0	0	0
US MINES	1.750		0	0	0	0	0	0
ABANDONED MINES	1.750		0	0	0	0	0	0
FINDS	1.500		0	0	0	0	0	0
DOCKET HWC	1.500		0	0	0	0	0	0
ECHO	1.500		0	0	0	0	0	0
UXO	2.500		0	0	0	0	0	0
FUELS PROGRAM	1.750		0	0	0	0	0	0
CA BOND EXP. PLAN	2.500		0	0	0	0	0	0
Cortese	2.000		0	0	0	0	0	0
CUPA Listings	1.750		0	0	0	0	1	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
DRYCLEANERS	1.750		0	0	0	0	0	0
EMI	1.500		0	0	0	0	0	0
ENF	1.500		0	0	0	0	0	0
Financial Assurance	1.500		0	0	0	0	0	0
HAZNET	1.500		0	0	0	0	0	0
ICE	1.500		0	0	0	0	0	0
HIST CORTESE	2.000		0	0	0	0	0	0
HWP	2.500		0	0	0	0	0	0
HWT	1.750		0	0	0	0	0	0
MINES	1.750		0	0	0	0	0	0
MWMP	1.750		0	0	0	0	0	0
NPDES	1.500		0	0	0	0	0	0
PEST LIC	1.500		0	0	0	0	0	0
PROC	2.000		0	0	0	0	0	0
Notify 65	2.500		0	0	0	0	0	0
UIC	1.500		0	0	0	0	0	0
UIC GEO	1.500		0	0	0	0	0	0
WASTEWATER PITS	2.000		0	0	0	0	0	0
WDS	1.500		0	0	0	0	0	0
WIP	1.750		0	0	0	0	0	0
MILITARY PRIV SITES	1.500		0	0	0	0	0	0
PROJECT	1.500		0	0	0	0	0	0
WDR	1.500		0	0	0	0	0	0
CIWQS	1.500		0	0	0	0	0	0
CERS	1.500		0	0	0	0	0	0
NON-CASE INFO	1.500		0	0	0	0	0	0
OTHER OIL GAS	1.500		0	0	0	0	0	0
PROD WATER PONDS	1.500		0	0	0	0	0	0
SAMPLING POINT	1.500		0	0	0	0	0	0
WELL STIM PROJ	1.500		0	0	0	0	0	0
HWTS	1.500		0	0	0	0	0	0
MINES MRDS	1.500		0	0	0	0	0	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	2.500		0	0	0	0	0	0
EDR Hist Auto	1.625		0	0	0	0	0	0
EDR Hist Cleaner	1.625		0	0	0	0	0	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	1.500		0	0	0	0	0	0
RGA LUST	1.500		0	0	0	0	0	0

- Totals --		0	0	0	0	0	1	1
-------------	--	---	---	---	---	---	---	---

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
-----------------	--	----------------------------	-----------------	------------------	------------------	----------------	---------------	--------------------------

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

EDR ID Number
EPA ID Number

1
East
> 1
1.509 mi.
7967 ft.

WARREN FARMS
1/2 MILE WEST OF KING RD LAT 35.77435
LOST HILLS, CA 93249

CUPA Listings
CERS
S121777511
N/A

Relative:
Lower
Actual:
355 ft.

KERN CO CUPA:
Facility ID: FA0039530
CERS ID: 10440898
Name: WARREN FARMS
Address: 1/2 MILE WEST OF KING RD LAT 35.77435
Address 2: 1/2 Mile West Of King Rd Lat 35.77435
City,State,Zip: LOST HILLS, CA
Billing Status: Active, billable
Program Element: BUS PLAN SMALL LOW RISK 1 UNIT
Program Element Code: CB1T
HMIRRP Due Date: 3/31/2017
Current Inspection Date: 05/01/2021
Employee: BROWNFIELD
Mailing Address: PO Box 78620
Mailing Address 2: Not reported
Mailing City: BAKERSFIELD
Mailing State: CA
Mailing Zip: 93383-8620

CERS:
Name: WARREN FARMS
Address: 1/2 MILE WEST OF KING RD LAT 35.77435
City,State,Zip: LOST HILLS, CA 93249
Site ID: 407370
CERS ID: 10440898
CERS Description: Chemical Storage Facilities

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 06-05-2018
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-13-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Kern County Env Health Services Department
Eval Program: HMRRP
Eval Source: CERS

Affiliation:
Affiliation Type Desc: Identification Signer
Entity Name: Erik Haarsager
Entity Title: FARM MANAGER
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

WARREN FARMS (Continued)

S121777511

Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Legal Owner
Entity Name: RON WARREN
Entity Title: Not reported
Affiliation Address: PO Box 78620
Affiliation City: BAKERSFIELD
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 93383-8620
Affiliation Phone: (661) 428-2105

Affiliation Type Desc: Environmental Contact
Entity Name: Claudia Payne
Entity Title: Not reported
Affiliation Address: PO Box 78620
Affiliation City: Bakersfield
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 93383-8620
Affiliation Phone: Not reported

Affiliation Type Desc: CUPA District
Entity Name: Kern County Environmental Health Services Departme
Entity Title: Not reported
Affiliation Address: 2700 M Street, Suite 300
Affiliation City: Bakersfield
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 93301-2370
Affiliation Phone: (661) 862-8740

Affiliation Type Desc: Document Preparer
Entity Name: Claudia Payne
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title: Not reported
Affiliation Address: PO Box 78620
Affiliation City: BAKERSFIELD
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: 93383-8620
Affiliation Phone: Not reported

Affiliation Type Desc: Operator
Entity Name: ERIK HAARSAGER
Entity Title: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

WARREN FARMS (Continued)

S121777511

Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: (661) 431-6257

Affiliation Type Desc: Parent Corporation
Entity Name: WARREN FARMS
Entity Title: Not reported
Affiliation Address: Not reported
Affiliation City: Not reported
Affiliation State: Not reported
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Affiliation Type Desc: Property Owner
Entity Name: Ron Warren
Entity Title: Not reported
Affiliation Address: claudia_payne@att.net
Affiliation City: Bakersfield
Affiliation State: CA
Affiliation Country: United States
Affiliation Zip: 93312
Affiliation Phone: (661) 342-1056

Count: 3 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
KERN COUNTY	S107538767		HIGHWAY 99 AND DAVID ROAD/KERN		CDL
KERN COUNTY	S107539095		KERN FRIANT CANAL (SEE CLUE)		CDL
LOST HILLS	S107530474		2.9 M. S. OF KERN WILDLIFE REF		CDL

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: 07/29/2020	Source: EPA
Date Data Arrived at EDR: 08/03/2020	Telephone: N/A
Date Made Active in Reports: 08/25/2020	Last EDR Contact: 09/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 10/12/2020
	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: 07/29/2020	Source: EPA
Date Data Arrived at EDR: 08/03/2020	Telephone: N/A
Date Made Active in Reports: 08/25/2020	Last EDR Contact: 09/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 10/12/2020
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

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: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: N/A
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
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: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
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: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/26/2020
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: 07/29/2020	Source: EPA
Date Data Arrived at EDR: 08/03/2020	Telephone: 800-424-9346
Date Made Active in Reports: 08/25/2020	Last EDR Contact: 09/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 10/26/2020
	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: 06/15/2020	Source: EPA
Date Data Arrived at EDR: 06/22/2020	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 87	Next Scheduled EDR Contact: 01/04/2021
	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: 06/15/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/22/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 09/18/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 88	Next Scheduled EDR Contact: 01/04/2021
	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: 06/15/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/22/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 09/18/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 88	Next Scheduled EDR Contact: 01/04/2021
	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: 06/15/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/22/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 09/18/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 88	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly 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). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/22/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 09/18/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 88	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Quarterly

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: 05/15/2020	Source: Department of the Navy
Date Data Arrived at EDR: 05/19/2020	Telephone: 843-820-7326
Date Made Active in Reports: 06/18/2020	Last EDR Contact: 08/04/2020
Number of Days to Update: 30	Next Scheduled EDR Contact: 11/23/2020
	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: 02/13/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/20/2020	Telephone: 703-603-0695
Date Made Active in Reports: 05/15/2020	Last EDR Contact: 08/24/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 12/07/2020
	Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

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: 02/13/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/20/2020	Telephone: 703-603-0695
Date Made Active in Reports: 05/15/2020	Last EDR Contact: 08/24/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 12/07/2020
	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: 06/15/2020

Date Data Arrived at EDR: 06/22/2020

Date Made Active in Reports: 09/17/2020

Number of Days to Update: 87

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 09/22/2020

Next Scheduled EDR Contact: 01/04/2021

Data Release Frequency: Quarterly

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: 04/27/2020

Date Data Arrived at EDR: 04/28/2020

Date Made Active in Reports: 07/13/2020

Number of Days to Update: 76

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 07/27/2020

Next Scheduled EDR Contact: 11/09/2020

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: 04/27/2020

Date Data Arrived at EDR: 04/28/2020

Date Made Active in Reports: 07/13/2020

Number of Days to Update: 76

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 07/27/2020

Next Scheduled EDR Contact: 11/09/2020

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: 05/11/2020

Date Data Arrived at EDR: 05/12/2020

Date Made Active in Reports: 07/27/2020

Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 08/10/2020

Next Scheduled EDR Contact: 11/23/2020

Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 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 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 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

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: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calaveras, 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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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 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 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: 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 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

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

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/14/2020

Date Data Arrived at EDR: 05/20/2020

Date Made Active in Reports: 08/12/2020

Number of Days to Update: 84

Source: EPA Region 10

Telephone: 206-553-2857

Last EDR Contact: 07/24/2020

Next Scheduled EDR Contact: 11/02/2020

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: 04/14/2020

Date Data Arrived at EDR: 05/26/2020

Date Made Active in Reports: 08/12/2020

Number of Days to Update: 78

Source: EPA Region 4

Telephone: 404-562-8677

Last EDR Contact: 07/24/2020

Next Scheduled EDR Contact: 11/02/2020

Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 04/14/2020	Source: EPA, Region 5
Date Data Arrived at EDR: 05/20/2020	Telephone: 312-886-7439
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

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: 04/29/2020	Source: EPA Region 1
Date Data Arrived at EDR: 05/20/2020	Telephone: 617-918-1313
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2020	Telephone: 214-665-6597
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/15/2020	Source: EPA Region 7
Date Data Arrived at EDR: 05/20/2020	Telephone: 913-551-7003
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	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: 04/14/2020	Source: EPA Region 8
Date Data Arrived at EDR: 05/20/2020	Telephone: 303-312-6271
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

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: 04/08/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/20/2020	Telephone: 415-972-3372
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

CPS-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: 06/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 09/08/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/21/2020
	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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: No Update Planned

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: 02/01/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 05/26/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/28/2020
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: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

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: 04/03/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

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: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 04/08/2020	Source: EPA Region 9
Date Data Arrived at EDR: 05/20/2020	Telephone: 415-972-3368
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/23/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/01/2020
	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: 04/08/2020	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2020	Telephone: 214-665-7591
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

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: 04/14/2020	Source: EPA Region 5
Date Data Arrived at EDR: 05/20/2020	Telephone: 312-886-6136
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

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: 04/29/2020	Source: EPA, Region 1
Date Data Arrived at EDR: 05/20/2020	Telephone: 617-918-1313
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	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: 04/14/2020	Source: EPA Region 8
Date Data Arrived at EDR: 05/20/2020	Telephone: 303-312-6137
Date Made Active in Reports: 08/13/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

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: 04/27/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/28/2020	Telephone: 916-323-3400
Date Made Active in Reports: 07/13/2020	Last EDR Contact: 07/27/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/09/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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

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: 09/16/2020
Number of Days to Update: 142	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Varies

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: 06/22/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/22/2020	Telephone: 916-323-7905
Date Made Active in Reports: 09/04/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 74	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Quarterly

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: 06/01/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/02/2020	Telephone: 202-566-2777
Date Made Active in Reports: 06/09/2020	Last EDR Contact: 09/15/2020
Number of Days to Update: 7	Next Scheduled EDR Contact: 12/28/2020
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
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: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
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: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
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: 07/31/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
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.

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: 04/27/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
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: 06/30/2019
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 83

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

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.

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: 05/20/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/06/2020
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 12/07/2020
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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 79

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

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: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
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: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Semi-Annually

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: 06/01/2020	Source: DTSC and SWRCB
Date Data Arrived at EDR: 06/02/2020	Telephone: 916-323-3400
Date Made Active in Reports: 08/14/2020	Last EDR Contact: 08/31/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 12/14/2020
	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: 06/22/2020	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 06/23/2020	Telephone: 202-366-4555
Date Made Active in Reports: 09/17/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 86	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Quarterly

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: 03/31/2020	Source: Office of Emergency Services
Date Data Arrived at EDR: 04/21/2020	Telephone: 916-845-8400
Date Made Active in Reports: 07/09/2020	Last EDR Contact: 07/21/2020
Number of Days to Update: 79	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Semi-Annually

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: 06/08/2020	Source: State Water Quality Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 09/08/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/21/2020
	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: 06/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 09/08/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/21/2020
	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: 06/15/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/22/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 09/18/2020	Last EDR Contact: 09/22/2020
Number of Days to Update: 88	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Quarterly

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: 05/13/2020	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 05/18/2020	Telephone: 202-528-4285
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 08/13/2020
Number of Days to Update: 86	Next Scheduled EDR Contact: 11/30/2020
	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: 07/09/2020
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/19/2020
	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: 04/02/2018	Source: U.S. Geological Survey
Date Data Arrived at EDR: 04/11/2018	Telephone: 888-275-8747
Date Made Active in Reports: 11/06/2019	Last EDR Contact: 07/06/2020
Number of Days to Update: 574	Next Scheduled EDR Contact: 10/19/2020
	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: 08/05/2020
Next Scheduled EDR Contact: 11/23/2020
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: 06/15/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 80

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
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: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
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: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
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: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/18/2020
Next Scheduled EDR Contact: 12/28/2020
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: 12/31/2018
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 79

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/14/2020
Next Scheduled EDR Contact: 11/30/2020
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: 03/01/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/15/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
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: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 12/14/2020
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: 01/31/2020
Date Data Arrived at EDR: 05/13/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/15/2020
Next Scheduled EDR Contact: 11/02/2020
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: 04/27/2020	Source: EPA
Date Data Arrived at EDR: 05/06/2020	Telephone: 202-564-6023
Date Made Active in Reports: 06/09/2020	Last EDR Contact: 09/03/2020
Number of Days to Update: 34	Next Scheduled EDR Contact: 11/16/2020
	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: 10/09/2019	Source: EPA
Date Data Arrived at EDR: 10/11/2019	Telephone: 202-566-0500
Date Made Active in Reports: 12/20/2019	Last EDR Contact: 07/13/2020
Number of Days to Update: 70	Next Scheduled EDR Contact: 10/19/2020
	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: 06/30/2020
Number of Days to Update: 79	Next Scheduled EDR Contact: 10/19/2020
	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: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: No Update Planned

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: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: No Update Planned

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: 10/25/2019	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 10/25/2019	Telephone: 301-415-7169
Date Made Active in Reports: 01/15/2020	Last EDR Contact: 07/20/2020
Number of Days to Update: 82	Next Scheduled EDR Contact: 11/02/2020
	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: 12/31/2018	Source: Department of Energy
Date Data Arrived at EDR: 12/04/2019	Telephone: 202-586-8719
Date Made Active in Reports: 01/15/2020	Last EDR Contact: 09/04/2020
Number of Days to Update: 42	Next Scheduled EDR Contact: 12/14/2020
	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: 01/12/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/05/2019	Telephone: N/A
Date Made Active in Reports: 11/11/2019	Last EDR Contact: 08/31/2020
Number of Days to Update: 251	Next Scheduled EDR Contact: 12/14/2020
	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: 09/13/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/06/2019	Telephone: 202-566-0517
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 08/06/2020
Number of Days to Update: 96	Next Scheduled EDR Contact: 11/16/2020
	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: 07/01/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/01/2019	Telephone: 202-343-9775
Date Made Active in Reports: 09/23/2019	Last EDR Contact: 09/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 01/11/2021
	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: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

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: 06/30/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/21/2020
Number of Days to Update: 6

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
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: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/22/2020
Next Scheduled EDR Contact: 01/04/2021
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: 07/07/2020
Next Scheduled EDR Contact: 10/19/2020
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: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
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: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/03/2020
Next Scheduled EDR Contact: 10/12/2020
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: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
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: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
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: 05/01/2020
Date Data Arrived at EDR: 05/21/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 77

Source: DOL, Mine Safety & Health Admin
Telephone: 202-693-9424
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

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.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/28/2020
Next Scheduled EDR Contact: 12/07/2020
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: 08/28/2020
Next Scheduled EDR Contact: 12/07/2020
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: 06/22/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 80

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 12/21/2020
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: 02/03/2020
Date Data Arrived at EDR: 03/03/2020
Date Made Active in Reports: 05/28/2020
Number of Days to Update: 86

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/27/2020
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/28/2020
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/26/2018	Telephone: 202-564-0527
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 08/19/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/07/2020
	Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018	Source: Department of Defense
Date Data Arrived at EDR: 07/02/2020	Telephone: 703-704-1564
Date Made Active in Reports: 09/17/2020	Last EDR Contact: 07/09/2020
Number of Days to Update: 77	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: Varies

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: 05/18/2020	Source: EPA
Date Data Arrived at EDR: 05/19/2020	Telephone: 800-385-6164
Date Made Active in Reports: 08/03/2020	Last EDR Contact: 08/17/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/30/2020
	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: 06/22/2020	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 06/22/2020	Telephone: 916-323-3400
Date Made Active in Reports: 09/04/2020	Last EDR Contact: 09/23/2020
Number of Days to Update: 74	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 05/04/2020	Source: San Francisco County Department of Environmental Health
Date Data Arrived at EDR: 05/06/2020	Telephone: 415-252-3896
Date Made Active in Reports: 07/17/2020	Last EDR Contact: 07/28/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 11/16/2020
	Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/14/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

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: 06/04/2020
Date Data Arrived at EDR: 06/05/2020
Date Made Active in Reports: 08/17/2020
Number of Days to Update: 73

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/24/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/19/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 14

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 06/16/2020
Date Made Active in Reports: 08/28/2020
Number of Days to Update: 73

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/18/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Varies

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: 04/03/2020
Date Data Arrived at EDR: 04/07/2020
Date Made Active in Reports: 04/15/2020
Number of Days to Update: 8

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 05/14/2020	Source: California Integrated Waste Management Board
Date Data Arrived at EDR: 05/15/2020	Telephone: 916-341-6066
Date Made Active in Reports: 07/27/2020	Last EDR Contact: 08/04/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 11/23/2020
	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: 12/31/2019	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 04/15/2020	Telephone: 916-255-1136
Date Made Active in Reports: 07/02/2020	Last EDR Contact: 07/06/2020
Number of Days to Update: 78	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/18/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 05/19/2020	Telephone: 877-786-9427
Date Made Active in Reports: 07/31/2020	Last EDR Contact: 08/17/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Quarterly

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: 05/18/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 05/18/2020	Telephone: 916-323-3400
Date Made Active in Reports: 07/31/2020	Last EDR Contact: 08/17/2020
Number of Days to Update: 74	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Quarterly

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: 07/06/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 07/07/2020	Telephone: 916-440-7145
Date Made Active in Reports: 09/17/2020	Last EDR Contact: 07/07/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

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: 05/28/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/12/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/28/2020
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/10/2020
Next Scheduled EDR Contact: 11/23/2020
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: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

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: 08/21/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 08/27/2020
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 08/20/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/06/2020	Source: Department of Conservation
Date Data Arrived at EDR: 06/09/2020	Telephone: 916-445-2408
Date Made Active in Reports: 08/20/2020	Last EDR Contact: 09/08/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 12/21/2020
	Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 06/08/2020	Source: State Water Resource Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 09/08/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/21/2020
	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 boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 11/19/2019	Source: RWQCB, Central Valley Region
Date Data Arrived at EDR: 01/07/2020	Telephone: 559-445-5577
Date Made Active in Reports: 03/09/2020	Last EDR Contact: 07/09/2020
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 08/11/2020
Number of Days to Update: 9	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: No Update Planned

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	Source: Los Angeles Water Quality Control Board
Date Data Arrived at EDR: 07/21/2009	Telephone: 213-576-6726
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 09/16/2020
Number of Days to Update: 13	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 06/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 09/08/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/21/2020
	Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 83

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/28/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 07/01/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/11/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Semi-Annually

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 04/09/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 08/02/2020
Next Scheduled EDR Contact: 10/18/2020
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.

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 Historical Auto 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 Historical 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.

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: 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

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: 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: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/30/2020
Date Data Arrived at EDR: 07/01/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 16

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA AMADOR: CUPA Facility List Cupa Facility List

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 06/01/2020
Number of Days to Update: 13

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 06/17/2020
Date Data Arrived at EDR: 06/18/2020
Date Made Active in Reports: 09/02/2020
Number of Days to Update: 76

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/16/2020
Next Scheduled EDR Contact: 01/04/2021
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 04/01/2020
Date Data Arrived at EDR: 04/20/2020
Date Made Active in Reports: 07/06/2020
Number of Days to Update: 77

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA DEL NORTE: CUPA Facility List Cupa Facility list

Date of Government Version: 04/16/2020
Date Data Arrived at EDR: 04/20/2020
Date Made Active in Reports: 07/08/2020
Number of Days to Update: 79

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List CUPA facility list.

Date of Government Version: 05/07/2020
Date Data Arrived at EDR: 05/07/2020
Date Made Active in Reports: 07/23/2020
Number of Days to Update: 77

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: 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: 06/30/2020
Date Data Arrived at EDR: 07/01/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 78

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List CUPA facility list.

Date of Government Version: 05/19/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 26

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA IMPERIAL: CUPA Facility List Cupa facility list.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List

A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 08/26/2020
Number of Days to Update: 113

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 73

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: 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: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/21/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

LAKE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA LAKE: CUPA Facility List Cupa facility list

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/14/2020
Number of Days to Update: 77

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List Cupa facility list

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 01/31/2020
Date Made Active in Reports: 04/09/2020
Number of Days to Update: 69

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

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: N/A
Telephone: N/A
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2020
Date Data Arrived at EDR: 07/10/2020
Date Made Active in Reports: 09/28/2020
Number of Days to Update: 80

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/13/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 78

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/13/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 09/25/2020
Number of Days to Update: 58	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012	Source: Los Angeles County Department of Public Works
Date Data Arrived at EDR: 04/17/2019	Telephone: 626-458-6973
Date Made Active in Reports: 05/29/2019	Last EDR Contact: 08/11/2020
Number of Days to Update: 42	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 09/25/2020
Number of Days to Update: 58	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 09/25/2020
Number of Days to Update: 58	Next Scheduled EDR Contact: 01/04/2021
	Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/25/2020	Source: Community Health Services
Date Data Arrived at EDR: 04/14/2020	Telephone: 323-890-7806
Date Made Active in Reports: 07/01/2020	Last EDR Contact: 07/17/2020
Number of Days to Update: 78	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 04/19/2017	Telephone: 310-524-2236
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 07/08/2020
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 04/23/2019	Telephone: 562-570-2563
Date Made Active in Reports: 06/27/2019	Last EDR Contact: 07/14/2020
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/27/2019	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 07/30/2019	Telephone: 310-618-2973
Date Made Active in Reports: 10/02/2019	Last EDR Contact: 07/14/2020
Number of Days to Update: 64	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: 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: 02/24/2020	Source: Madera County Environmental Health
Date Data Arrived at EDR: 02/25/2020	Telephone: 559-675-7823
Date Made Active in Reports: 05/07/2020	Last EDR Contact: 08/04/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 10/04/2018	Telephone: 415-473-6647
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 09/23/2020
Number of Days to Update: 29	Next Scheduled EDR Contact: 01/11/2021
	Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/28/2020	Source: Merced County Environmental Health
Date Data Arrived at EDR: 07/30/2020	Telephone: 209-381-1094
Date Made Active in Reports: 07/31/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 1	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Varies

MONO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA MONO: CUPA Facility List CUPA Facility List

Date of Government Version: 05/15/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 16

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

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: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List CUPA facility list.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/07/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 78

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups Petroleum and non-petroleum spills.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/10/2020
Date Made Active in Reports: 08/24/2020
Number of Days to Update: 75

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 03/10/2020
Date Data Arrived at EDR: 03/11/2020
Date Made Active in Reports: 05/20/2020
Number of Days to Update: 70

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/15/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST RIVERSIDE: Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 03/10/2020

Date Data Arrived at EDR: 03/11/2020

Date Made Active in Reports: 05/20/2020

Number of Days to Update: 70

Source: Department of Environmental Health

Telephone: 951-358-5055

Last EDR Contact: 09/10/2020

Next Scheduled EDR Contact: 12/28/2020

Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/18/2020

Date Data Arrived at EDR: 03/31/2020

Date Made Active in Reports: 06/15/2020

Number of Days to Update: 76

Source: Sacramento County Environmental Management

Telephone: 916-875-8406

Last EDR Contact: 07/02/2020

Next Scheduled EDR Contact: 10/12/2020

Data Release Frequency: Quarterly

ML SACRAMENTO: 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: 02/24/2020

Date Data Arrived at EDR: 03/31/2020

Date Made Active in Reports: 06/17/2020

Number of Days to Update: 78

Source: Sacramento County Environmental Management

Telephone: 916-875-8406

Last EDR Contact: 07/02/2020

Next Scheduled EDR Contact: 10/12/2020

Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 04/24/2020

Date Data Arrived at EDR: 04/28/2020

Date Made Active in Reports: 07/13/2020

Number of Days to Update: 76

Source: San Benito County Environmental Health

Telephone: N/A

Last EDR Contact: 07/28/2020

Next Scheduled EDR Contact: 11/16/2020

Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: 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: 02/25/2020

Date Data Arrived at EDR: 02/26/2020

Date Made Active in Reports: 05/07/2020

Number of Days to Update: 71

Source: San Bernardino County Fire Department Hazardous Materials Division

Telephone: 909-387-3041

Last EDR Contact: 07/28/2020

Next Scheduled EDR Contact: 11/16/2020

Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMMD SAN DIEGO: 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: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/31/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

SAN DIEGO CO SAM: 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: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: 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: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/10/2020
Next Scheduled EDR Contact: 12/28/2020
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List Cupa Facility List.

Date of Government Version: 05/08/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 87

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/11/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/01/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: 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: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SANTA CLARA: Cupa Facility List Cupa facility list

Date of Government Version: 05/08/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

HIST LUST SANTA CLARA: 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

LUST SANTA CLARA: 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: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 04/22/2020
Date Data Arrived at EDR: 04/24/2020
Date Made Active in Reports: 05/07/2020
Number of Days to Update: 13

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: 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: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SOLANO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST SOLANO: Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019

Date Data Arrived at EDR: 06/06/2019

Date Made Active in Reports: 08/13/2019

Number of Days to Update: 68

Source: Solano County Department of Environmental Management

Telephone: 707-784-6770

Last EDR Contact: 08/25/2020

Next Scheduled EDR Contact: 12/14/2020

Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 08/25/2020

Date Data Arrived at EDR: 08/26/2020

Date Made Active in Reports: 09/16/2020

Number of Days to Update: 21

Source: Solano County Department of Environmental Management

Telephone: 707-784-6770

Last EDR Contact: 08/25/2020

Next Scheduled EDR Contact: 12/14/2020

Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List

Cupa Facility list

Date of Government Version: 07/07/2020

Date Data Arrived at EDR: 07/08/2020

Date Made Active in Reports: 09/25/2020

Number of Days to Update: 79

Source: County of Sonoma Fire & Emergency Services Department

Telephone: 707-565-1174

Last EDR Contact: 09/16/2020

Next Scheduled EDR Contact: 01/04/2021

Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/01/2020

Date Data Arrived at EDR: 07/02/2020

Date Made Active in Reports: 09/17/2020

Number of Days to Update: 77

Source: Department of Health Services

Telephone: 707-565-6565

Last EDR Contact: 09/16/2020

Next Scheduled EDR Contact: 01/04/2021

Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List

Cupa facility list

Date of Government Version: 02/04/2020

Date Data Arrived at EDR: 02/05/2020

Date Made Active in Reports: 04/15/2020

Number of Days to Update: 70

Source: Stanislaus County Department of Environmental Protection

Telephone: 209-525-6751

Last EDR Contact: 07/06/2020

Next Scheduled EDR Contact: 10/26/2020

Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 05/26/2020

Date Data Arrived at EDR: 05/28/2020

Date Made Active in Reports: 08/13/2020

Number of Days to Update: 77

Source: Sutter County Environmental Health Services

Telephone: 530-822-7500

Last EDR Contact: 08/25/2020

Next Scheduled EDR Contact: 12/14/2020

Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA TEHAMA: CUPA Facility List Cupa facilities

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 73

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List Cupa facility list

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List Cupa program facilities

Date of Government Version: 05/14/2020
Date Data Arrived at EDR: 05/15/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 73

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Division of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: 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: 03/26/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 77

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/20/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: No Update Planned

MED WASTE VENTURA: 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: 03/26/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 77

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/20/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/08/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 06/23/2020
Date Data Arrived at EDR: 06/29/2020
Date Made Active in Reports: 09/15/2020
Number of Days to Update: 78

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/23/2020
Next Scheduled EDR Contact: 01/11/2021
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 79

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 05/12/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/10/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
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: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 12/10/2019
Number of Days to Update: 69

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/02/2020
Next Scheduled EDR Contact: 12/21/2020
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines

Source: Endeavor Business Media

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 Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

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

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 and Wildlife

Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

AZALEA SOLAR FACILITY PROJECT
KERN COUNTY
LOST HILLS, CA 93249

TARGET PROPERTY COORDINATES

Latitude (North):	35.774369 - 35° 46' 27.73"
Longitude (West):	119.903245 - 119° 54' 11.68"
Universal Transverse Mercator:	Zone 11
UTM X (Meters):	237552.1
UTM Y (Meters):	3962612.5
Elevation:	462 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5639058 AVENAL GAP, CA
Version Date:	2012
Northeast Map:	5639114 WEST CAMP, CA
Version Date:	2012
Southeast Map:	5639056 ANTELOPE PLAIN, CA
Version Date:	2012
South Map:	5639076 EMIGRANT HILL, 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 principle 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).

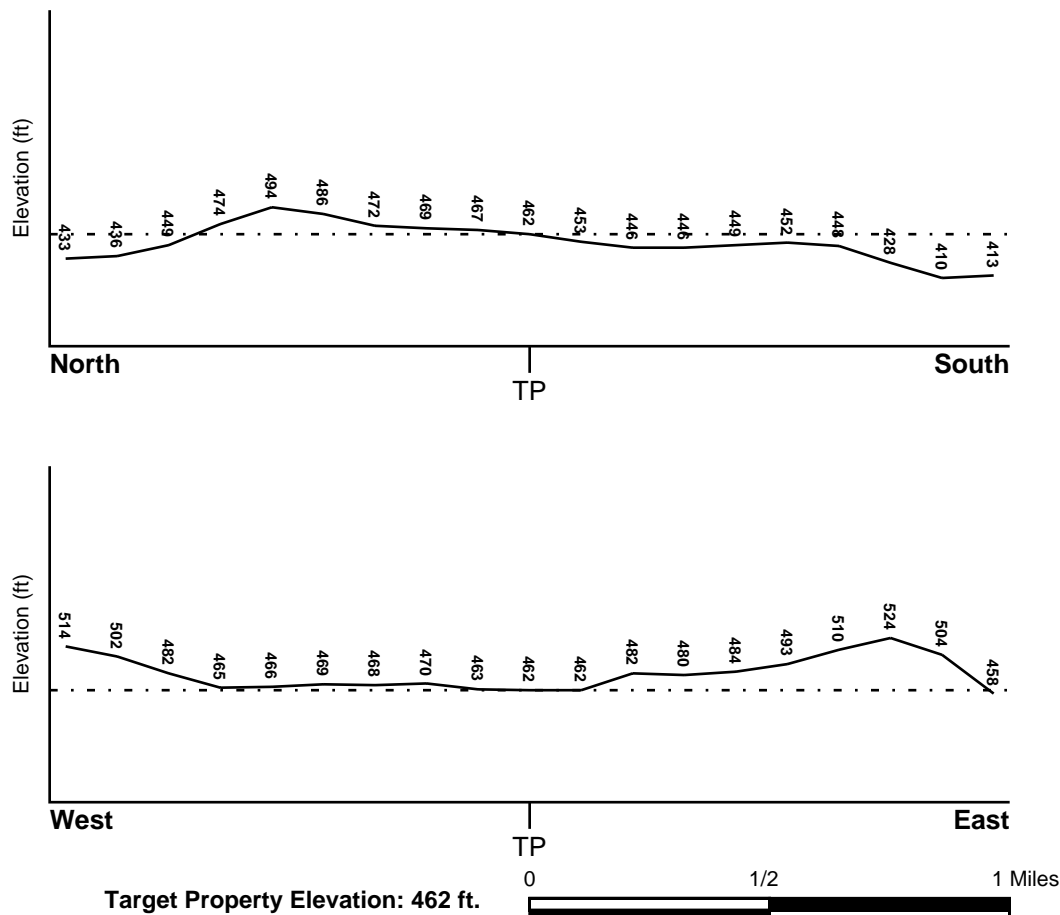
TOPOGRAPHIC INFORMATION

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 SSW

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>
06029C0075E	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>
AVENAL GAP	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

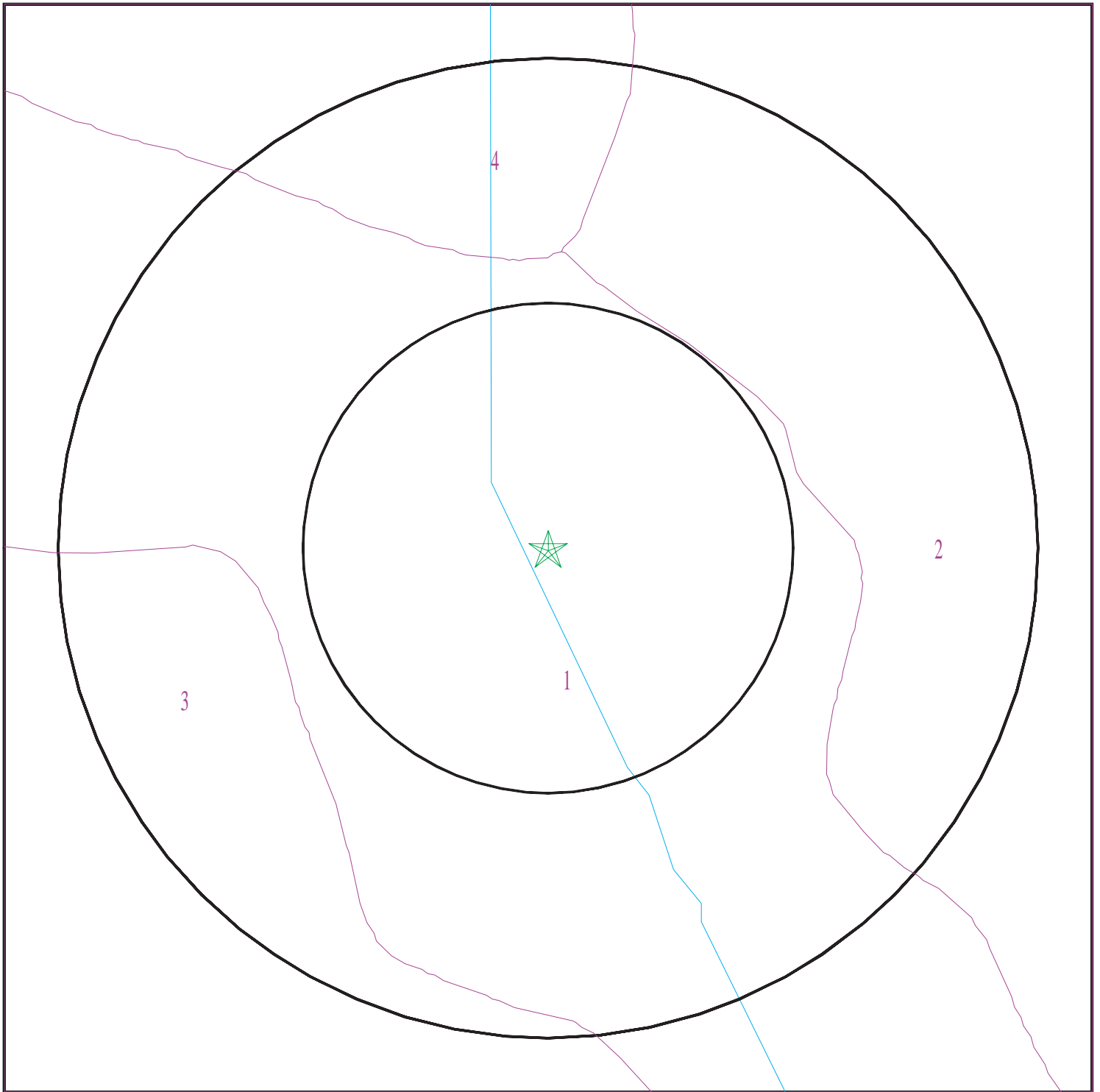
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tp (decoded above as Era, System & Series)

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 - 6210219.2s



- ★ Target Property
- SSURGO Soil
- Water

0 1/16 1/8 1/4 Miles



SITE NAME: Azalea Solar Facility Project
ADDRESS: Kern County
Lost Hills CA 93249
LAT/LONG: 35.774369 / 119.903245

CLIENT: Surf to Snow Environmental Resource Management
CONTACT: Tim Naughton
INQUIRY #: 6210219.2s
DATE: September 30, 2020 11:42 am

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: KIMBERLINA

Soil Surface Texture:
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: High

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		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9
2	9 inches	44 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9
3	44 inches	70 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: DELGADO

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 35 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	1 inches		Not reported	Not reported	Max: Min:	Max: Min:
2	1 inches	9 inches		Not reported	Not reported	Max: Min:	Max: Min:
3	9 inches	14 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: CAROLLO

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

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	1 inches		Not reported	Not reported	Max: Min:	Max: Min:
2	1 inches	14 inches		Not reported	Not reported	Max: Min:	Max: Min:

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		
3	14 inches	29 inches		Not reported	Not reported	Max: Min:	Max: Min:
4	29 inches	33 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 4

Soil Component Name: KIMBERLINA

Soil Surface Texture:

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: High

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		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9
2	9 inches	44 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9
3	44 inches	70 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 7.9

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.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	2.500
Federal FRDS PWS	Nearest PWS within 1.500 miles
State Database	2.500

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
2	USGS40000167008	2 - 3 Miles SSE

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>
1	CADWR8000020644	1 - 2 Miles SSW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

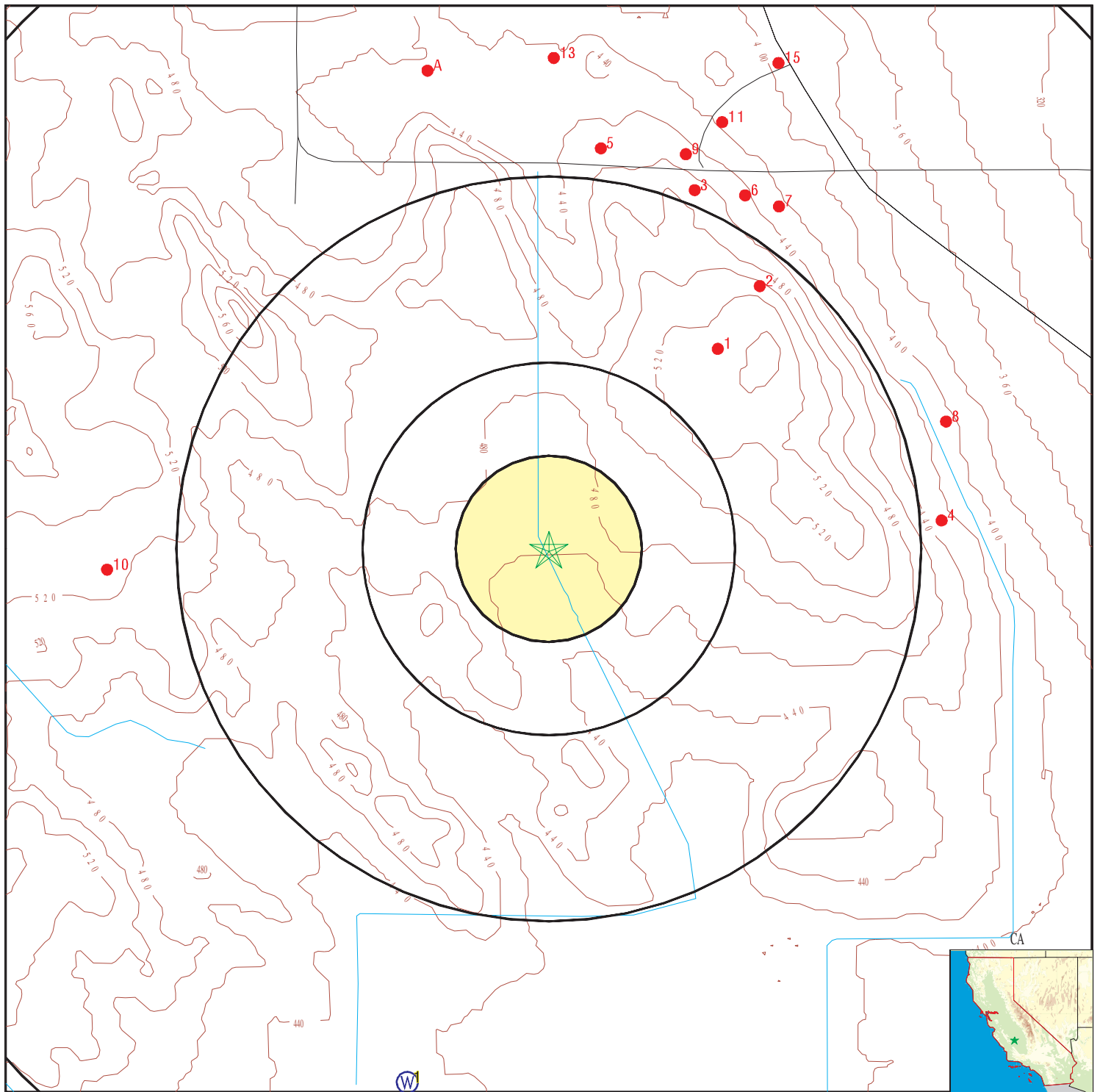
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	CAOG13000003127	1/2 - 1 Mile NE
2	CAOG13000004206	1/2 - 1 Mile NE
3	CAOG13000003806	1 - 2 Miles NNE
4	CAOG13000001469	1 - 2 Miles East
5	CAOG13000012962	1 - 2 Miles North
6	CAOG13000003093	1 - 2 Miles NNE
7	CAOG13000003028	1 - 2 Miles NE
8	CAOG13000003027	1 - 2 Miles ENE
9	CAOG13000013285	1 - 2 Miles NNE
10	CAOG13000003165	1 - 2 Miles West
11	CAOG13000013663	1 - 2 Miles NNE
A12	CAOG13000013661	1 - 2 Miles NNW
13	CAOG13000013827	1 - 2 Miles North
A14	CAOG13000013503	1 - 2 Miles NNW
15	CAOG13000012644	1 - 2 Miles NNE
16	CAOG13000145038	1 - 2 Miles ESE
17	CAOG13000013884	1 - 2 Miles NNE
18	CAOG13000145039	1 - 2 Miles ESE
19	CAOG13000145072	1 - 2 Miles East

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
20	CAOG13000145020	1 - 2 Miles East
21	CAOG13000145073	1 - 2 Miles ESE
22	CAOG13000145076	1 - 2 Miles SE
23	CAOG13000013331	1 - 2 Miles North
24	CAOG13000145034	1 - 2 Miles ESE
25	CAOG13000003157	1 - 2 Miles South
B26	CAOG13000145033	2 - 3 Miles ESE
B27	CAOG13000145005	2 - 3 Miles ESE
28	CAOG13000145069	2 - 3 Miles ESE
B29	CAOG13000145032	2 - 3 Miles ESE
30	CAOG13000145057	2 - 3 Miles ESE
C31	CAOG13000145067	2 - 3 Miles ESE
C32	CAOG13000145058	2 - 3 Miles ESE
33	CAOG13000004334	2 - 3 Miles West
34	CAOG13000013662	2 - 3 Miles NNW
35	CAOG13000145017	2 - 3 Miles ESE
36	CAOG13000145071	2 - 3 Miles ESE
37	CAOG13000145010	2 - 3 Miles ESE
38	CAOG13000145046	2 - 3 Miles SE

PHYSICAL SETTING SOURCE MAP - 6210219.2s



- 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: Azalea Solar Facility Project
 ADDRESS: Kern County
 Lost Hills CA 93249
 LAT/LONG: 35.774369 / 119.903245

CLIENT: Surf to Snow Environmental Resource Management
 CONTACT: Tim Naughton
 INQUIRY #: 6210219.2s
 DATE: September 30, 2020 11:42 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

1
SSW
1 - 2 Miles
Lower

CA WELLS CADWR8000020644

State Well #:	25S19E15G001M	Station ID:	22543
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Kern County	Well Completion Rpt #:	Not Reported

2
SSE
2 - 3 Miles
Lower

FED USGS USGS40000167008

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	025S019E23B001M	Type:	Well
Description:	Not Reported	HUC:	18030012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Central Valley aquifer system		
Formation Type:	Alluvium of the Coast Range (Pliocene-Holocene)		
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	130	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
NE
1/2 - 1 Mile

OIL_GAS CAOG13000003127

API #:	0402936400	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Crescent Petroleum Co.	Lease Name:	Lease by Crescent Petroleum Co.
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	05/01/1916

2
NE
1/2 - 1 Mile

OIL_GAS CAOG13000004206

API #:	0402979274	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Triton Oil & Gas Corp.	Lease Name:	Brian Lands Corp.
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

3
NNE
1 - 2 Miles

OIL_GAS CAOG13000003806

API #:	0402952197	Well #:	41
Well Status:	Plugged	Well Type:	DH
Operator Name:	New Chaparral Petroleum, Inc.	Field Name:	Any Field
Lease Name:	Duerkes et al	GIS Source:	hud
Area Name:	Any Area	Directionally Drilled:	N
Confidential Well:	N		
SPUD Date:	Not Reported		

4
East
1 - 2 Miles

OIL_GAS CAOG13000001469

API #:	0402913615	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Shell Western E&P Inc.	Lease Name:	McLennan
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

5
North
1 - 2 Miles

OIL_GAS CAOG13000012962

API #:	0403100818	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Chevron U.S.A. Inc.	Lease Name:	Kettleman
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	Operator	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	05/17/1919

6
NNE
1 - 2 Miles

OIL_GAS CAOG13000003093

API #:	0402936366	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Bristol Oil Corporation	Lease Name:	Hellman
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

7
NE
1 - 2 Miles

OIL_GAS CAOG13000003028

API #:	0402935282	Well #:	131X-2
Well Status:	Plugged	Well Type:	DH
Operator Name:	Occidental Petroleum Corporation		
Lease Name:	Hellman et al	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

8
ENE
1 - 2 Miles

OIL_GAS CAOG13000003027

API #:	0402935281	Well #:	16-1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Occidental Petroleum Corporation		
Lease Name:	Hall et al USL	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

9
NNE
1 - 2 Miles

OIL_GAS CAOG13000013285

API #:	0403100810	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Bristol Oil Co.	Lease Name:	Lease by Bristol Oil Co.
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	02/09/1929

10
West
1 - 2 Miles

OIL_GAS CAOG13000003165

API #:	0402936422	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	James Ebert	Lease Name:	Finis
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

11
NNE
1 - 2 Miles

OIL_GAS CAOG13000013663

API #:	0403100815	Well #:	18A-35
Well Status:	Plugged	Well Type:	DH
Operator Name:	Occidental Petroleum Corporation		
Lease Name:	U.S.L.	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	04/30/1962		

A12
NNW
1 - 2 Miles

OIL_GAS CAOG13000013661

API #:	0403100814	Well #:	123
Well Status:	Plugged	Well Type:	DH
Operator Name:	Occidental Petroleum Corporation		
Lease Name:	S.F. & F.L.	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	01/31/1964		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

13
North
1 - 2 Miles

OIL_GAS CAOG13000013827

API #:	0403120317	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Shell Western E&P Inc.	Lease Name:	Phoenix
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	10/18/1989

A14
NNW
1 - 2 Miles

OIL_GAS CAOG13000013503

API #:	0403100813	Well #:	36
Well Status:	Plugged	Well Type:	DH
Operator Name:	Helm Co. & Robert Sumpf	Lease Name:	S.F. & F.L.
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	08/08/1964

15
NNE
1 - 2 Miles

OIL_GAS CAOG13000012644

API #:	0403100817	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	South Dome Oil Co.	Lease Name:	Clarence G. Smith
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	12/31/1925

16
ESE
1 - 2 Miles

OIL_GAS CAOG13000145038

API #:	0402903644	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Chevron U.S.A. Inc.	Lease Name:	San Francisco & Fresno Land Co
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

17
NNE
1 - 2 Miles

OIL_GAS CAOG13000013884

API #:	0403120001	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Robert Sumpf	Lease Name:	U.S.L
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	02/13/1967

18
ESE
1 - 2 Miles

OIL_GAS CAOG13000145039

API #:	0402903645	Well #:	4-2
Well Status:	Plugged	Well Type:	DH
Operator Name:	Chevron U.S.A. Inc.	Lease Name:	S.F. & F.L.
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	09/04/1947

19
East
1 - 2 Miles

OIL_GAS CAOG13000145072

API #:	0402936430	Well #:	62
Well Status:	Plugged	Well Type:	DH
Operator Name:	D. W. Elliott and Pexco Inc.		
Lease Name:	S.F. & F.L. Co.	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

20
East
1 - 2 Miles

OIL_GAS CAOG13000145020

API #:	0403023548	Well #:	E2-12
Well Status:	Idle	Well Type:	OG
Operator Name:	Golden Gate Oil Operations, LLC		
Lease Name:	Union Bank	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	GPS
Confidential Well:	N	Directionally Drilled:	Y
SPUD Date:	10/19/2003		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

21
ESE
1 - 2 Miles

OIL_GAS CAOG13000145073

API #:	0402936431	Well #:	58
Well Status:	Plugged	Well Type:	DH
Operator Name:	Elliott Classen & Mickle	Lease Name:	S.F. & F.L. Co.
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

22
SE
1 - 2 Miles

OIL_GAS CAOG13000145076

API #:	0402939381	Well #:	41
Well Status:	Plugged	Well Type:	DH
Operator Name:	Los Nietos Producing and Refining Co., Ltd.	Field Name:	Lost Hills, Northwest
Lease Name:	South Dome	GIS Source:	hud
Area Name:	Any Area	Directionally Drilled:	N
Confidential Well:	N		
SPUD Date:	Not Reported		

23
North
1 - 2 Miles

OIL_GAS CAOG13000013331

API #:	0403120227	Well #:	A-1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Cities Service Company	Lease Name:	Bank of California
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	02/06/1982

24
ESE
1 - 2 Miles

OIL_GAS CAOG13000145034

API #:	0403006311	Well #:	76X-12
Well Status:	Active	Well Type:	OG
Operator Name:	Golden Gate Oil Operations, LLC	Field Name:	Lost Hills, Northwest
Lease Name:	Union Bank	GIS Source:	GPS
Area Name:	Any Area	Directionally Drilled:	N
Confidential Well:	N		
SPUD Date:	07/20/1997		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

25
South
1 - 2 Miles

OIL_GAS CAOG13000003157

API #:	0402936325	Well #:	1
Well Status:	Plugged	Well Type:	DH
Operator Name:	Henry O. Arras	Lease Name:	Arras-Heron
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

B26
ESE
2 - 3 Miles

OIL_GAS CAOG13000145033

API #:	0403009674	Well #:	86X-12
Well Status:	Active	Well Type:	OG
Operator Name:	Golden Gate Oil Operations, LLC		
Lease Name:	Union Bank	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	GPS
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

B27
ESE
2 - 3 Miles

OIL_GAS CAOG13000145005

API #:	0403020990	Well #:	E1-12
Well Status:	Idle	Well Type:	OG
Operator Name:	Golden Gate Oil Operations, LLC		
Lease Name:	Union Bank	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	GPS
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

28
ESE
2 - 3 Miles

OIL_GAS CAOG13000145069

API #:	0402943305	Well #:	14-7
Well Status:	Plugged	Well Type:	DH
Operator Name:	Bob Ferguson Independent	Lease Name:	Mohawk-Anza
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B29
ESE
2 - 3 Miles

OIL_GAS CAOG13000145032

API #:	0403009908	Well #:	W1-1-12
Well Status:	Active	Well Type:	INJ
Operator Name:	Golden Gate Oil Operations, LLC		
Lease Name:	Union Bank	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	GPS
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

30
ESE
2 - 3 Miles

OIL_GAS CAOG13000145057

API #:	0402967969	Well #:	B-1
Well Status:	Active	Well Type:	OG
Operator Name:	Golden Gate Oil Operations, LLC		
Lease Name:	Bank of California	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	GPS
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

C31
ESE
2 - 3 Miles

OIL_GAS CAOG13000145067

API #:	0402950727	Well #:	81-13
Well Status:	Plugged	Well Type:	DH
Operator Name:	Chevron U.S.A. Inc.	Lease Name:	Ferguson USL
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

C32
ESE
2 - 3 Miles

OIL_GAS CAOG13000145058

API #:	0402967970	Well #:	CH 1
Well Status:	Canceled	Well Type:	OG
Operator Name:	Cities Service Oil & Gas Corporation		
Lease Name:	Federal	Field Name:	Lost Hills, Northwest
Area Name:	Any Area	GIS Source:	mip
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

33
West
2 - 3 Miles

OIL_GAS CAOG13000004334

API #:	0403005038	Well #:	4
Well Status:	Plugged	Well Type:	DH
Operator Name:	Barton Enterprises, Inc.	Lease Name:	Marshall
Field Name:	Any Field	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

34
NNW
2 - 3 Miles

OIL_GAS CAOG13000013662

API #:	0403100816	Well #:	27-27
Well Status:	Plugged	Well Type:	DH
Operator Name:	Occidental Petroleum Corporation		
Lease Name:	U.S.L.	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
SPUD Date:	08/30/1961		

35
ESE
2 - 3 Miles

OIL_GAS CAOG13000145017

API #:	0403022873	Well #:	7-1
Well Status:	Canceled	Well Type:	OG
Operator Name:	Longbow, LLC	Lease Name:	Lease by Longbow, LLC
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	mip	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

36
ESE
2 - 3 Miles

OIL_GAS CAOG13000145071

API #:	0402937115	Well #:	28-7
Well Status:	Plugged	Well Type:	DH
Operator Name:	Continental Oil Company	Lease Name:	Gatchell
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

37
ESE
2 - 3 Miles

OIL_GAS CAOG13000145010

API #:	0403026925	Well #:	27-7
Well Status:	Active	Well Type:	OG
Operator Name:	Golden Gate Oil Operations, LLC		
Lease Name:	Lease by Golden Gate Oil Operations, LLC		
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	GPS	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	11/13/2005

38
SE
2 - 3 Miles

OIL_GAS CAOG13000145046

API #:	0402913617	Well #:	2
Well Status:	Plugged	Well Type:	DH
Operator Name:	CalResources LLC	Lease Name:	McGuire
Field Name:	Lost Hills, Northwest	Area Name:	Any Area
GIS Source:	hud	Confidential Well:	N
Directionally Drilled:	N	SPUD Date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KERN County: 2

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for KERN COUNTY, CA

Number of sites tested: 94

<u>Area</u>	<u>Average Activity</u>	<u>% <4 pCi/L</u>	<u>% 4-20 pCi/L</u>	<u>% >20 pCi/L</u>
Living Area - 1st Floor	1.422 pCi/L	98%	2%	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 and Wildlife

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: Dept of Conservation, Geologic Energy Management Division

Telephone: 916-323-1779

Oil and Gas well locations in the state.

California Earthquake Fault Lines

Source: California Division of Mines and Geology

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.

RADON

State Database: CA Radon

Source: Department of Public Health

Telephone: 916-210-8558

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.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRRA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

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

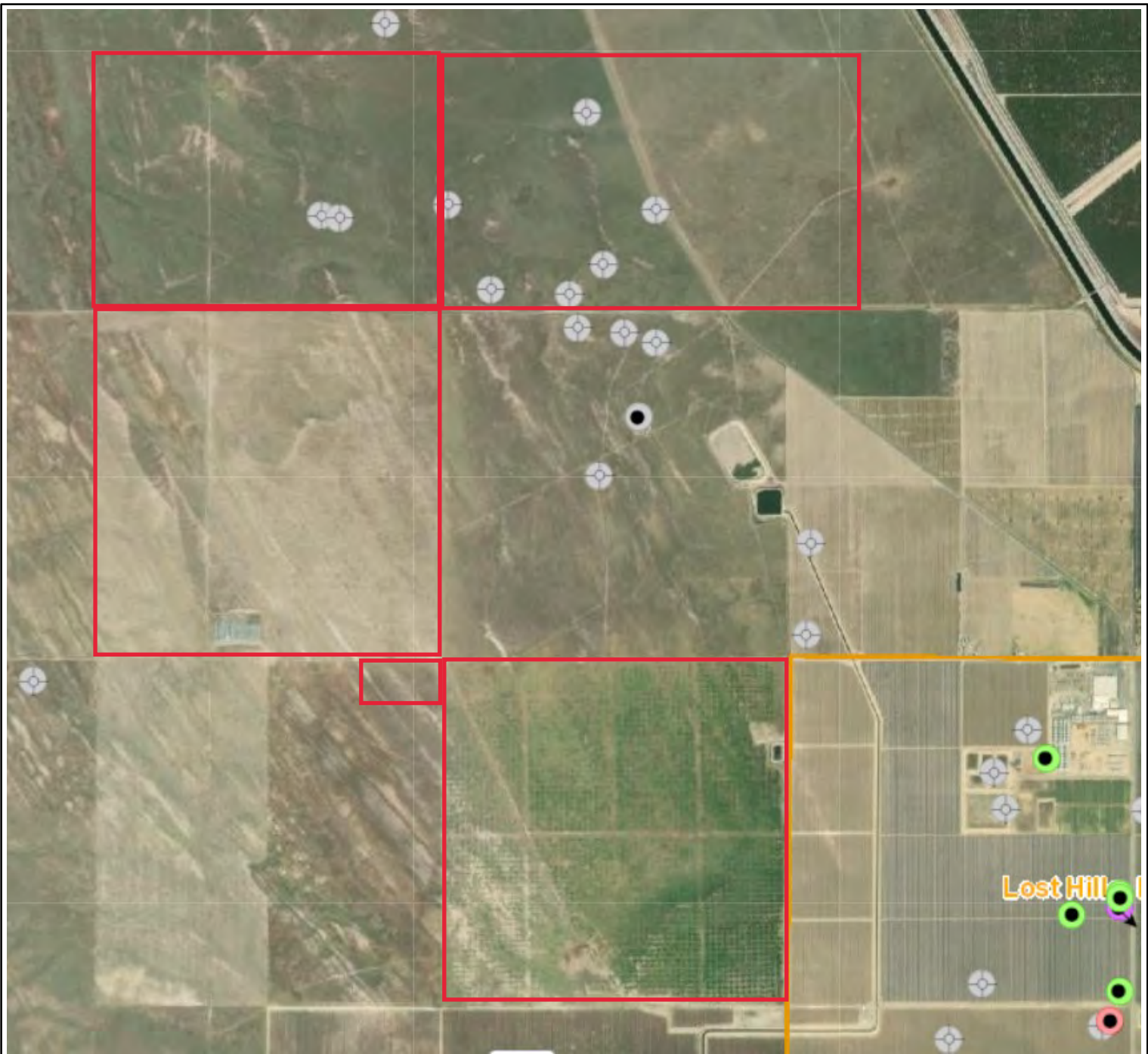
California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

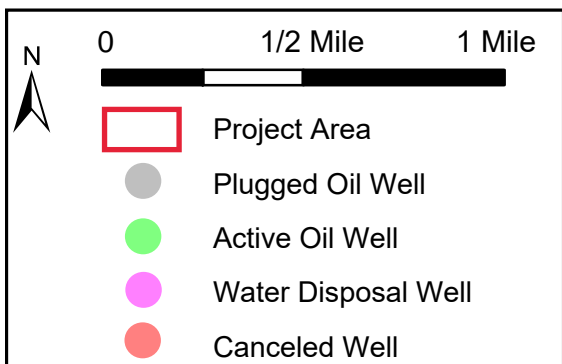
© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

APPENDIX G

Site Oil Well Location Map



Source: <https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-119.87887/35.76247/14>



**Oil Well Map
Lost Hills, CA**



2246 Camino Ramon
San Ramon, CA 94583

APPENDIX H

Historical Aerials Photographs



Azalea Solar Facility Project

Kern County

Lost Hills, CA 93249

Inquiry Number: 6210219.8

October 05, 2020

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

10/05/20

Site Name:

Azalea Solar Facility Project
Kern County
Lost Hills, CA 93249
EDR Inquiry # 6210219.8

Client Name:

Surf to Snow Environmental Resource M
2246 Camino Ramon
San Ramon, CA 94583
Contact: Tim Naughton



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>
2016	1"=1000'	Flight Year: 2016	USDA/NAIP
2012	1"=1000'	Flight Year: 2012	USDA/NAIP
2009	1"=1000'	Flight Year: 2009	USDA/NAIP
2005	1"=1000'	Flight Year: 2005	USDA/NAIP
1994	1"=1000'	Acquisition Date: January 01, 1994	USGS/DOQQ
1984	1"=1000'	Flight Date: January 01, 1984	USDA
1976	1"=1000'	Flight Date: January 01, 1976	USGS
1974	1"=1000'	Flight Date: January 01, 1974	USGS
1960	1"=1000'	Flight Date: January 01, 1960	USGS
1950	1"=1000'	Flight Date: January 01, 1950	USDA
1942	1"=1000'	Flight Date: January 01, 1942	USDA
1940	1"=1000'	Flight Date: January 01, 1940	USDA
1937	1"=1000'	Flight Date: January 01, 1937	USDA

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

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2020 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.



INQUIRY #: 6210219.8

YEAR: 2016

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 2016

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 2012

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 2012

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 2009

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 2005

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 2005

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1994

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



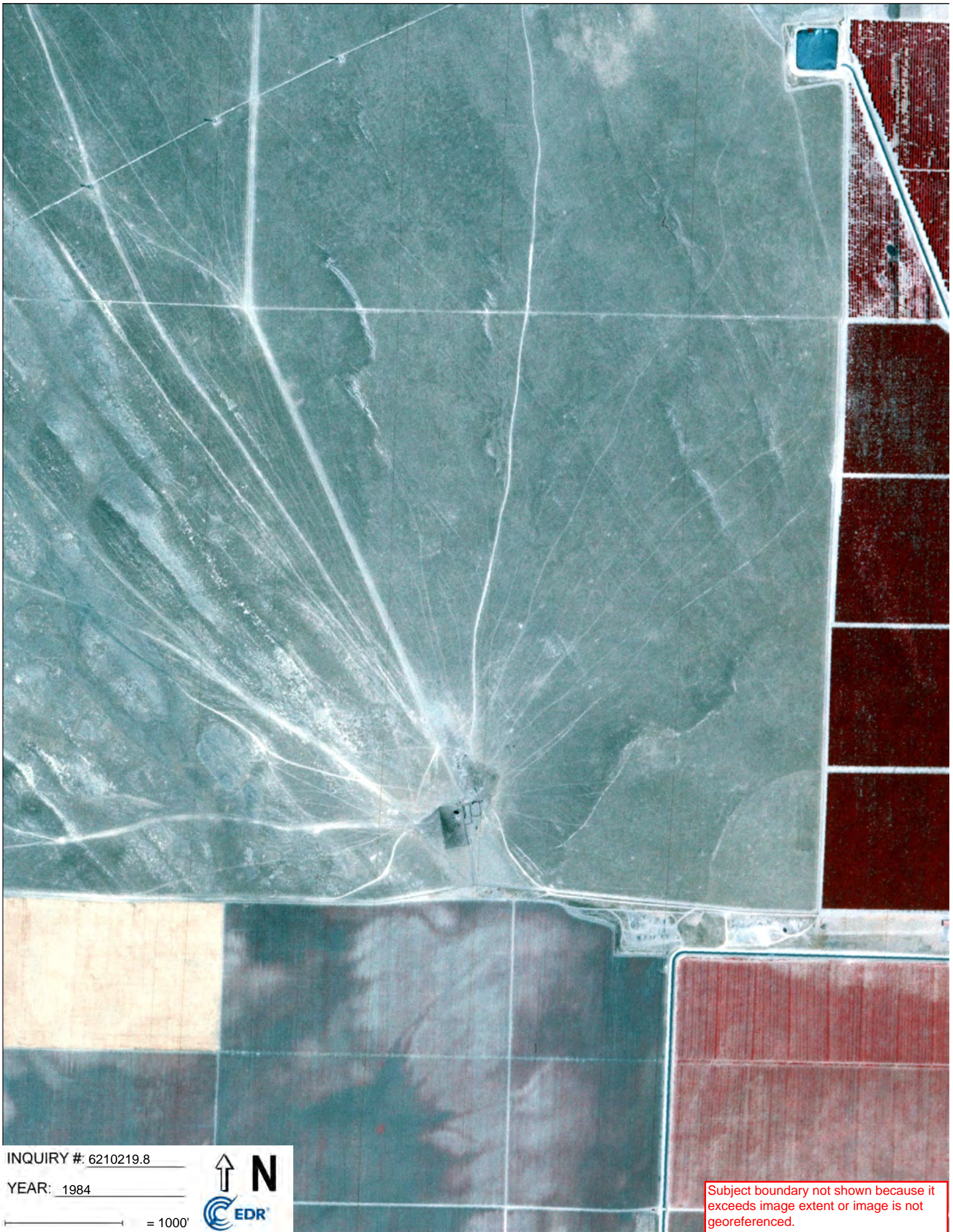
INQUIRY #: 6210219.8

YEAR: 1994

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



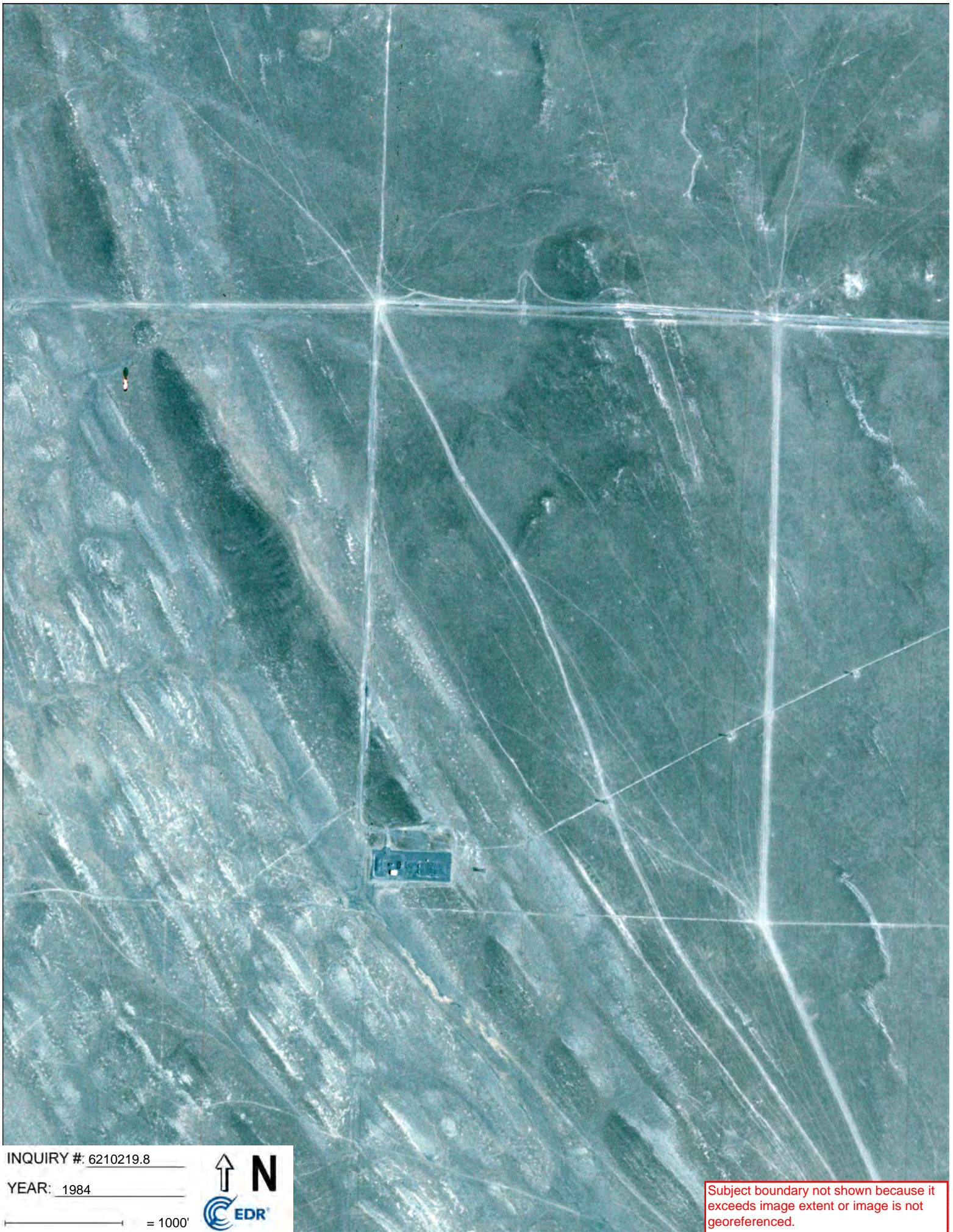
INQUIRY #: 6210219.8

YEAR: 1984

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1984

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1976

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1976

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1974

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1974

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1960

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1960

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1950

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1950

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1942

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1942

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1940

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



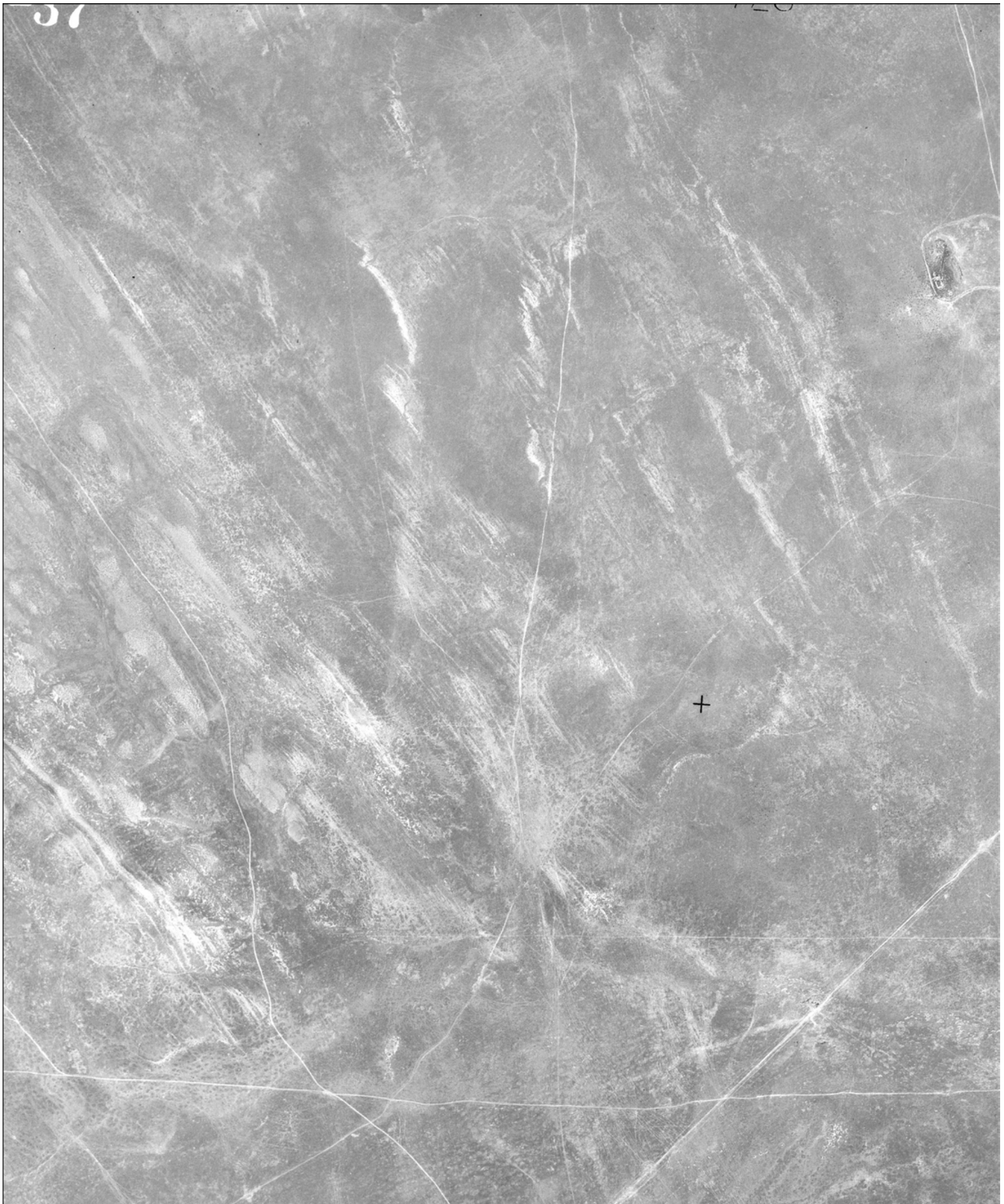
INQUIRY #: 6210219.8

YEAR: 1940

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1937

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.

9-10-37

INQUIRY #: 6210219.8

YEAR: 1937

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.



INQUIRY #: 6210219.8

YEAR: 1937

— = 1000'



Subject boundary not shown because it exceeds image extent or image is not georeferenced.

APPENDIX I

Sanborn Maps – No Coverage Letter



Azalea Solar Facility Project

Kern County

Lost Hills, CA 93249

Inquiry Number: 6210219.3

September 30, 2020

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/30/20

Site Name:

Azalea Solar Facility Project
Kern County
Lost Hills, CA 93249
EDR Inquiry # 6210219.3

Client Name:

Surf to Snow Environmental Resource Ma
2246 Camino Ramon
San Ramon, CA 94583
Contact: Tim Naughton



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Surf to Snow Environmental Resource Management 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 # DCCF-4564-BA97

PO # NA

Project 1260

UNMAPED 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 #: DCCF-4564-BA97

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™

Limited Permission To Make Copies

Surf to Snow Environmental Resource Management (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice. Copyright 2020 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

APPENDIX J

Sample CEQA Checklist

CEQA Environmental Checklist

The following information is provided to support a CEQA Initial Study for the Azalea Solar Project, based on information assessed in the Phase I Environmental Site Assessment. This has been prepared solely for the purpose of informing the user and should not be construed as a formal CEQA initial Study. Accordingly, Discussion provided is only to provide guidance, and should not be relied upon without further assessment. An independent evaluation is recommended based on the planned Azalea Solar Project.

IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<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 an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion for impacts identified:

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

At typical construction sites, onsite materials that could be considered hazardous include fuels, motor oil, grease, various lubricants, solvents, soldering equipment, and glues. Fuel replenishment would be required daily for most of the heavy equipment.

Hazardous materials that will be present on site during operation will include materials in the batteries and the substation transformers. Hazardous materials handling and transportation for the proposed project is regulated and controlled by numerous state, federal, and local agencies. Modern engineering designs for containment and proven

Best Management Practices and standards of care will minimize any potential release of hazardous waste to within the project boundary. All hazardous materials will be handled and stored in accordance with applicable codes and regulations. Applicant will comply with standard control methods; therefore, this potential impact would be less than significant.

- 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?

A hazardous materials business plan is required by California Code of Regulations Title 19 and the Health and Safety Code (Section 25504) for the site. The hazardous materials business plan includes an inventory and location map of hazardous materials onsite and an emergency response plan for hazardous materials incidents.

In accordance with emergency response procedures specified in the hazardous materials business plan, designated personnel will be trained as members of a plant hazardous material response team, and team members will receive first responder and hazardous material technical training to be developed in the hazardous materials business plan. In the event of a chemical emergency, plant personnel would defer to the Alameda County Fire Department HAZMAT Team.

Overall impacts from hazardous materials would not be significant given the level of preparation, control, and regulation that exists at the site for these types of materials.

No other potential impacts were identified.

This Page Intentionally Left Blank

Appendix J

Hydrology and Water Quality Study

Azalea Solar Project

Hydrology and Water Quality Study

APN 043-210-17

APN 043-210-18

APN 043-210-28

APN 043-220-01

APN 048-350-017

APN 048-350-020

Lost Hills, California 93249

Prepared for:

SF Azalea, LLC

50 California Street, Suite 820

San Francisco, California 94111

June 2021



S2S Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583
www.s2serm.com

TABLE OF CONTENTS

1 – INTRODUCTION.....	1
2 – LOCATION AND SITE CONDITIONS	1
3 – PROPOSED DEVELOPMENT.....	1
4 – ENVIRONMENTAL SETTING	2
4.1 Surface Hydrology and Drainage	2
4.2 Rainfall	2
4.3 Floodplain Classification	2
4.4 Soil Types	2
4.5 Mitigation Measures.....	3
5 – SURFACE WATER MANAGEMENT	3
5.1 Description.....	3
5.2 Additional Onsite Mitigation Measures.....	4
6 – SUMMARY	5
7 – REFERENCES.....	5

LIST OF TABLES

- 1 Site Soil Types

LIST OF FIGURES

- 1 Vicinity Map
- 2 Project Location Map
- 3 Floodplain Map
- 4 Recommended Revised Project Area

LIST OF APPENDICES

- A. CEQA Initial Study Checklist

List of Abbreviations and Acronyms

ac	Acres
APN	Assessor's Parcel Number
BMP	Best Management Practice
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
PG&E	Pacific, Gas, & Electric Company
PV	Photovoltaic
S2S	Surf to Snow Environmental Resource Management
SWPPP	Stormwater Pollution Prevention Plan
USDA	United States Department of Agriculture
WRCC	Western Regional Climate Center

1 – INTRODUCTION

SF Azalea, LLC (SF Azalea) contracted with Surf to Snow Environmental Resource Management (S2S) to perform a Hydrologic and Water Quality study of the following parcels located in Lost Hills, California (herein referred to as “Site”): APNs 043-210-17, -18, -28; 043-220-01; and, 048-350-017, -020.

SF Azalea is proposing to construct the Azalea Solar Array Project (Project), a renewable energy project that will produce electric power using solar photovoltaic (PV) modules on approximately 340 acres (ac) of originally undeveloped rangeland in rural northwestern Kern County (County).

The purpose of this preliminary Hydrology and Water Quality study is to present the hydrology of the Site, assessment of on-site drainage conditions, floodplain identification for design recommendations, and engineering solutions for the management of stormwater.

This study was prepared utilizing the Kern County Hydrology Manual (Kern 2008) and Kern County Development Standards, dated August 2005.

2 – LOCATION AND SITE CONDITIONS

The Project will be located near a Pacific, Gas & Electric (PG&E) substation, located approximately 6 miles east of Highway 33, 5 miles west of Interstate 5, 2 miles southwest of the California Aqueduct, and 4 miles north of the intersections of King Rd and Twisselman Rd. The proposed project site is located approximately 18 miles northwest of the incorporated Lost Hills in Kern County, California, in an agricultural area in Northwest Kern County, and consists of a 1-square mile parcel of land with relatively flat to gently sloping open grassland that is currently used for cattle grazing and periodic irrigated wheat farming. The Site is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (Figs, Pistachios, and Almonds). The location is shown on Figure 1, Project Vicinity Map and Figure 2, Project Site Map.

3 – PROPOSED DEVELOPMENT

The Project will have a net electric power generating capacity of up to 60 megawatts alternating current and approximately 194,320 individual solar PV modules arranged on a grid pattern on the Site. The Project facilities would include service roads, underground transmission and collection lines, one generator tie-in line to connect with the existing PG&E substation, a PV plant substation, and communication cables.

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 Q1-2022 and last for 12 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 Q2-2023. 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. 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 operation activities and possibly annual panel washing operations. There is no existing domestic water delivery system within the project area.

4 – ENVIRONMENTAL SETTING

The environmental setting for hydrology and water quality is described below:

4.1 SURFACE HYDROLOGY AND DRAINAGE

The Project Site is located on the southern end of the Kettleman Plain sub basin of the Tulare Lake Watershed in California's Central Valley. There are no drainage features located on the Site. Runoff from the Site ultimately drains south off-site and then to the east toward the California Aqueduct. Elevations range from roughly 462-feet above mean sea level at the southwest corner of the project area, to roughly to 584-feet above mean sea level at the northeast corner of the project area. The land generally slopes gently from the northeast towards the southwest throughout with the exception of a small hill in the southeast corner of parcel APN 043-210-18. The project area is located on the north side of parcel APN 043-210-17.

As discussed above, the site is located in the Kettleman Plains sub basin. Offsite water reaches the project area via sheet flow from the northwest during rare significant storm events. There are no defined channels on the Site. Since the proposed improvements, at-grade gravel road, 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.

4.2 RAINFALL

The southern Central Valley of California has rainy winters and dry summers characteristic of a Mediterranean climate. The Central Valley has greater temperature extremes than the coastal areas because it is less affected by the moderating influence of the Pacific Ocean.

Most of the rainfall in the project area occurs between November and April when the Gulf Stream shifts southward from northern latitudes. This shift creates a quasi-permanent low-pressure zone over southern California and feeds moisture originating over the Pacific Ocean into the region. This southern shift creates the Mediterranean climate characteristic of southern California.

The Western Regional Climate Center (WRCC) provides climate data derived from stationary weather stations throughout the western United States. WRCC has developed historic data sets for monthly climate for the project area. The data set nearest to the project site is based on weather readings taken from a stationary weather station found Kettleman City, CA. Although the average annual precipitation can vary from year to year, the project site receives approximately 6.64 inches per year.

4.3 FLOODPLAIN CLASSIFICATION

The project site is located within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) map number 06029C0075E, effective September 26, 2008. The FIRM panel is shown in Appendix A. Approximately 600 acres (94%) of the Site is located in Flood Zone "X," areas of minimal flooding and no standing water. The southern portions of parcels APN 043-210-17 and APN 043-210-18, approximately 40 acres combined, are within Flood Zone "A," areas that correspond to 100-year floodplains (1% chance exceedance probability) without detailed hydraulic analyses, Base Flood Elevations, or depths mapped. Flood flows reaching the project site primarily originate from south of the Site.

4.4 SOIL TYPES

Soil types were taken from the published survey by the National Resources Conservation Service (NRCS) Soils Survey for Northwestern Kern County, California. There are two main soil types for the site

presented in the table below. Both soil types have high infiltration rates and low runoff potential when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands.

Table 1: Site Soil Types

Soil Map Unit (Per USDA Soil Conservation Service) ¹	Soil Map Description	Hydrologic Soil Group	Drainage Class
hkhq	Delgado sandy loam, 5 to 30 percent slopes	D	Somewhat excessively drained
hkjq	Kimberlina sandy loam, 2 to 5 percent slopes	A	Well drained

¹ Source: United States Department of Agriculture (USDA) <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

4.5 MITIGATION MEASURES

Final design for the Solar Facility will place all solar-related structures outside the southern portion of the site that is a FEMA-designated 100-yr floodplain, designated Flood Zone A (1% annual chance floodplain or the 100-year floodplain). No construction will occur in areas with special flood hazards, areas with flood-related erosion hazards, or areas with mudslide hazards (i.e., mudflow). Implementation of mitigation measures to comply with water quality standards and water discharge requirements during construction and operation, and prevent degradation of surface and ground water quality are described in Section 5.2 (Additional Onsite Mitigation Measures). These measures would ensure that construction and operation of the proposed project will not result in a significant impact relative to impeding or redirecting flood flows within identified Flood Hazard Areas. Therefore, no floodplain modeling, or other project planning mitigations are required for this project.

5 – SURFACE WATER MANAGEMENT

5.1 DESCRIPTION

The Site surface runoff flows generally in the southern direction based on the existing contours. It is assumed that there will be 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 building 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.

Potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. During construction, the contractor will implement measures to minimize and contain erosion and sedimentation in accordance with the Kern County Grading Ordinance and would be required to submit a grading plan to the County for approval prior to commencement of any construction activities. In addition, because the project would disturb more than 1 acre, the project proponent would be required to obtain and comply with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. As required by this permit, the project proponent would have to develop a SWPPP and comply with any regional requirements to meet State water quality objectives. Pending revisions, the NPDES permitting process may require development of a rain event action plan prior to permit approval. Construction-related erosion and sedimentation impacts as a result

of soil disturbance would be less than significant after implementation of an SWPPP and BMPs required by the Kern County Grading Ordinance.

5.2 ADDITIONAL ONSITE MITIGATION MEASURES

Potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. During construction, measures to minimize and contain erosion and sedimentation will be implemented in accordance with the Kern County Grading Ordinance. The project Contractor will submit a grading plan to the County for approval prior to commencement of construction activities. In addition, because the project would disturb more than 1 acre, the Contractor would be required to obtain and comply with the NPDES Construction General Permit. As required by this permit, SF Azalea will prepare and submit a stormwater pollution prevention plan (SWPPP) to the Kern County Planning and Community Development Department that specifies best management practices (BMPs) to prevent construction pollutants from contacting stormwater, with the intent of keeping products of erosion from moving off site and into receiving waters. Following is a list recommended BMPs:

1. Stockpile and dispose of demolition debris, concrete, and soil properly;
2. Protect existing storm drain inlets and stabilize disturbed areas;
3. Implement erosion controls;
4. Properly manage construction materials; and,
5. Manage waste, aggressively controlling litter, and implement sediment controls.

The current design includes installation of solar panels on fixed steel support posts, minimizing the need for cement foundations and footings. By raising the solar panels off the ground, the project would not substantially alter drainage patterns of the site in a manner that would result in substantial erosion of the site. Where potential for channel erosions exists, BMPs will be implemented to prevent surface flows from concentrating.

The project's site engineering and design plans would be required to comply with the most recent requirements of the Kern County Code of Building Regulations. Prior to the commencement of construction activities, SF Azalea will Prepare and submit a drainage plan to the Kern County Engineering, Surveying and Permit Services Department, Floodplain Management Section that is designed to minimize runoff that includes engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows. The drainage plan will identify the recommended grading for the solar array sites. This plan will also include post construction structural and nonstructural BMPs Routine structural BMPs are intended to address water quality impacts related to drainage that are inherent in development. These need not be related to any identified water quality problem. Examples of routine structural BMPs include filtration, runoff-minimizing landscape for common areas, energy dissipaters, inlet trash racks, and water quality inlets. Therefore, long-term impacts on drainage patterns across the project site that could result in substantial erosion and siltation on or off site would be less than significant after implementation of mitigations measures identified here and required by the Kern County Grading Ordinance.

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 of 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 will stabilization of the site.

Details regarding mitigation measures are provided in Appendix A - CEQA Initial Study Checklist. Final.

6 – SUMMARY

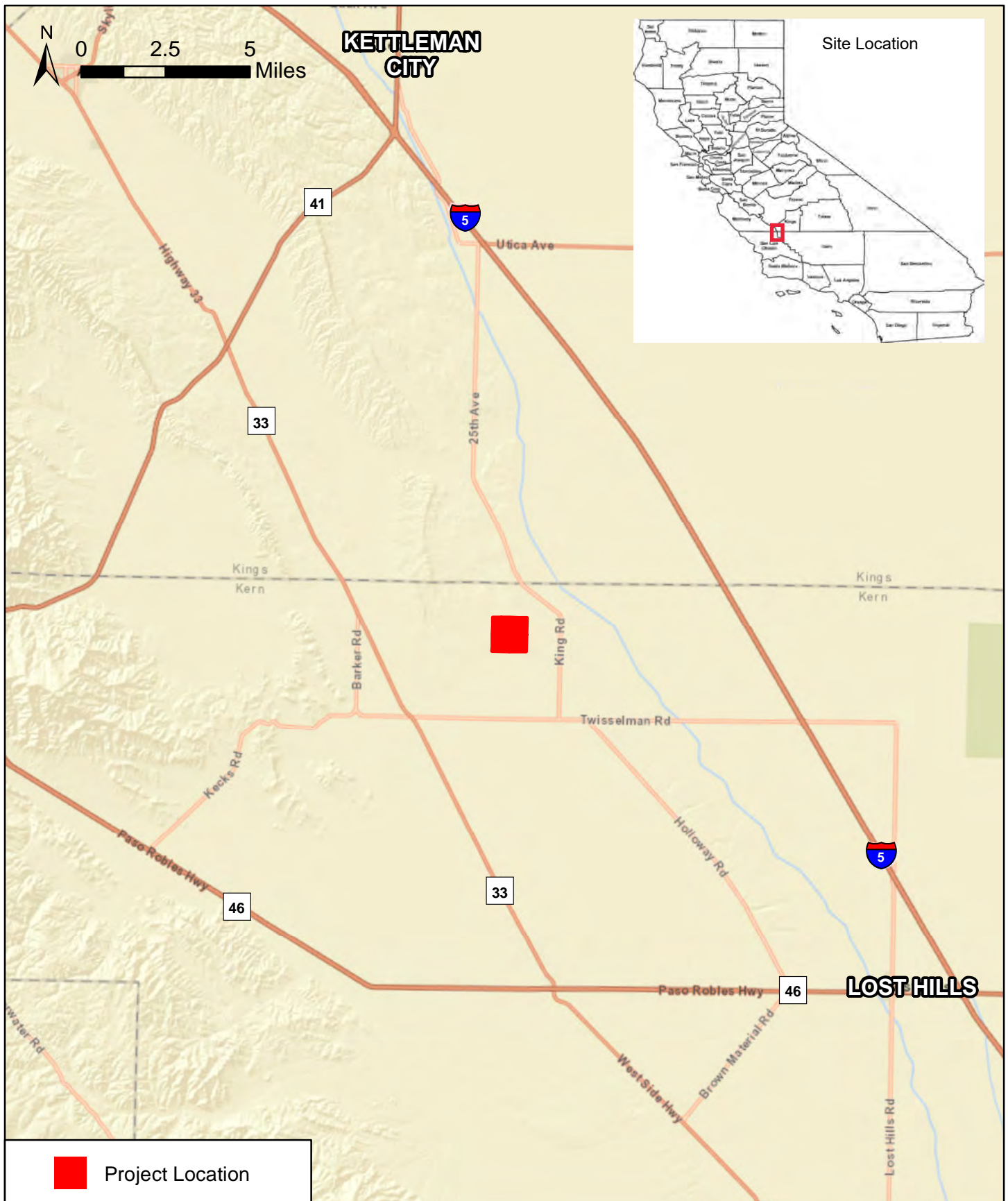
The project will result in infrequent use of maintenance roads and otherwise leave the ground surface on the property in a largely undeveloped condition. With proper utilization of water quality protection measures (e.g. BMPs) during construction and revegetation and stabilization of disturbed areas after construction, the project will not increase on-site erosion or downstream siltation. Therefore, the project is unlikely to have an impact on water quality as it will not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.

A draft California Environmental Quality Act Initial Study Checklist for Hydrology and Water Quality has been included in Appendix A.

7 – REFERENCES

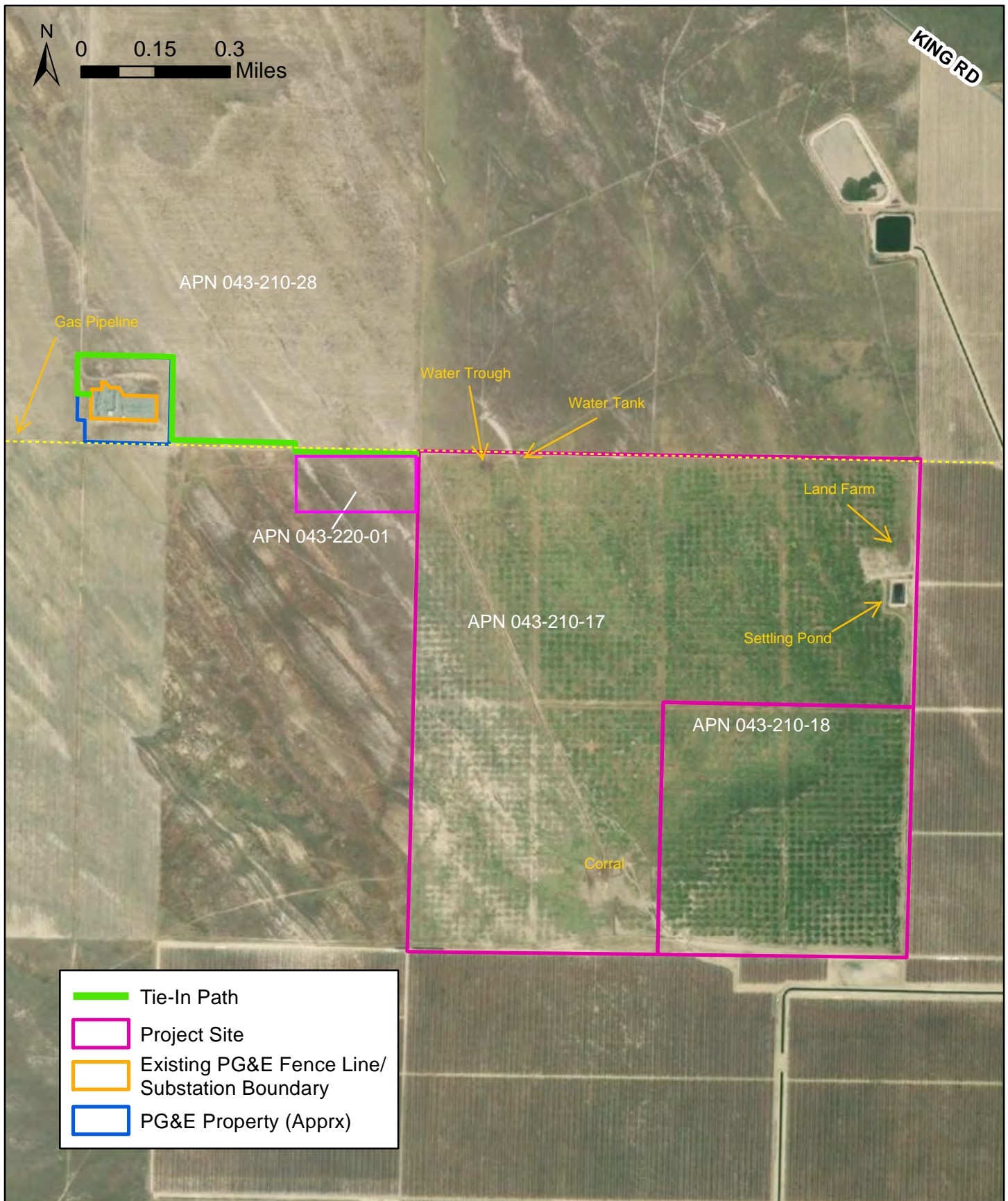
- 1 Kern, 2008. Kern County Hydrology Manual
- 2 Western Regional Climate Center (WRCC): <https://wrcc.dri.edu/>
- 3 National Flood Hazard Layer ArcGIS Viewer: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>

FIGURES



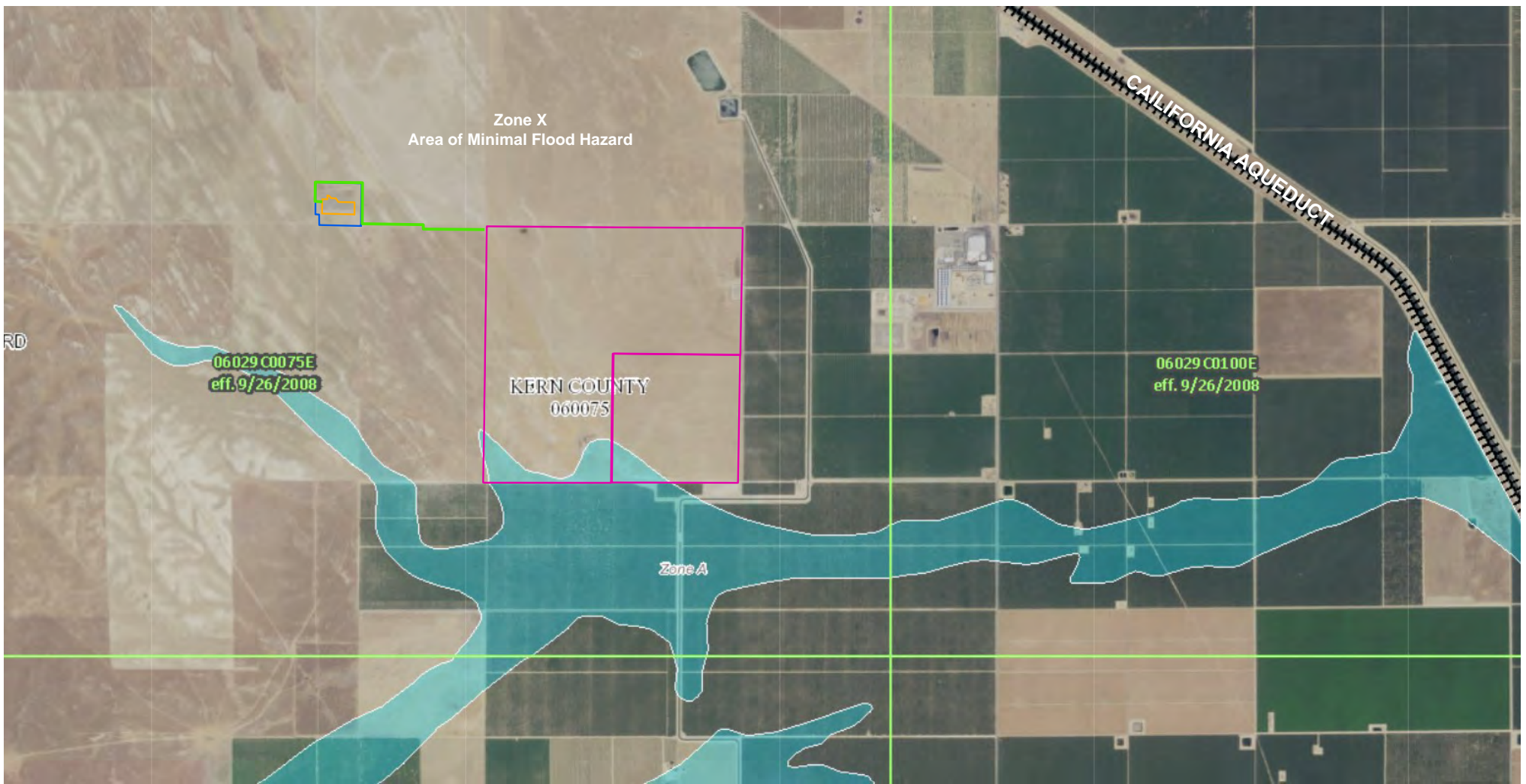
Surf to Snow ERM
 2246 Camino Ramon
 San Ramon, CA 94583
 (925) 326-3041






Figure 1
Vicinity Map
Azalea Solar Facility Project
Kern County, CA



Surf to Snow ERM
 2246 Camino Ramon
 San Ramon, CA 94583
 (925) 326-3041

Figure 2
Project Location
Azalea Solar Facility Project
Kern County, CA



-  FEMA Floodplain Zone "A"
-  Tie-In Path
-  Project Site
-  Existing PG&E Fence Line/
Substation Boundary
-  PG&E Property (Apprx)

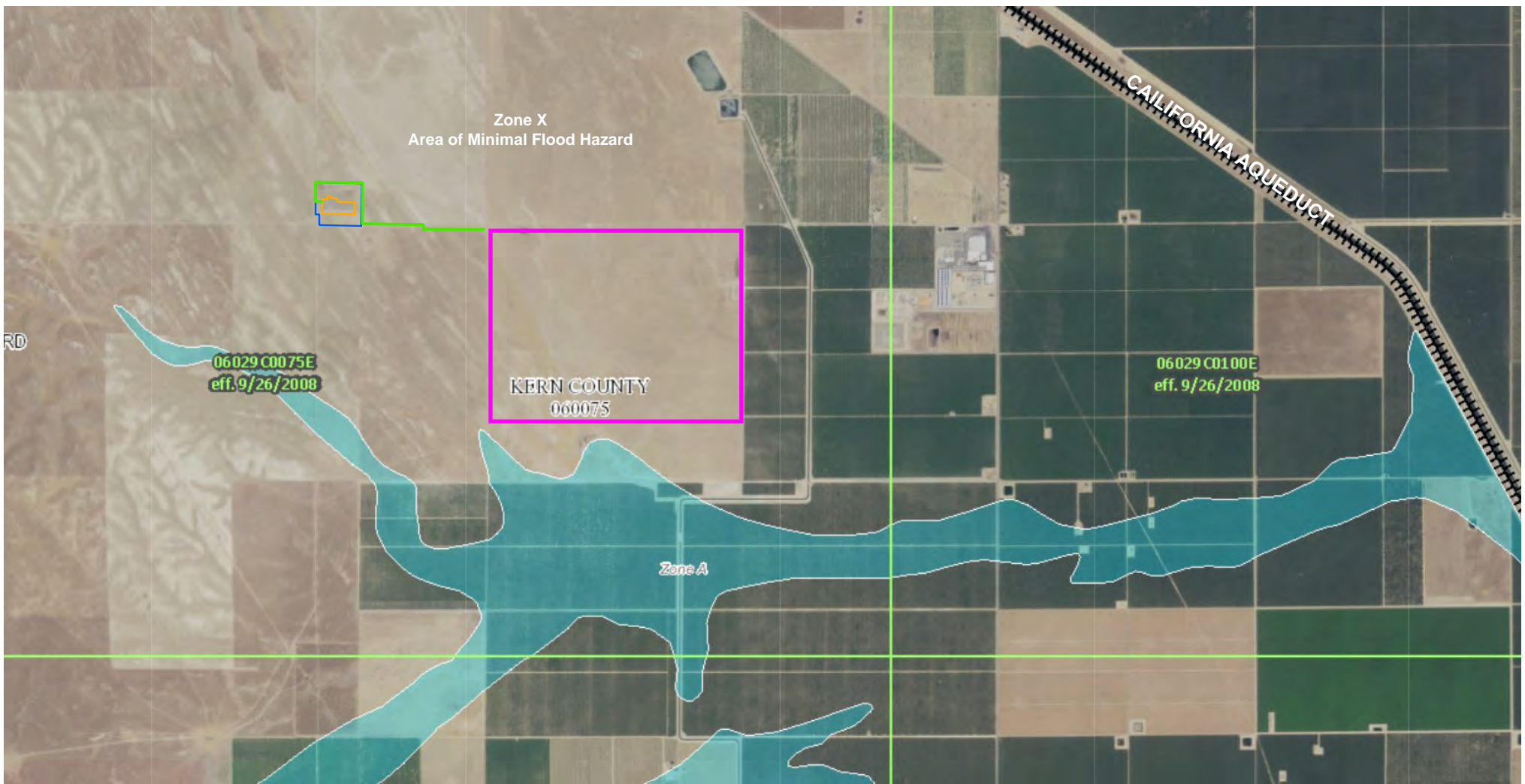


0.0 0.5 1.0
Miles



Surf to Snow ERM
2246 Camino Ramon
San Ramon, CA 94583
(925) 326-3041

Figure 3
Floodplain Map
Azalea Solar Facility Project Kern
County, CA



- FEMA Floodplain Zone "A"
- Tie-In Path
- Recommended Project Site
- Existing PG&E Fence Line/
Substation Boundary
- PG&E Property (Apprx)



0.0 0.5 1.0
Miles



Surf to Snow ERM
2246 Camino Ramon
San Ramon, CA 94583
(925) 326-3041

Figure 4
Recommended Revised Project Area
Azalea Solar Facility Project Kern
County, CA

Appendix A

CEQA Initial Study Checklist

CEQA Initial Study Checklist

Hydrology and Water Quality

The following information is provided to support a CEQA Initial Study for the Azalea Solar Project, based on information assessed in the Hydrology and Water Quality Study. This has been prepared solely for the purpose of informing the user and should not be construed as a formal CEQA initial Study. Accordingly, Discussion provided is only to provide guidance, and should not be relied upon without further assessment. An independent evaluation is recommended based on the planned Azalea Solar Project.

X. HYDROLOGY AND WATER QUALITY: Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) impede or redirect flood flows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PROJECT IMPACTS

Impact a: Will the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Water quality standards and waste discharge requirements could be violated if the project site releases polluted discharges into receiving waters without a permit. Polluted discharges can generate polluted stormwater runoff (i.e., water generated during storm events) or dry weather runoff (i.e., water generated during activities such as dust control). Polluted discharge can consist of sediment from erosion, pollutants from herbicides or pesticides

applied to agricultural lands or vegetation, or pollutants from construction equipment, such as oil drippings or accidental spills of petroleum hydrocarbons.

Construction

Minimal grading and excavation would be required for project-related foundations; however, grading and excavation could affect drainage on the project site. The proposed Gen-Tie line would require grading or excavation. Careful design for access road gradients and other project features, such as the solar panel installation areas, would prevent substantial alterations to drainage patterns and/or erosion within the project site.

Potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. The project proponent would implement measures to minimize and contain erosion and sedimentation in accordance with the Kern County Grading Ordinance and would be required to submit a grading plan to the County for approval prior to commencement of any construction activities. In addition, because the project would disturb more than 1 acre, the project proponent would be required to obtain and comply with the NPDES Construction General Permit. As required by this permit, the project proponent would have to develop a SWPPP and comply with any regional requirements to meet State water quality objectives. Pending revisions, the NPDES permitting process may require development of a rain event action plan prior to permit approval. Construction-related erosion and sedimentation impacts as a result of soil disturbance would be less than significant after implementation of an SWPPP (see Mitigation Measure MM-1) and BMPs required by the Kern County Grading Ordinance.

Construction-related activities could include the use of materials such as fuels, lubricating fluids, solvents, and other materials that could result in polluted runoff. However, the potential consequences of any spill or release of these types of materials are generally small due to the localized, short-term nature of the releases. The volume of any spills would likely be relatively small because the volume in any single vehicle or container would generally be less than 50 gallons, and fuel trucks would be limited to 10,000 gallons or less. Furthermore, the NPDES Construction General Permit and SWPPP require measures regarding the handling of these types of materials and protocols for actions taken if a spill or release does occur (see Mitigation Measure MM-1). Therefore, impacts associated with these types of pollutants would be less than significant with mitigation incorporated.

Operation

The project proponent would install the solar panels on fixed steel support posts, minimizing the need for cement foundations and footings. By raising the solar panels off the ground, the project would not substantially alter drainage patterns of the site in a manner that would result in substantial erosion of the site. Where potential for channel erosions exists, BMPs would be implemented to prevent surface flows from concentrating.

The project's site engineering and design plans would be required to comply with the most recent requirements of the Kern County Code of Building Regulations. Prior to the commencement of construction activities, the project proponent would be required to prepare and submit drainage plans to the Kern County Engineering and Survey Services Department, which would include postconstruction structural and nonstructural BMPs. Routine structural BMPs are intended to address water quality impacts related to drainage that are inherent in development. These need not be related to any identified water quality problem. Examples of routine structural BMPs include filtration, runoff-minimizing landscape for common areas, energy dissipaters, inlet trash racks, and water quality inlets. Therefore, long-term impacts on drainage patterns across the project site that could result in substantial erosion and siltation on or off site would be less than significant after implementation of Mitigation Measure MM-2 and BMPs required by the Kern County Grading Ordinance.

Once the project is operational, there would be no materials such as fuels or solvents stored on site. The project could use herbicides or pesticides to maintain vegetation on site. However, pesticides and herbicides may have been used on the project site associated with the agricultural use of the land. Therefore, the continued use, and likely a reduction of use when compared to an agricultural need for herbicides and pesticides, would not result in polluted sources of stormwater runoff or dry weather runoff when compared to the existing conditions. Consequently, impacts would be less than significant.

Mitigation Measures

MM-1: Prior to issuance of grading permits, the project proponent shall submit a Stormwater Pollution and Prevention Plan (SWPPP) to the Kern County Planning and Community Development Department that specifies

best management practices to prevent construction pollutants from contacting stormwater, with the intent of keeping products of erosion from moving off site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices for the construction phase may include the following:

1. Stockpiling and disposing of demolition debris, concrete, and soil properly;
2. Protecting existing storm drain inlets and stabilizing disturbed areas;
3. Implementing erosion controls;
4. Properly managing construction materials; and
5. Managing waste, aggressively controlling litter, and implementing sediment controls.

MM-2: Prior to issuance of a grading permit, the project operator shall prepare a drainage plan that is designed to minimize runoff and will include engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows. The final design of the solar arrays shall be outside the FEMA 100 year floodplain (Zone "A"). Solar panel sites shall be graded to direct overland flows to match the current native grade. The drainage plan shall be prepared in accordance with the Kern County Grading Code and approved by the Kern County Engineering, Surveying and Permit Services Department, Floodplain Management Section prior to the issuance of grading permits.

Level of Significance after Mitigation

Impacts would be less than significant for the Solar Facility and Gen Tie-In following mitigation.

Impact b: Will the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin

Construction

Depth to groundwater within the vicinity of the project site is likely greater than 50 feet bgs. It is reasonable to assume some groundwater infiltration at the project site during precipitation events because the project site is currently pervious and consists of open ground. However, it is not specifically designated as and does not specifically operate as a groundwater recharge location.

During construction, needed water would be obtained from contracts with the local water district or surface water supplies from a private source to be determined prior to start of construction. It would be imported by trucks and stored on site in aboveground storage tanks. The use of water for temporary construction purposes would not substantially deplete the supplies of the local water district or private source or the associated groundwater basin, if the source of the construction water is taken from the local water district's groundwater basin allocation. Construction would not prevent or inhibit any incidental groundwater recharge that may currently occur on site during precipitation events. This is because during construction the project site would generally remain pervious and would allow any current infiltration that occurs during precipitation events to continue to occur. Therefore, construction of the project site would not result in a substantial depletion of the groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant.

Operation

Impervious surfaces that would result from operation of the project would be limited to the support foundations for the solar equipment and buildings. Pervious interior access roads constructed of all-weather aggregate base would be located throughout the project site to provide access to the solar equipment. Most of the project site would remain permeable.

Under operating conditions, the panels would be cleaned two to three times a year, and any excess water from panel washing would have the opportunity to infiltrate the ground. A water demand study must be prepared for the project to identify operational use of water. Assuming the water study identifies the source of operational water, and the project does not deplete water supplies during the operational period by creating a net deficit in aquifer volume or lowering the groundwater table, impacts would be less than significant.

Mitigation Measures

No mitigation is anticipated pending preparation of a water demand study.

Level of Significance

Impacts would be less than significant for the Solar Facility and Gen Tie-In.

Impact c (i): Will the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

The project would alter the existing drainage pattern of the site, which could result in erosion or siltation on or off site. The disturbance of soils on site during construction of the solar facilities and gen-tie line could cause erosion, resulting in temporary construction impacts. In addition, the placement of permanent structures on site could affect drainage in the long term. Impacts from construction and operation are discussed separately below.

Construction

As discussed in Impact “a”, potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction. Construction-related erosion and sedimentation impacts as a result of soil disturbance would be less than significant after implementation of a SWPPP (see Mitigation Measure MM-1) and BMPs required by the Kern County Grading Ordinance. Construction of the project would not permanently alter the course of any of the drainages. Therefore, there would be no impact on drainage patterns across the project site that could result in substantial erosion or siltation on or off site.

Operation

As discussed in Impact “a”, the project’s site engineering and design plans would be required to comply with the most recent requirements of the Kern County Code of Building Regulations. Therefore, long-term impacts on drainage patterns across the project site could result in Mitigation Measure MM-2 and BMPs required by the Kern County Grading Ordinance.

Mitigation Measures

Implement Mitigation Measures MM-1 and MM-2.

Level of Significance after Mitigation

Impacts would be less than significant for the solar facility and Gen Tie-In following mitigation.

Impact c (ii): Will the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

The rate and amount of surface runoff is determined by multiple factors, including the following: topography, the amount and intensity of precipitation, the amount of evaporation that occurs in the watershed, and the amount of precipitation and water that infiltrates to the groundwater. The project would not alter the amount or intensity of precipitation, nor would it require significant amounts of additional water to be imported to the project site. Modeling of flood flows should be performed to determine if the project would increase the post-project runoff peak flows. Impacts related to construction and operations of the project are discussed separately below.

Construction

Although grading would occur throughout the site, the resultant ground disturbance would be spread over a large geographic area and would not alter the overall topography of the project site. Larger vegetation would be removed on the project site; however, low-lying shrubs would be maintained in their existing condition to the greatest extent possible. Water would be used during the temporary construction phase of the project (such as water used for dust suppression). However, this water would be mechanically and precisely applied and would generally infiltrate or evaporate prior to running off. Therefore, the rate or amount of surface runoff resulting from project construction activities would be similar or even less than that of the existing condition because the pervious nature of the project site would not be significantly altered.

Although the amount of surface runoff on the project site would not increase, runoff patterns and concentrations could be altered by grading activities associated with the project. Improper design of access roads and solar panel sites could result in an alteration of drainage patterns that would cause flooding on or off site. The potential for development of the project to alter existing drainage patterns would be minimized through compliance with

design specifications and BMPs required by the Kern County Grading Ordinance and the preparation of a SWPPP (Mitigation Measure MM-1).

Operation

Once the facilities are fully operational, minimal amounts of water would be required for panel washing or maintenance. Water would be sprayed on the solar panels periodically to remove dust and contaminants, thereby maintaining the panels for the efficient conversion of sunlight to electrical power. It is expected that panel cleaning would be required two to three times a year. It is anticipated the project would use approximately 1 acre-foot per year of water for panel cleaning and other maintenance activities. As noted above, impervious surfaces that would result from operation of the project would be minimal, and a majority of the site would remain permeable.

Operation of the project would slightly alter the existing drainage pattern on site. The project would install the solar panels on piers, with the panels remaining at least 2 feet off the ground, minimizing the need for cement foundations and footings. By raising the solar panels off the ground, the project would not substantially alter drainage patterns of the site in a manner that would increase flooding potential.

However, because drainage would be slightly altered and minor new impermeable surfaces would be added, the rate and volume of runoff would change, thereby resulting in increased flooding immediately off site. Requirements contained within the Kern County Grading Ordinance would minimize the flow of stormwater during project operations. Therefore, long-term effects on drainage patterns across the project site, which could result in flooding on or off site, would be less than significant after implementation of Mitigation Measures MM-1 and MM-2.

Mitigation Measures

Implement Mitigation Measures MM1 and MM-2.

Level of Significance after Mitigation

Impacts would be less than significant for the solar facility and Gen Tie-In following mitigation.

Impact c (iii): Will the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would 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?

Construction

No stormwater drainage systems are on the project site or adjacent to them; the project site is drained by sheet flow and does not rely on constructed stormwater drainage systems. Any runoff generated currently on the project site percolates into the soils. Based on the existing conditions, runoff generated by the site would primarily consist of silt and soil.

Because the project site consists primarily of pervious surfaces of sandy/silty soils, much of the non-potable water used during construction would percolate into the ground. Any runoff generated during construction would also likely contain silt or soil, similar to the existing conditions. Runoff could also contain potentially hazardous materials—such as engine oil, diesel fuel, or lubricant—if an accidental release were to occur. However, the volume of an accidental release would depend on the volume of the storage container (e.g., construction equipment fuel tank), and typically construction sites do not store large amounts of potentially hazardous materials on site. Adherence to drainage plans approved by the Kern County Engineering, Surveying and Permit Services Department, as well as other possible permit requirements in the SWPPP and BMPs required by the Kern County Grading Code and Floodplain Management Ordinance would minimize stormwater runoff from the project site during construction. With the implementation of the SWPPP (Mitigation Measure MM-1) and BMPs required by the Kern County Grading Code, impacts associated with polluted runoff during construction would be less than significant.

Operation

A Phase I environmental site assessment was conducted and a report was prepared for the site under separate cover. As discussed in the Phase I, no hazardous materials records related to the project site were found. As discussed in Impacts a through c (iii), the proposed project would not substantially degrade water quality during

the construction or operational period because they would occur at an existing substation and no ground disturbance or use of hazardous materials would be required.

Development of the project site would create additional impervious surfaces. These changes would not substantially increase the amount of stormwater runoff. The project site is drained by sheet flow and does not rely on constructed stormwater drainage systems. As stated under Impact "a", the pattern and concentration of runoff could be altered by project activities such as grading and installation of the solar panels. Impacts related to polluted runoff from operation of the project would be mitigated to less-than-significant levels with implementation of Mitigation Measure MM-2, which requires development of BMPs in compliance with the Kern County Grading Code to limit onsite and offsite erosion and flooding and to suppress dust.

Mitigation Measures

Implement Mitigation Measures MM-1 and MM-2.

Level of Significance after Mitigation

Impacts would be less than significant for the solar facility and Gen Tie-In following mitigation.

Impact c (iv): Will the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

No construction will occur in areas with special flood hazards, areas with flood-related erosion hazards, or areas with mudslide hazards (i.e., mudflow). Incorporation of Mitigation Measures MM-1 and MM-2, which require preparation of a SWPPP and implementation of BMPs to limit erosion, would ensure that construction and operation of the proposed project would not result in a significant impact relative to impeding or redirecting flood flows within identified Flood Hazard Areas. Therefore, the proposed project would not result in significant impacts related to the 100-year flood zone.

Mitigation Measures

Implement Mitigation Measures MM-1 and MM-2.

Level of Significance after Mitigation

Impacts would be less than significant for the solar facility and Gen Tie-In following mitigation.

Impact "d": The Project would place within a 100-year Flood Hazard Area Structures that Would Impede or Redirect Flood Flows.

The project would be designed to place all solar-related structures outside the southern portion of the site that is a FEMA-designated 100-yr floodplain, designated Flood Zone A (1% annual chance floodplain or the 100-year floodplain).

No construction will occur in areas with special flood hazards, areas with flood-related erosion hazards, or areas with mudslide hazards (i.e., mudflow). Incorporation of Mitigation Measures MM-1 and MM-2, which require preparation of a SWPPP and implementation of BMPs to limit erosion, would ensure that construction and operation of the proposed project would not result in a significant impact relative to impeding or redirecting flood flows within identified Flood Hazard Areas. Therefore, the proposed project would not result in significant impacts related to the 100-year flood zone.

Mitigation Measures

Implement Mitigation Measures MM-1 and MM-2.

Level of Significance

Impacts would be less than significant for the solar facility and Gen Tie-In following mitigation.

This Page Intentionally Left Blank

Appendix K

Water Supply Study

Azalea Solar Project Water Supply Assessment

Kern County Parcels

043-210-16

043-210-17

043-210-18

043-210-27

043-210-28

043-220-01

043-220-22

043-220-21

Kings County Parcels

048-350-017

048-350-020

Lost Hills, California 93249

Prepared for:

SF Azalea, LLC

50 California Street, Suite 820

San Francisco, California 94111

February 2022



S2S Environmental Resource Management

2246 Camino Ramon

San Ramon, CA 94583

www.s2serm.com

Contents

Contents	i
Acronyms and Abbreviations	iii
1. Introduction	1
1.1 Project Summary	1
1.2 Existing Land Use.....	2
1.2.1 The Solar Facility.....	4
1.2.2 Agricultural Operations.....	4
1.2.3 Generation Tie.....	4
1.2.4 Arco Substation	5
1.3 Proposed Project Facilities	5
1.3.1 The Proposed Project	5
1.4 Construction.....	9
1.4.1 The Solar Facility.....	9
1.5 Operation and Maintenance	11
1.5.1 Land Management	12
1.5.2 Agricultural Operations.....	12
1.6 The Arco Substation and PG&E Upgrades	13
1.7 Decommissioning and Site Reclamation.....	15
1.8 Water Resources.....	15
1.8.1 Water Resources.....	15
1.8.2 Surface Water Features	16
1.8.3 Water Purveyors.....	16
1.9 Water Demands.....	19
1.9.1 Construction.....	20
1.9.2 Operation and Maintenance	21
1.9.3 Decommissioning or Repowering.....	22
2. Water Supply Analysis.....	23
2.1 Overview of Water Supply	24
2.1.1 Groundwater Management	25
2.1.2 Water Supply Reliability	27
2.2 Water Supply Availability Conclusions.....	28
2.3 Regulatory Setting	29
3. Environmental Analysis.....	33
3.1 Methodology.....	33
3.2 Significance Criteria.....	33
3.3 CEQA Checklist.....	33
4. References.....	34

Figures

1. Site Vicinity.....3

2. Project Area.....4

3. Solar Facilities6

4. Groundwater Resources..... 17

5. Water Purveyors..... 18

6. Preliminary WDWA Groundwater Budget Current Conditions 25

Tables

1. Projected Spatial Requirements7

2. Summary of Project Area Water Purveyors..... 19

3. Project Water Demands..... 20

4. WDWA – Kern Subbasin Management Area PMAs 26

5. Summary of Impacts 33

Appendices

A CEQA Initial Study Checklist

B DWR Guidebook for Implementation of Senate Bill 610

Acronyms and Abbreviations

AB	Assembly Bill
AC	Alternating Current
AFY	Acre-Feet per Year
APN	Assessor's Parcel Number
BESS	Battery Energy Storage System
BMP	Best Management Practices
C2VSim	California Central Valley Groundwater / Surface Water Simulation Model
CDC	California Department of Conservation
CEQA	California Environmental Quality Act
CWA	Clean Water Act
DC	Direct Current
DWR	California Department of Water Resources
FMMP	Farmland Mapping & Monitoring Program
gen-tie	Generation-tie
KGA	Kern Groundwater Authority
KCWA	Kern County Water Agency
kW	Kilowatt
kV	Kilovolt
MO	Measurable Objectives
MT	Minimum Thresholds
MW	Megawatt
PV	photovoltaic
SB	Senate Bill
NPDES	National Pollutant Discharge Elimination System
NFIP	National Flood Insurance Program
O&M	Operation & Maintenance
PCS	Power Conditioning Stations
PG&E	Pacific Gas & Electric Company
PMA	Projects and Management Actions
PV	Photovoltaic
RWQCB	Regional Water Quality Control Board
S2S	Surf to Snow Environmental Resource Management, Inc.
SGMA	Sustainable Groundwater Management Act
SWRCB	California State Water Resource Control Board
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Loads
TSP	Tubular Steel Pole
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

UWMP	Urban Water Management Plan
WSA	Water Supply Assessment
WDWA	Westside District Water Authority
WOTUS	Waters of the United States

1. Introduction

In 2001, California adopted Senate Bill (SB) 610 and SB 221, amending the California Water Code to require that certain types of development projects be analyzed in a Water Supply Assessment (WSA) which provides detailed assessments of water supply availability and reliability to city and county decisionmakers prior to project approval. A WSA must identify the source(s) of water supply to be used to meet the water demands of a proposed project over a 20-year planning horizon, and with consideration to varying climactic (drought) conditions. The primary purpose of these requirements is to promote collaborative planning between local water supply and land use decisions.

SB 610 was not originally clear on whether renewable energy developments are subject to SB 610 and require the preparation of a WSA. SB 267 was signed into law on October 8, 2011, amending California's Water Law to revise the definition of "project" specified in SB 610. Under SB 267, wind and photovoltaic projects that consumed less than 75 acre-feet per year (AFY) of water were not considered to be a "project" under SB 610; subsequently, a WSA would not be required for this type of project. The renewable energy exclusions provided by SB 267 expired in January 2017. Since the language of SB 610 remains unclear on whether renewable energy projects meet the definition of a "project," this WSA takes a conservative approach and considers renewable energy projects to be subject to the requirements of SB 610.

The Azalea Solar Facility ("proposed project") is a proposed solar energy generation facility that would consist of photovoltaic (PV) modules and associated facilities, detailed below in Sections 1.2 and 1.3. The proposed project would require a short-term water supply during construction and a long-term water supply during operation and maintenance, as well as an assumed short-term water supply during decommissioning or repowering upon the completion of the project's operational lifespan. As assessed in this WSA, it is assumed the project would source its water supply from the local groundwater basin and/or from a local water purveyor.

This WSA for the proposed project has been prepared in accordance with California Water Code, as amended by SB 610, which requires a WSA to examine the availability of water supply source(s) that would be used to meet the proposed project's water demands, including with consideration to normal year (no drought), single-dry-year (limited drought), and multiple-dry-year (extended drought) conditions, over a 20-year planning horizon. The WSA must account for the projected water demand of the project in addition to other existing and planned future uses of the identified water supply, to the extent information is available. A common lack of data for groundwater usage and replenishment rates often makes it difficult to estimate baseline conditions regarding water supply availability; therefore, where data is not available to make quantitative estimates of water supply, reasonable assumptions are made based on available information and data.

The steps followed to ensure compliance of this WSA with California Water Code are described in Attachment B (California Department of Water Resources [DWR] Guidebook for Implementation of SB 610 and SB 221).

1.1 Project Summary

The proposed project is a PV solar generating facility that will provide up to 60 megawatts (MW) of clean, renewable energy as well as a Battery Energy Storage System (BESS) capable of storing approximately 38 MW of energy. The proposed project consists of a utility-scale solar farm on approximately 640 acres, across two parcels, which will include: solar panels, security fencing, and energy storage battery systems. The project study area also includes an additional two parcels for the proposed generation-tie (gen-tie) lines and two parcels for an access road. Located in the unincorporated northwest area of Kern County, the project site is approximately 2.5 miles northwest of the intersection of Twisselman Road and King Road, and directly south of the Kern County/Kings County line. The project site is situated on agricultural lands, and the surrounding area is largely dominated by agricultural uses and undeveloped lands. Figure 1 shows the Project Site Vicinity. Figure 2 shows the Project Area.

The clean, renewable energy generated by the project will help California's utilities meet the renewable portfolio standard

per SB 100. Signed into law in September 2018, SB 100 requires California utilities to procure higher percentages of renewable energy sold to retail customers than previously. The new targets are for 50 percent renewable resources by December 31, 2026, 60 percent by December 31, 2030, and 100 percent from eligible renewable energy resources and zero- carbon resources by 2045.

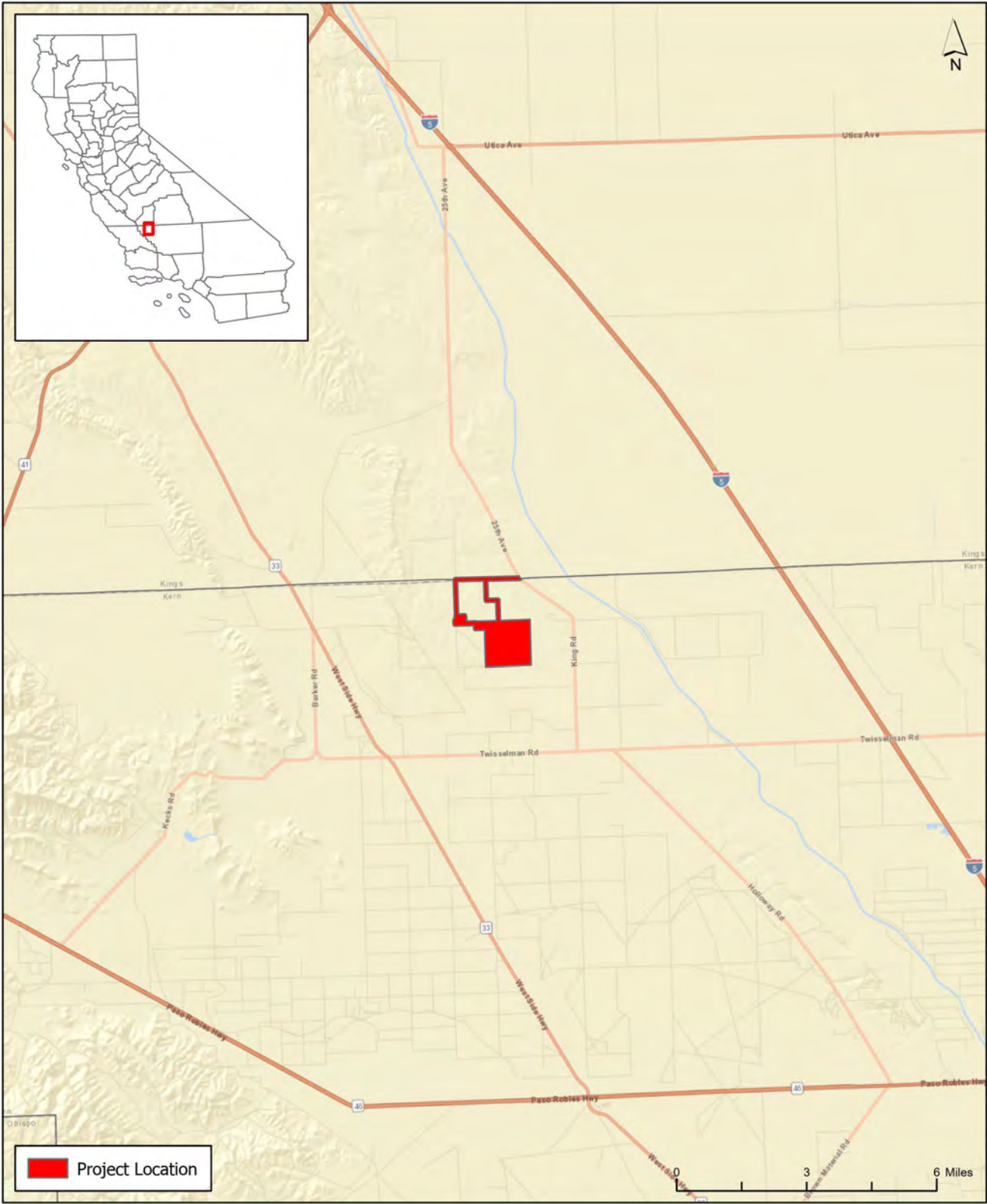
The project will also include energy battery storage to help the California Independent System Operator manage the intermittent nature of solar generation by storing excess energy during times of peak generation for release during times of peak demand. Construction of this project is expected to include grading, trenching to accommodate underground electric work, and installation of foundation piers, PV racking, modules, and electrical equipment. Construction is expected to last up to 12 months, beginning in 2023.

This report describes existing conditions and potential project-related impacts to water supply in the project area. Federal, state, and regional regulations are discussed, followed by an evaluation of impacts, organized by each of the significance criteria identified. As discussed in Section 3.3 and Appendix A, the project will have less-than-significant water supply impacts.

1.2 Existing Land Use

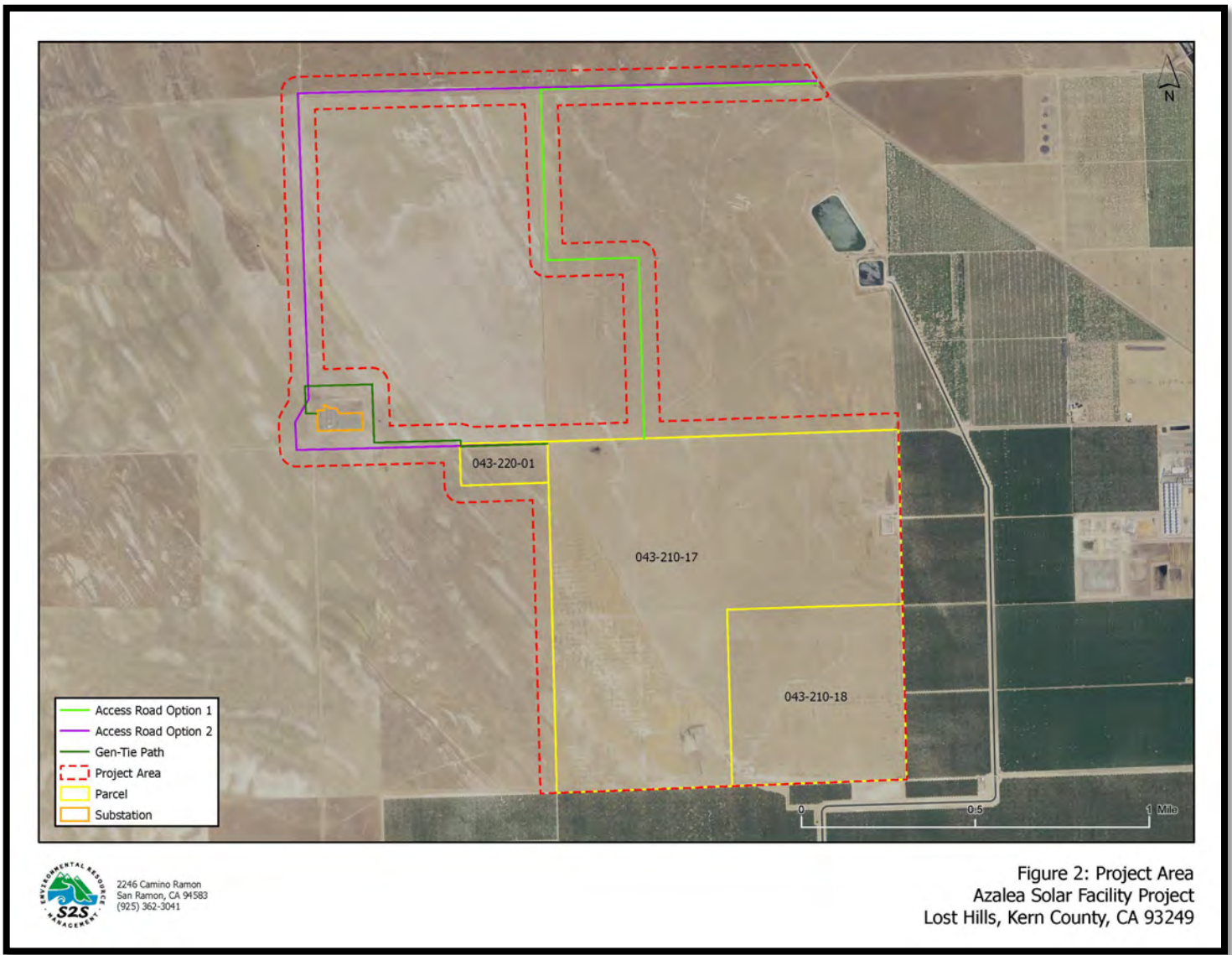
The Site is located in an agricultural area in Northwest Kern County and is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (figs, pistachios, and almonds). Research into historical land use of the area indicates that from the early 1900s through the early 2000s, the Site was largely open area periodically used for livestock grazing. In the late 1960s or early 1970s, a Pacific Gas & Electric (PG&E) power substation and associated transmission lines were constructed on two of the proposed Site's parcels (Assessor's Parcel Number [APN] 043-210-27 and -28). Orchards were planted east and south of the Site in the late 1960s/early 1970s. By the 2000s, including the current time, the Site is also used for occasional dry farming.

The Project site consists of two gently sloping, vacant, and undeveloped parcels of land covered with sparse to moderately dense non-native vegetation currently used for grazing. The Property is disced on a cycle of approximately every two years to facilitate planting cover crops for cattle grazing. Habitats within the Project site include agricultural field, non-native annual grassland habitat, and patches of ruderal habitat along the fenced boundaries of the Property. The Property supports some foraging habitat for wildlife, but is unsuitable for breeding of any native wildlife due to existing agricultural land use and agricultural land practices.



 2246 Camino Ramon
San Ramon, CA 94583
(925) 362-3041

Figure 1: Vicinity Map
Azalea Solar Facility Project
Lost Hills, Kern County, CA 93249



1.2.1 The Solar Facility

The region is characterized by a history of farming, ranching, and oil exploration. The proposed Facility and gen-tie route are classified in the most recent update to the California Department of Conservation's (CDC) Important Farmland Map as "Grazing Land" and "Nonagricultural and Natural Vegetation" (FMMP 2018). A portion of the Project site is in contract under the Williamson Act (FMMP 2018). Parcels for access road are classified as "Grazing Land" and "Nonagricultural and Natural Vegetation" (FMMP 2018).

1.2.2 Agricultural Operations

In recent years, the proposed Facility parcels have been used primarily for grazing and farming dry grain crops such as wheat or barley.

1.2.3 Generation Tie

The parcels in this area have been used primarily for grazing and farming dry grain crops such as wheat or barley.

1.2.4 Arco Substation

The Arco Substation is an existing PG&E substation located on approximately 20 acres northwest of the proposed Facility.

1.3 Proposed Project Facilities

1.3.1 The Proposed Project

Project Components

The proposed Facility would consist of PV modules and trackers, inverters and medium voltage transformers, Direct Current (DC) collection, onsite substation, battery storage, telecommunications, meteorological data collection, lighting signage, access roads, and gen-tie. The projected spatial requirements of the project components are provided in Table 1 below. The solar facilities are shown in Figure 3.

The proposed Facility would utilize PV modules and trackers. Trackers optimize power production by ensuring proper panel orientation to the sun both daily and seasonally. The tracking systems are supported by metal posts (piles) that are driven into the ground with a pile driving machine. Pile placement begins with a precise surveyed layout, ensuring proper positioning of tracker assembly parts. Affixed to the top of each pile is a pile cap and bearing assembly that supports and allows proper movement of the torque tube assembly. Single-axis tracking systems require a drive system that provides directional force to the torque tube. This can be accomplished with a mechanical drive arm and tube assembly that “pushes and pulls” the torque arm through its range of motion or by a geared assembly that redirects rotational force to the tubes. Both approaches require a small geared motor mounted on a pile support or pad strong enough to move the system through its daily range of motions.

The panels are typically constructed of blue or black glass. A plastic binding material and frame provides structural rigidity. The PV panels would be self-contained durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed Facility would be certified to comply with industry standard quality testing. Panels would be electrically connected and grounded. The proposed Facility will be designed in accordance with local and state codes and regulations. The final panel selection would be determined at the detailed project-engineering phase per market availability.

Multiple trackers would be deployed in proximity to the power conditioning stations (PCS) where the DC produced by the panels is converted to alternating current (AC) and transferred to the on-site Substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCS would vary with panel output relative to inverter size and desired output from the PCS.

The proposed Facility’s panels would be organized in rows in a uniform grid pattern, with each row separated by between 10 to 20 feet (from post to post). Another mechanical feature of the proposed Project’s tracker system includes a cable tray that would provide support and containment of the DC wires used to collect the output of the panels and move output to the PCS. The panel and tracker features allow for a natural light regime between and under the panels, supporting the co-management of solar energy generation, agriculture, and wildlife.

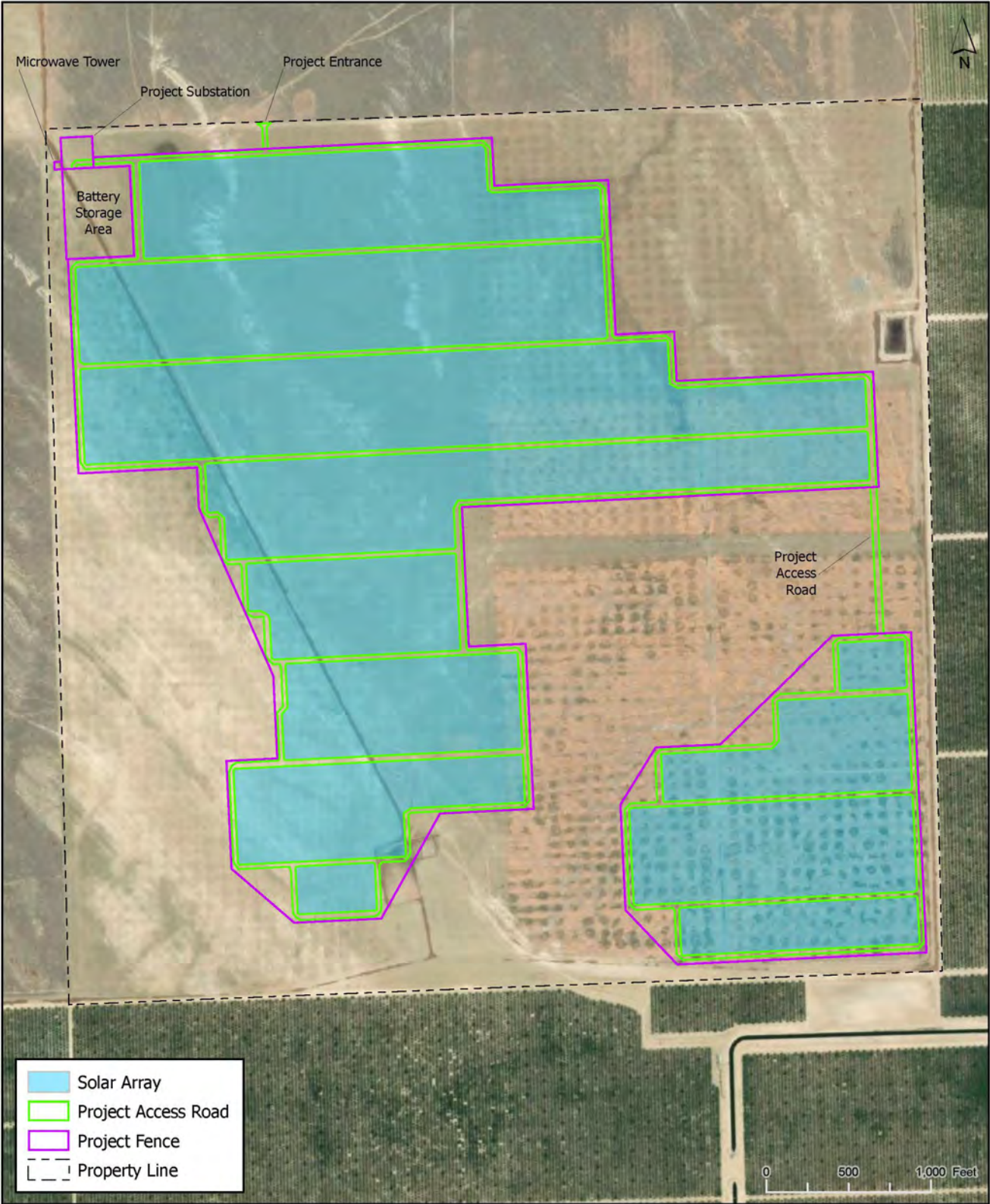


Figure 3: Solar Facilities
Azalea Solar Energy Project
Kern County, California

Table 1: Projected Spatial Requirements

Component	Estimated Extent
Entire Project Area	640 acres
Fenced Area	340 acres
Solar Array Field	266 acres
Access Roads	13.8 acres
Substation	0.5 acres
Battery Storage	5 acres
Gen-Tie	6 acres

Inverters and Medium Voltage Transformers

The proposed Facility inverters, transformers, and other electrical equipment comprise each PCS. The footprint of each PCS, which is generally mounted on a concrete pad, would be approximately 12 feet by 30 feet. The proposed Project would require approximately 40 PCS, depending on final design details. The inverter converts the DC electricity to AC electricity, which then flows to a transformer where it is stepped up to the appropriate collection level voltage (34.5-kV). The Project would use Power Electronic HEM Central inverters or equivalent and one medium voltage transformers per inverter. Each inverter and transformer would be installed as per manufacturer's requirements.

Electrical Collection and Distribution System

The DC output of multiple rows of PV modules connected in series would be collected through one or more combiner boxes and associated electrical wiring located throughout the Project site. The power would be delivered via an underground cable network to the inverters in the electrical equipment enclosures at the PCS, described above. Multiple transformers electrically connected in series would deliver AC power to the Project Substation located on-site.

Project Substation

The Project Substation is proposed to be in the northwest corner of APN 043-210-17. The Project Substation would include transformers, breakers, switches, meters, and related equipment. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. The overall footprint of the Project Substation is anticipated to be approximately 200 by 200 feet and approximately 75 feet in height at its apex. The Project Substation would include an emergency generator for use in the event that the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system restores operations. The Project Substation would also contain a control house building approximately 15 by 30 feet with an overall height of less than 20 feet. The Project Substation would be surrounded by a seven-foot barbed wire chain-link fence and would comply with electrical codes.

The Project Substation must have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator/Utility monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wireless communication.

Telecommunications

The proposed Facility would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line, installed above and/or below ground, attached to either existing utility lines located outside of the Project or the new gen-tie. The proposed Facility telecommunication route would use a combination of existing poles, new poles, and/or below ground installations between the point of connection to existing telecommunications infrastructure and the Arco Substation. Lines would be placed within utility franchise easements to the extent feasible. The point of interconnection to the existing telecommunication facilities would be within a small telecommunications shelter. The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) coming into the Substations as part of the standard substation design criteria. Below ground installations are usually installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles. Telecommunication lines may also be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a point-to-point microwave wireless link.

Meteorological Data Collection System

The proposed Facility would require four meteorological data collection systems. The systems, which would be mounted at various locations throughout the proposed Facility, would include a variety of instruments to collect meteorological data. Meteorological data would be collected at the maximum height of the solar panels or approximately 15 feet above the ground.

Battery Storage Component

The proposed Facility may include the installation of a battery storage component. Storage components are advantageous for renewable energy projects because they allow energy to be reliably fed to the grid from an otherwise intermittent energy production source. The battery system would consist of commercially available lithium ion batteries housed in enclosures. The enclosures would be approximately 8 feet wide by 40 feet long by 9.5 feet high (2.4 meters wide by 12 meters long by 2.9 meters high). The battery storage component would have a footprint of approximately 2.5 acres and would be immediately adjacent to the Project's Substation. Site preparation required for the battery storage enclosures requires leveling the area for a flat concrete foundation.

The proposed lithium ion batteries would principally comply with the UL 9450 standard for outdoor energy storage enclosures. The project will be subject to compliance with existing federal, state, and local regulations for health and safety, including the 2016 California Fire Code. The Applicant would select Battery Energy Storage System (BESS) providers that comply with the application-specific codes, standards, and regulations for the siting, construction, and operation of lithium-ion stationary BESS.

The project would include current best practices for fire safety. The BESS would contain a safety system as required by National Fire Protection Association standard 855 and tested under the Underwriters' Laboratories standard 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The enclosure wall is designed to contain the fire and prevent propagation.

The Emergency Response Plan is used to train local emergency response personnel during development and operations of the proposed Facility. The plan will be completed in accordance with existing state regulations (HSC§ 25504(b); 19 CCR §2731; 22 CCR §66262.34(a)(4)). The contents of the Emergency Response Plan would comply with existing state regulations and include the following components and involve training for the local fire responders:

- Developed in consultation with Fire Dept. and BESS Supplier
- Defined roles and responsibilities
- Potential emergency scenarios including fire
- On-site training of fire personnel and on-site project staff
- Training for local first responders

The Generation-Tie

The 70 kV gen-tie would interconnect the Project Substation to the existing PG&E Arco Substation. The gen-tie is proposed to extend to the west from the Project Substation for approximately 0.68 miles. The gen-tie right-of way would be from 25- to 75-foot-wide. Approximately 30 new poles would be installed to accommodate the gen-tie. The new poles would be constructed of either steel or wood at a maximum of 90 feet tall.

Access Roads

The proposed Facility would be primarily accessed off King Rd. approximately one-mile north of the Project Site. There are multiple gates along the access. Interior access within the solar array area would be approximately 20-foot-wide access and maintenance roads and perimeter roads. The access points and interior driveways would be constructed in accordance with Kings and Kern County and California Department of Forestry and Fire Protection requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions.

Arco Substation

The existing Arco Substation, operated by PG&E, would require modifications to accommodate the proposed Project tie connection. Additional electrical equipment, including Direct Transfer Trip equipment, Supervisory Control Data Acquisition and telemetry equipment, and breaker and control switching equipment, would be placed within the existing fenced area at the Arco Substation.

1.4 Construction

Prior to construction, the Project Applicant would conduct a site-specific geotechnical investigation to provide the final design recommendations for aboveground structures. The Project would adhere to California Building Code requirements.

Construction Schedule and Personnel Requirements

Construction and testing of the proposed Facility would take approximately 12 months to complete and initiate in 2023.

The proposed Facility elements would be completed either in phases or concurrently over the construction period. Crews would typically work five 8-hour days per week. Saturday, Sunday, evening, and night work may also be required due to the scheduling of system outages and construction schedules. The peak construction workforce is anticipated to be 500 workers, depending on scheduling constraints.

1.4.1 The Solar Facility**Access**

Access to the proposed Facility would be off of King Rd. one-mile north of the Project Site along an existing unnamed paved road. An access road from King Road to the north or west boundary of the project site would be constructed as part of the proposed project. Installation of the project may include minor improvements to the existing unnamed paved road and construction of a new 20-foot-wide access road approximately 1.25 miles or 1 mile in length depending on final selection of site access routing.

King Rd., is a two-lane, fully surfaced regional transportation route. The access driveway from King Rd. would include construction of turn pockets for exit and entry onto King Rd. to facilitate the delivery of equipment and personnel to the proposed Facility during construction and operations. The turn pockets would be constructed with 6 to 8 inches of aggregate base course to be designed according to California Department of Transportation and fire department specifications, as needed.

Interior construction access within the solar array area would be from approximately 20-foot-wide access and maintenance roads and perimeter roads. The access and interior driveways would be constructed in accordance with Kings and Kern County requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions.

Parking and Traffic

During construction, employees would be encouraged to carpool, and park within the proposed Facility boundary. The proposed Project requires the temporary construction of approximately 1.5 acres within the proposed Facility for all-weather parking spaces, temporary office facilities, and equipment staging area. This area could be expanded to accommodate increased worker needs.

During construction, the number of workers on the site would vary daily. During non-peak construction approximately 50 workers would be on-site daily, while at the peak of construction, up to 500 workers would be on-site on a given day. In addition, there would be an estimated eight round trips per day during non-peak construction required to deliver materials and equipment to the Project site; up to 25 round trips per day would be required during peak construction. Watering trucks would travel to and from the site up to six times a day during non-peak construction and up to 12 times a day during peak

construction.

The Project would consult with Kings and Kern County prior to initiation of construction activities that may affect area traffic (e.g. equipment and supply delivery necessitating lane closures and trenching) and would implement appropriate traffic controls in accordance with the California Vehicle Code and other state and local requirements. The Applicant would implement the following standard traffic measures during construction of all projects:

- Construction traffic does not block emergency equipment routes.
- Construction activities are designed to minimize work on, and use of, local streets.
- Construction complies with San Joaquin Valley Air Pollution Control District standards for unpaved driveways, which include a requirement to keep vehicle speeds below 15 miles per hour and to have fewer than 150 trips per day per unpaved road.

Electricity

The temporary office and construction facilities would obtain construction electricity from a temporary drop off line from the local electrical distribution system. Up to ten portable electrical generators that meet local and state emission controls would be used throughout the proposed Facility during construction and operation for electrical needs away from the temporary construction facilities.

Water

Per the discussion in the following sections, the proposed Project would obtain water for construction from an on- or off-site groundwater well in the Kern Subbasin, and/or it would be purchased from a Westside Water District Water Authority (WDWA) member water district. The water would be trucked and stored on-site to be primarily used for dust suppression, soil compaction, concrete hydration and other miscellaneous activities requiring non-potable water during construction. The Applicant has identified the need for less than approximately 75 acre-feet of water, on average less than 6.25 acre-feet per month, may be necessary for construction activities. Potable water for drinking and similar needs during construction would be trucked in from off-site (e.g., bottled water).

Site Preparation and Grading Activities

The proposed Facility is flat, nearly level, and would require only minimal grading to allow for installation of the PV panels. Minimal grading is expected for the combined area for the inverter pad, substation, driveways, tracker installation, and other improvements. Access driveways are constructed by placing two to four inches of decomposed granite or comparable material directly on the existing soil. Soil compaction, soil strengthening agents, or geo fabric may be used for access driveways. Compaction may also be required for the construction of inverter pads, substation, control rooms, and driveways.

Dust Control

The Project would implement standard fugitive dust control measures and incorporate those measures into their construction contracts for all projects. Those dust control measures include:

- Watering active construction sites with the frequency of watering based on the type of operation, soil, and wind exposure.
- Stabilizing dust emissions at disturbed areas, including storage piles that are not actively utilized for construction purposes, using water or other approved substances.
- Prohibiting grading activities during periods of high wind (over 20 miles per hour).
- Limiting vehicle speed on-site to minimize dust emissions on unpaved driveways (15 miles per hour).
- Covering trucks hauling dirt, sand, or loose materials.
- Posting a publicly visible sign with the telephone number and person to contact regarding dust complaints. The contact would respond and take corrective actions within 48 hours. The phone number of the San Joaquin Valley Air Pollution Control District must also be visible to ensure compliance with rules regarding nuisance and fugitive dust emissions.

Diesel-Powered Equipment

In addition to standard dust control features, the Applicant would implement standard measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement would be incorporated into the construction contracts for the proposed Facility.

Storm Water Protection

Because construction of the proposed Facility would disturb greater than one acre of surface area, the proposed Project is required to obtain coverage under the State Water Resources Control Board (SWRCB) Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (2012-0006-DWQ). As a standard requirement for enrolling under this permit, the Project would prepare a Storm Water Pollution Prevention Plan (SWPPP) that details Project information; monitoring and reporting procedures; and best management practices (BMPs), such as dewatering procedures, storm water runoff quality control measures, and concrete waste management, as necessary. The SWPPP would be based on final engineering design and would include project components. The proposed Project would submit a Notice of Intent to the SWRCB to initiate coverage under the Construction General Permit.

Commissioning and Energizing

Before solar field components can be commissioned and tested, they must have back-feed power from the high voltage system. Final construction phasing would be determined during project financing but, for the purposes of this California Environmental Quality Act (CEQA) analysis, it is assumed that all construction phases may occur simultaneously.

1.5 Operation and Maintenance

The proposed Facility is anticipated to be operational and productive over a period of 35 years. The proposed Facility would operate seven days a week, with daily monitoring and maintenance activities, both planned and unplanned, taking place during daytime and nighttime hours. Personnel would largely work in the Operations and Maintenance (O&M) building monitoring the system's performance and performing system production forecasting. Personnel would access equipment within the proposed Facility for operational adjustments or minor repairs. Regular access throughout the proposed Facility throughout the day and night is expected, as is foot traffic on and off of roads. Personnel would use light to medium duty trucks and all-terrain vehicles for traversing the site along fire access roads, including drainage crossings. Security monitoring would occur on-site 24 hours a day.

Planned and unplanned maintenance would occur every day and as needed during daytime and nighttime hours, throughout the lifetime of the Project. Planned maintenance activities within the proposed Facility would include routine inspection, repair, restoration, replacement or repair, washing solar panels, security surveys and actions, and modification work on project equipment and facilities. Unplanned maintenance activities could also become necessary due to unexpected damage to or failure of equipment or facilities.

Forced outage situations, where the proposed Facility has unexpectedly stopped normal operations, could occur during the O&M period requiring immediate action. Forced outages are characterized by an unexpected failure of project equipment or facilities, which requires immediate inspection, repair, restoration, replacement and/or modification. Forced outage conditions are characterized as more urgent or emergency-type work where potential for harm to persons, property or the environment exists and requires expedited action to remedy the situation to avoid such risks.

During operations of the Project, inspections, testing, maintenance, and repairs would be performed on a continual basis, with most activities occurring once or twice per year for each tracker or major piece of equipment. Specific activities for inspection and preventive maintenance include the following:

- System testing to ensure peak performance.

- Inspecting array mechanical components, PV mounting systems, and PV modules.
- Inspecting AC and DC electrical components, including conductors, conduit, connectors, fused and unfused disconnects, and switchgear.
- Inspecting battery components.
- Inspecting tracker control enclosures and components.
- Inspecting inverters and cleaning of fans and enclosures.
- Lubrication of worm gear annually.
- Testing DC array circuits.
- Inspecting electrical terminations and mechanical connections for proper torque throughout system.
- Meter reading.

Routine system maintenance includes tightening of loose electrical connections and, tightening ground connections, replacement of defective modules found during testing, other minor maintenance and repair work.

Corrective maintenance that would periodically occur during operation include:

- Replacement of broken or non-functioning PV panels.
- Tracker troubleshooting and repair.
- DC and AC circuit troubleshooting and repair, including fault situations.
- Monitoring equipment and sensor troubleshooting and repair.
- Major system repairs.
- System troubleshooting and repair in the field and in the O&M building.
- Warranty repairs, retrofits, or replacements.

Maintenance or repair would occur on an as needed basis when deterioration of parts or damage occurs or retrofitting becomes necessary. Access and fire roads, including drainage crossings, would rarely require maintenance or repair but could require re-grading, leveling, filling, or culvert repair. Supporting facilities and structures such as portable sanitation, O&M building, security system, fencing (around the array area and Project Substation), and parking areas could require corrective maintenance or repair. The electrical transmission facilities including the Project Substation, medium voltage overhead lines, and gen-tie may also need corrective repair or corrective maintenance. Other O&M activities include erosion control maintenance, restoration of vegetative cover, vegetation maintenance (e.g. mowing, grazing, and weed control such as herbicide spraying or mechanical removal).

1.5.1 Land Management

Currently, the proposed Facility design is comprised of approximately 340 acres of agricultural land that are tilled for crop production and/or used for grazing. Current agricultural practices result in low quality wildlife habitat, limiting its usefulness for special status species found in the area. The Project would comply with Kern County requirements to substantially continue agricultural activity in the form of grazing, allowing the vegetation to be passively reclaimed and thus enhancing wildlife habitat for San Joaquin kit fox (*Vulpes macrotis mutica*), among others. The passive enhancement of the land within the array area would provide a number of benefits including increased occupancy of wildlife species and wildlife connectivity.

1.5.2 Agricultural Operations

Agricultural operations would continue within a portion of the property that is outside of the Facility fence line. In recent years, the parcels have been used primarily for grazing and farming dry grain crops such as wheat or barley. These lands would continue to be actively farmed with cultivated crops that may include, but are not limited to, winter wheat, barley, cantaloupe, watermelon, beans, orchards, and other row crops. During active farming, weeds would be managed following established agricultural practices.

1.6 The Arco Substation and PG&E Upgrades

Overview

In order to accommodate interconnection of the proposed solar PV electrical generating facility (Facility) to the California electrical grid, the project is anticipated to modify the existing Arco Substation in unincorporated Kern County, California, to accommodate a new 70 kV bus terminal. The new bus terminal will connect the proposed customer-owned photovoltaic solar project to the existing transmission system via new generation tie-line. Further description of the network upgrades is provided in the sections below.

Scope

The proposed project is located in unincorporated Kern County, approximately 20-miles northwest of Lost Hills, California and approximately 15-miles southeast of Avenal, California. The existing Arco Substation occupies an approximately 20-acre parcel located approximately 8-miles from the northwest corner of King Road and Twisselman Road. The expansion would cover approximately .50-acres of land immediately adjacent to the northwest corner of the existing substation. The surrounding area is predominantly characterized by rural uses such as agriculture and open space.

Project Facilities

PG&E proposes to modify the existing Arco Substation and to modify the power lines connecting into the modified substation area. New substation equipment will be constructed adjacent to the existing equipment by extending an existing 70 kV single breaker double bus configuration with three (3) new bay structures, including one for the customer-owned photovoltaic solar project generation tie-line. The second bay structure will be used to relocate the existing Arco – Tulare Lake 70kV line. The third and final bay structure will be used as a spare for future equipment. Existing power poles and conductors located outside of the existing substation will require reconfiguration to connect with the new substation equipment. Limited construction of new power line structures and removal of existing structures will be necessary to optimize the power line routing into the modified substation area, taking into consideration land availability and site access to the pole locations.

Power Line Reconfiguration

Existing power poles and conductors located outside the substation may be required to be reconfigured in order for the proposed customer-owned photovoltaic solar project to connect to the new substation equipment. This will be achieved by installing new structures, or by replacing existing structures with new structures, to accommodate the customer-generation tie-line and new line angles resulting from the new arrangements, taking into consideration land availability and site access to the power line support locations.

Rearranging the existing power lines will require installing one new Tubular Steel Pole (TSP) and removing approximately one wood pole on the Arco-Tulare Lake 70 kV Power Line located on the west side of the substation fence line. The new pole will be approximately 80-95 foot-tall. In order to accommodate the customer-owned generation tie-line interconnection, PG&E will extend an approximately 350-feet 70 kV power line from the Arco Substation dead-end structure to a new customer-owned TSP located immediately north of the substation fence line. Up to five additional poles approximately 80-95 foot tall TSP will be added to support the line between the customer owned TSP and Arco Substation.

Access and Construction Work Area

Parking, lay down, and staging for construction materials and equipment at the substation site will temporarily occupy the northern portion of the graded pad. Work areas around the poles will require approximately a 50-foot radius. The modified substation area will result in approximately .50-acres of permanent disturbance. Temporary work areas outside the modified substation will total approximately 2-acres of temporary disturbance.

During construction, access to the modified substation area will be obtained from an existing private road coming from King Road located approximately 1.5-miles northeast of the substation. Minor access road improvements will be required in

order to transport heavy equipment.

Modified Substation Construction

Surveyors will stake the access road alignment, establish grading limits, and set grade stakes for the modified substation pad. Prior to the start of construction, SWPPP BMPs will be installed. Site preparation will begin with vegetation clearing, including grasses and other organic material. This vegetation material will be stockpiled within the footprint of the modified substation area and eventually removed from the site. Topsoil will be stripped, stockpiled, and reused for agriculture or site restoration. Rough grading will begin, approximately balancing the cut and fill on the level site. The rough grade will provide site drainage to the newly constructed stormwater retention basin. Engineered fill (gravel) will be spread on the pad surface to create a stable work area for subsequent construction activities. While the engineering design will attempt to balance the cut and fill, some existing soil may not be suitable for the proposed use. To the extent possible, all cut materials will be reused as fill following suitability testing.

Representative samples of excess soil will be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material will be imported as needed to accomplish the necessary compaction and final grade.

Rough grading will be followed by installing a security fence, excavating and installing the subsurface ground grid, conduit chases, and forming and pouring concrete footings and foundations for all the aboveground structures. After the concrete has cured, PG&E will install the aboveground steel structures, circuit breakers, busses, dead ends, and other electrical equipment, including associated control system hardware.

Equipment to be placed on foundation slabs or footings will either be bolted or welded securely to meet the appropriate seismic requirements. All metallic structures within the substation will be connected to the station grounding grid. A final dressing of aggregate will be spread on all unpaved areas in the modified substation area to provide an all-weather stable surface for O&M activities while limiting the amount of impervious surface created to minimize site run-off. Areas where equipment access is needed for maintenance will be stabilized using compacted aggregate base.

Power Line Reconfiguration/Interconnection Construction

Once the foundation locations have been surveyed and staked, power line construction will be divided into four phases: (1) Installing TSP foundation, including construction of access to each new TSP location as necessary; (2) Installing TSPs; (3) Stringing power line relocations, which may require shoo-fly poles and temporary work areas to cut-over lines and construct pull sites; (4) Removing poles and conductors, access roads, and pull sites, and restoring surfaces as necessary.

Installing New Poles

Installing new TSPs will require boring a single foundation hole approximately 6 to 9 feet deep depending on the soil conditions. Workers will place reinforcing steel in the hole and secure the steel to a bolt assembly plate. Concrete forms that extend 1 to 2 feet above natural ground level will be installed and concrete will be poured around the reinforcing steel up to the level of the bolt assembly plate. The TSPs typically consist of two or three sections, depending on the length or diameter of the pole. The pole base will be lifted by a crane onto the foundation and bolted in place. The crane then will lift the remaining sections and lower them into place. The top section is fitted with arms and insulators prior to being lifted into place.

Erosion and Sediment Control and Pollution Prevention

PG&E will implement a SWPPP during construction to prevent pollution of nearby drainages with sediment or other polluted runoff related to project construction. The plan will outline BMPs that will include placing erosion and sediment controls such as fiber rolls, silt fence, mulch, and seed as appropriate during project construction. BMPs will be installed prior to preconstruction vegetation clearing, as appropriate.

Cleanup

Cleanup operations involve final grading to original contours and cleaning up all disturbed areas, including temporary workspaces and the ancillary access roads to the pole reconfiguration work areas and the temporary access road to the modified substation area. Poles and conductors removed from the project will be dismantled and taken to appropriate disposal facilities to be reused, recycled, or disposed of properly. PG&E will conduct a final survey to ensure that cleanup activities have been successfully completed.

1.7 Decommissioning and Site Reclamation

The proposed project has a tentative life of approximately 35 years, at which time the operations can be renewed and onsite technology updated, or the proposed project could be decommissioned. As decommissioning activities would be similar to construction activities (using the same types of equipment and same general activities), the quantified emissions from construction are used as a surrogate for decommissioning activities. However, it is anticipated that the decommissioning activities would be reduced from those estimated for the construction activities as the efficiencies of the construction equipment and on-road vehicles would be consistent with the future decommissioning year, which would require full compliance with stringent emissions standards for heavy-duty construction equipment resulting in anticipated substantial reductions in emissions from what is presented for construction activities.

Decommissioning of the facility would revert the site to undeveloped land that supports agricultural production and wildlife habitat. Decommissioning and restoration involves removing aboveground and belowground structures, restoring topsoil, revegetation, and seeding. Temporary erosion and sedimentation control BMPs would be used during the proposed Facility's decommissioning phase.

Solar panels would be removed and placed in secure transport crates or container boxes for storage, and transported to another Facility for reuse, material recycling, or disposal. The bolts and reusable fasteners that had attached each module to the racks would be removed and saved for reuse. Once the solar modules were removed, the racks would be disassembled and the structures supporting the racks would be removed and salvaged or recycled.

Electrical equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment offsite. Electrical equipment, transformers, and switching gear on the inverter and interconnection transformer pads and all above ground electrical wiring would be removed and recycled or disposed. All other aboveground site infrastructure-including fences, awnings, and the concrete pads that supported the inverters, and related equipment-would be removed. The fence and gate would be removed per a fencing plan and may include the replacement of some perimeter array fencing with fencing to facilitate livestock management. Removed materials would be recycled to the greatest extent possible. All debris would be removed from the area.

1.8 Water Resources

1.8.1 Water Resources

The proposed project site is located in an area called the "South Dome" subbasin adjacent to the Kern County Subbasin ("Kern Subbasin") in the Tulare Lake Hydrologic Region (Tulare Lake Region) of the San Joaquin Valley Groundwater Basin. The Kern Subbasin is identified by DWR as groundwater basin number 5-022.14, and is bounded to the north by the boundary between Kern County, where the project is located, and Kings County. The Kern Subbasin is bounded to the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains, and to the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges (DWR 2006). In addition, the White Wolf Subbasin (DWR basin no. 5-022.18) is adjacent to the south of the Kern Subbasin.

Sediments that comprise the shallow to intermediate depth water-bearing deposits in the Kern Subbasin are primarily continental deposits of Tertiary and Quaternary age. From oldest to youngest the deposits include the Olcese and Santa Margarita Formations; the Tulare Formation (western subbasin) and its eastern subbasin equivalent, the Kern River

Formation; older alluvium/stream deposits; and younger alluvium and coeval flood basin deposits (DWR 2006). Recharge to the Kern Subbasin occurs via natural recharge from stream seepage along the Kern River and the eastern portion of the subbasin. Recharge also occurs via the infiltration of applied irrigation water, which is a factor of historic and ongoing agricultural land uses throughout the project area, and is now the largest contributor to groundwater recharge in the Kern Subbasin. Also tied to agricultural land uses, the Kern Subbasin has been historically over-pumped, and prior to 1970 this over-use resulted in approximately nine feet of land subsidence in the south-central portion of the subbasin (DWR 2006).

Groundwater banking activities in the Kern Subbasin initiated in the 1970s, with the City of Bakersfield's 2800 Acres Spreading Area (KCWA 2021). In the 1990s, groundwater banking programs were expanded through construction of the Kern Water Bank, which encompasses 20,000 acres of recharge areas, as well as the Kern County Water Agency's 2,233-acre Thomas N. Clark Recharge and Banking Project, formerly known as the Pioneer Banking Project (KCWA 2021). Nearly all groundwater districts have banking projects within their district's boundaries, and those districts that don't overlie the defined groundwater basin participate in local programs (KCWA 2021). Groundwater banking programs now provide critical reliability of water supply availability to the project area; this is discussed further in Section 2.1, *Overview of Water Supply*, and Section 2.2, *Water Supply Availability Conclusions*.

Figure 4 provides an overview of the extent of the groundwater resources in the project area, and specifically the Kern Subbasin within the San Joaquin Valley Groundwater Basin; as shown, the project site is adjacent to the northwestern-most portion of the Kern Subbasin which, in turn, is in the central western portion of the Tulare Lake Region of the San Joaquin Valley Groundwater Basin.

1.8.2 Surface Water Features

The project site is located within the Tulare Lake Region, in the southwestern portion of the San Joaquin Valley of California. The Tulare Lake Region covers approximately 10.9 million acres (17,050 square miles), and covers most of Kern County, as well as most of Fresno County and all of Kings and Tulare counties. This is the largest agricultural region in California, with irrigated acreage declining only slightly between 2005 and 2010, during which time a significant drought also occurred between 2007 and 2009 (DWR 2013). Surface water features in the Tulare Lake Region include alluvial fans from the Sierra Nevada foothills to the east of the project site, as well as the Kings, Kaweah, and Tule rivers and their tributaries. Surface waters in the Tulare Lake Region are generally characterized by southwest- to south-flowing rivers, creeks, and irrigation canal systems that convey surface water originating from the Sierra Nevada (DWR 2013).

Water supply conveyance facilities in the Tulare Lake Region include the California Aqueduct, which runs in a north-south alignment east of the project site, and conveys California State Water Project (SWP) water through the project area. The Kern River, which is the prominent natural surface water feature in the Kern Subbasin, runs in a southwest-northeast alignment southwest of the project site. The Kern River originates in the Sierra Nevada to the northeast of Kern Subbasin.

1.8.3 Water Purveyors

There are numerous water purveyors in Kern County; please see Figure 5, which identifies the water purveyors adjacent to the project site. The Kern County Water Agency (KCWA), which was created in 1961 by a special act of the California State Legislature, serves as the local contracting entity with the California Department of Water Resources (DWR) for SWP water. The KCWA is the second largest agency contracting SWP water from the DWR. In turn, KCWA holds long-term contracts for SWP water deliveries to 13 local water districts, referred to as Member Units, as well as Improvement District No. 4, which was formed by KCWA in 1971 to provide a supplemental drinking water supply to portions of Metropolitan Bakersfield.

The Kern Groundwater Authority (KGA) serves as the Groundwater Sustainability Agency (GSA) for the portion of the Kern Subbasin where this project is located. The KGA was formed by a Joint Powers Agreement between 16 member agencies

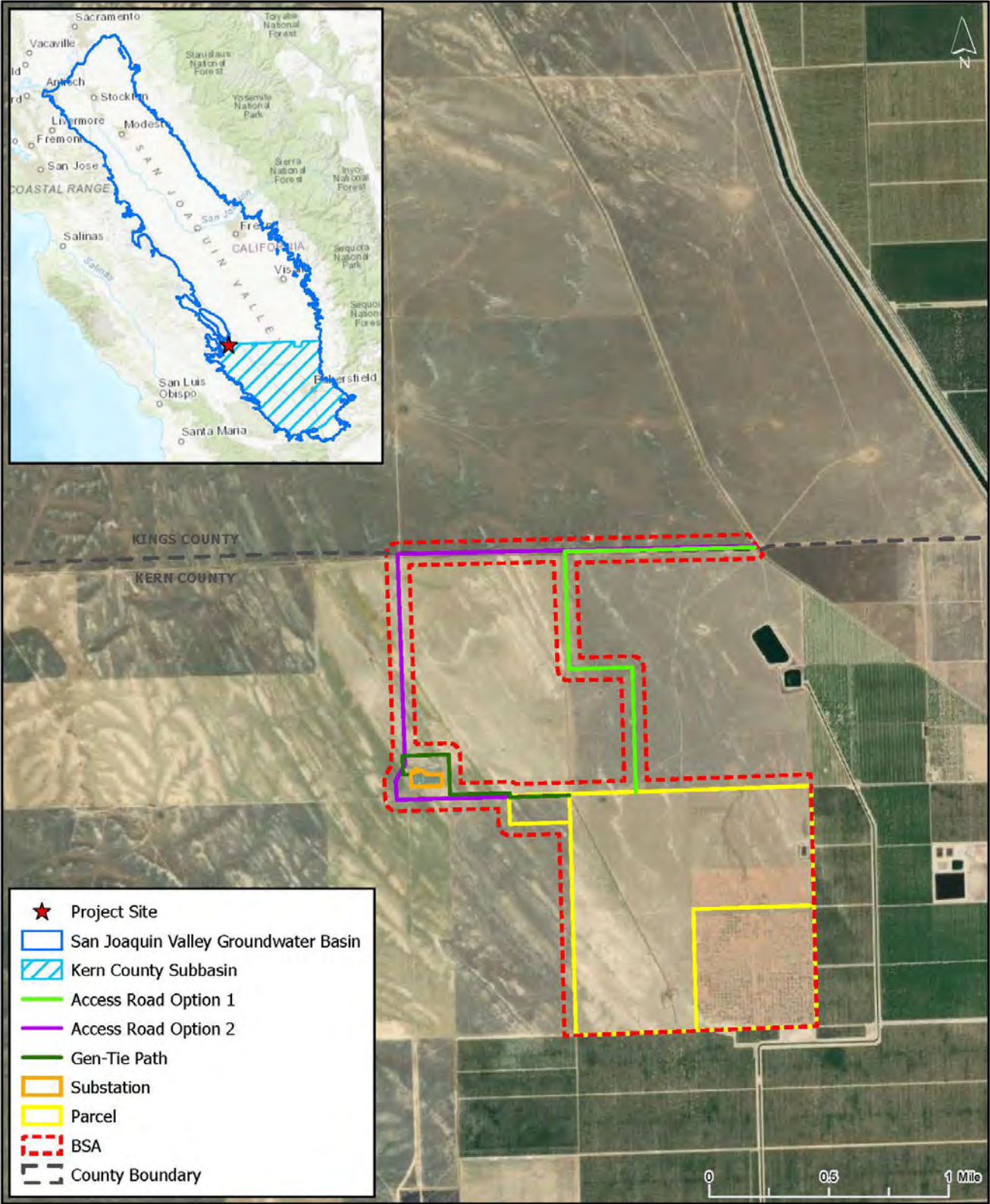


Figure 4: Groundwater Resources
Azalea Solar Energy Project
Kern County, California

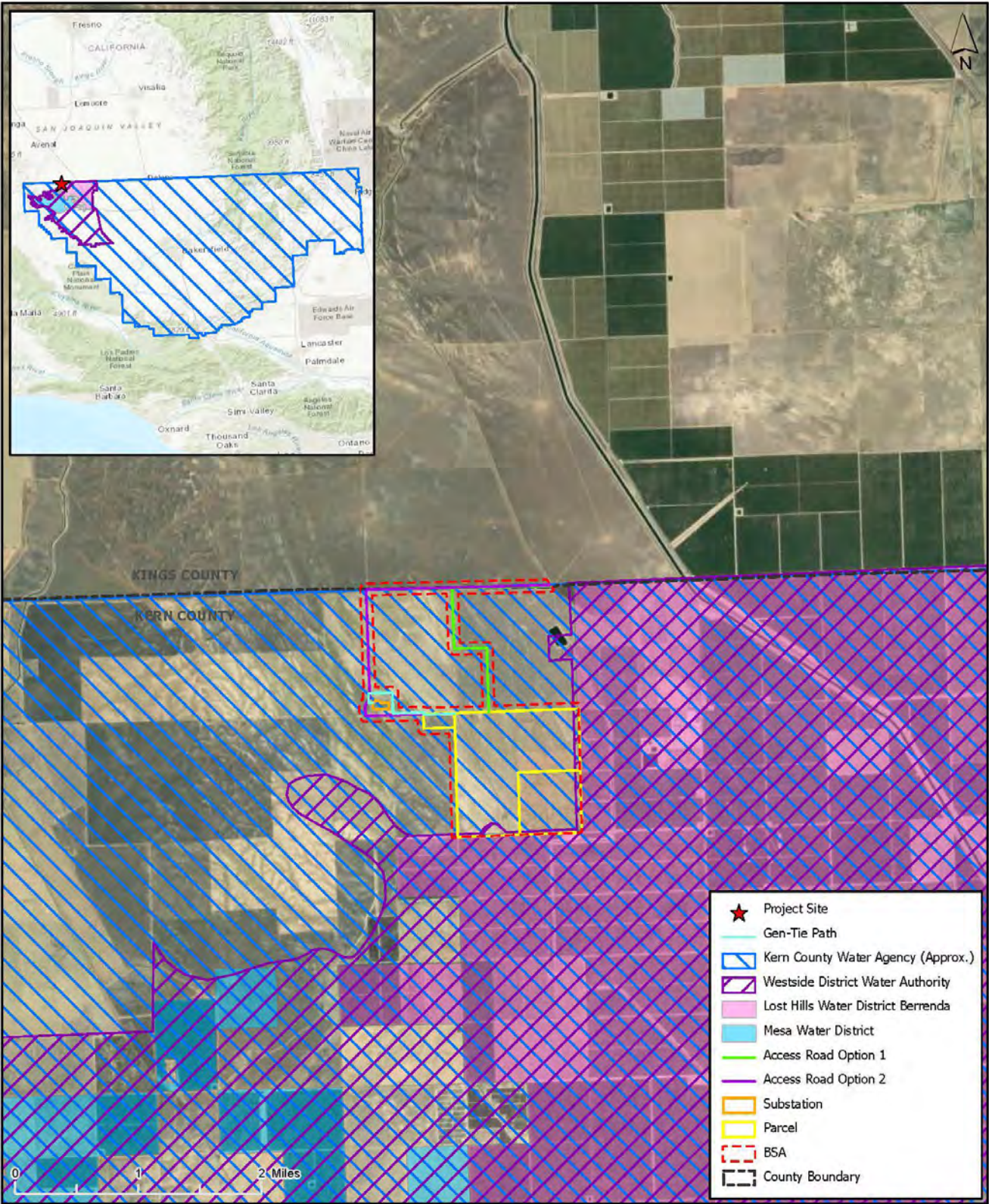


Figure 5: Water Purveyors
Azalea Solar Energy Project
Kern County, California

to function as the GSA for the overall Kern Subbasin. KGA's jurisdictional boundary is entirely within the Kern Subbasin, as defined in DWR Bulletin 118, in the southern portion of the Tulare Lake Region of the San Joaquin Valley Groundwater Basin. Within the KGA's jurisdictional boundary, groups of Water Districts organized as "Chapters" based on hydrogeology or other factors which are distinct to their respective management area. Organizing Water Districts by chapters allows the KGA to monitor and adjust sustainability goals for each management area within the KGA jurisdictional boundary.

The WDWA was formed in 2020, and is comprised of four water districts: Lost Hills Water District (LHWD), Berrenda Mesa Water District, Belridge Water Storage District, and Dudley Ridge Water District. The proposed project site is located adjacent to the LHWD which is a KCWA Member Unit and receives SWP deliveries through the KCWA. The LHWD also manages the portion of the Kern Subbasin that underlies its jurisdiction, as a member of the WDWA.

As the GSA for the overall Kern Subbasin, the KGA developed an "umbrella" Groundwater Sustainability Plan (GSP) for the Kern Subbasin, referred to as the "KGA Umbrella GSP" (KGA 2020). The KGA Umbrella GSP provides Sustainable Groundwater Management Act (SGMA) coverage for all Kern Subbasin lands that are included in the management areas of member agencies to the KGA (KGA 2020). Each KGA member agency or Chapter has developed a Management Area Plan for its respective management area, all of which are attached to the KGA Umbrella GSP (KGA 2020). The WDWA Management Area includes 227,193 acres and consists of the portion of the Kern Subbasin located within the service area of the Chapter member Water Districts. The purpose of the WDWA Management Area Plan is to, in conjunction with the KGA GSA and other GSAs in the Kern Subbasin, meet the regulatory requirements of SGMA by providing management of all portions of the Kern Subbasin under a GSP implemented by a designated GSA, in accordance with the timeline set forth by SGMA.

Table 2 below provides a summary overview of the water purveyors discussed above, as relevant to the proposed project site.

Table 2: Summary of Project Area Water Purveyors

Agency	Jurisdiction	Role
Kern County Water Agency (KCWA)	Kern County (all)	SWP local contractor; holds long term contracts with 13 Member Units (local water districts) for SWP water deliveries; member agency of the KGA
Kern Groundwater Authority (KGA)	Kern Subbasin (all)	Joint Powers Authority of 16 member agencies, including KCWA and Westside District Water Authority, and umbrella GSA for the Kern Subbasin
Westside District Water Authority (WDWA)	WDWA Management Area (within Kern Subbasin)	GSA for the WDWA Management Area of Kern Subbasin; Comprised of Member Units of the KCWA SWP contract (Water District Members); Chapter agency of the KGA

1.9 Water Demands

The proposed project would require a temporary water supply during each of the assumed 12-month construction and decommissioning phases, and a long-term water supply during the 35-year operational period. Water demands of the proposed project are summarized in Table 3 below.

Table 3: Project Water Demands

Project Phase (Duration of Phase)	Annual Demand (acre-feet/year)	Total Demand (acre-feet)
Construction (1 year)¹		
Dust and Fire Suppression, Compaction, and other Construction Activities	75	75
Total Construction	75	75
Operation and Maintenance (35 years)²		
Panel Washing ³	0.25	8.75
Fire Suppression ⁴	1.48	50.15
Total O&M	1.73	58.90
Decommissioning (1 year)⁵		
Dust and Fire Suppression, and other Decommissioning Activities	75	75
Total Decommissioning	75	75
Total Demand	–	208.9
Amortized Demand⁶	5.65	

¹ The construction period is assumed to be 12 months, during which time the project's full construction water demand of 75 acre-feet would occur; the total construction-period water demand is assumed to be 75 acre-feet regardless of the duration of construction, such that a longer construction period would result in a lower monthly construction demand.

² The O&M period is assumed to be 35 years, which is 15 years longer than the 20-year projection required by California Water Code (as amended by SB 610) to be considered in a WSA. However, for the purposes of full disclosure and to provide a conservative analysis, this table presents all anticipated water demands of the project over the entirety of its anticipated operational lifespan of 35 years. During the O&M period, the activities requiring water supply would include washing the solar panels and emergency fire suppression. Per the project applicant the O&M building will not have plumbing for water or wastewater.

³ This analysis assumes that solar PV panel washing requires approximately 0.25 AFY. See Section 1.9.2.

⁴ This analysis assumes that approximately 2.95 acre-feet of water would be stored on-site and designated for emergency fire suppression use only. In addition, this analysis conservatively assumes that the fire suppression water would be entirely replenished every two years, or a total of seventeen times replenished; this is likely an over-estimation, as emergency fire suppression activities are unlikely to occur on a bi-annual basis.

⁵ Decommissioning activities for the proposed project are not specifically known at this time; therefore, in order to provide a conservative analysis that accounts for all project phases, this analysis assumes that the project's decommissioning period would be the same as the project's construction period, in terms of duration (12 months) and water demand for dust suppression (75 acre-feet).

⁶ The amortized demand of 5.65 AFY is the project's total estimated water demand (208.9 acre-feet) averaged over the cumulative duration of all project phases (37 years, accounting for one year each of construction and decommissioning, and 35 years of operation and maintenance). AFY = acre-feet per year.

The water demand estimates summarized above and detailed in the following sections are used to analyze the availability and reliability of water supply for the proposed project over the WSA's required 20-year projection, as well as the project's anticipated operational lifespan of 35 years. Please see Section 2.2, *Water Supply Availability Conclusions*, for detailed discussion of the project's total water demands compared to the anticipated water supply availability and reliability.

1.9.1 Construction

Construction of the proposed project is anticipated to occur over approximately 12 months, initiating in 2023. Construction activities would include: site preparation and grading; installation of tracker foundations and underground cabling; installation of the Project Substation, project facilities, and electrical components; and implementation of upgrades at the PG&E Arco Substation. Water requirements during construction would primarily be associated with dust suppression and soil compaction during ground-disturbing activities. Active construction areas would be watered at a frequency to be determined by the type of activity, site-specific soil conditions, and wind conditions.

Stockpiled soils would also be watered or stabilized with other approved substances. Non-potable water may also be required to establish vegetation or earth-binding materials to disturbed areas upon completion of the construction period. Potable water for drinking and similar needs during construction would be trucked in from off-site (e.g., bottled water).

The project applicant has identified construction water demands of up to 75 AFY, which equates to 6.25 acre-feet per month over the project's anticipated 12-month construction period. The water supply during construction would be obtained from an on- or off-site groundwater well in the Kern Subbasin, and/or it would be purchased from a WDWA member water district and trucked to the project site, where it would be stored on-site for use as needed. As described in Section 1.2, Project Location, the proposed project site is located near the Kern Subbasin of the San Joaquin Valley Groundwater Basin; this area is adjacent to the service area of the LHWD, which is also a Member Unit of the WDWA for delivery of imported SWP water, as well as a member agency of the KGA, for participation in the KGA Umbrella GSP for the Kern Subbasin. As such, the water supply provided by WDWA member water districts consist of both imported SWP water and locally produced groundwater resources.

1.9.2 Operation and Maintenance

The operational lifetime of the proposed project is anticipated to be 35 years. Therefore, although a WSA is required to assess a 20-year projection, for the purposes of this WSA, a 35-year projection is assessed, to account for the anticipated operational lifespan of the project.

The project would operate continuously, seven days a week, until the anticipated repowering or decommissioning of the project. Operation of the proposed project would include cleaning the PV panels with water, monitoring electricity generation, providing site security, and replacing or repairing facilities and components as needed to support operations. Other O&M activities include erosion control maintenance, restoration of vegetative cover, and vegetation maintenance such as mowing, grazing, and weed control with herbicide spraying or mechanical removal.

The project applicant has estimated that operational water demands of the project would be approximately 0.25 AFY. The water demands of a given project are dependent upon the specific components, activities, and requirements of each project, and vary from project to project. In order to provide a conservative analysis for the purposes of this WSA, operational water demands for the proposed project have been estimated in excess of the applicant's estimated 0.25 AFY, as detailed below. The assumptions developed for the proposed project are based upon experience assessing other utility-scale solar developments, and all assumptions used to inform these estimates are also detailed below. As mentioned, the purpose of expanding the estimation of operational water demands is to provide a conservative analysis of water supply availability and reliability to the project.

Panel Washing

Water demands during operation would primarily be associated with panel washing activities, as the PV panels would need to be washed with water to remove dust and maintain efficiency. The frequency of panel washing activities would depend upon site-specific conditions, particularly wind and rain. The solar PV panel washing analysis relies on an assumed water demand rate provided by the O&M providers at the project applicant's existing solar energy plants. The water demand rate is 0.2 gallons of water, per panel washing. It is assumed that the approximately 550W panels will be washed twice per year, which corresponds to approximately 0.004 AFY per MW, or 0.25 AFY for the facility.

Fire Suppression

Combustible vegetation or agricultural products on and around the proposed project site would be actively managed during all project phases to minimize fire risk. Combustible products would be either limited in height or removed primarily through a combination of dirt or gravel firebreaks, grazing, and mowing. In addition, a Vegetation Management Plan would be implemented during operations to guide the use of tools such as grazing and mowing to help manage accumulation of potential fine fuels around project infrastructure. The proposed project would also include fire breaks around the site boundary in the form of compacted dirt or gravel breaks and access driveways subject to Kern County standards. In addition, it is anticipated that water for emergency fire suppression would be stored on-site during all project phases, for use as needed.

Kern County Development Standards, Division 2, Water Systems, Chapter V, Fire Protection Requirements, states that fire flow requirements shall be determined by the Fire Chief and computed on the basis of a minimum 20 pounds per square inch gauge residual operating pressure at the point of lowest pressure of the street main from which the flow is measured. Chapter V, Section 205- 3.01, Water Supplies for Fire Protection, further specifies in Table No. 1-W, Fire Flow Requirements, that minimum fire flow for an industrial site is 1,500 gallons per minute for a minimum of four hours. This equates to 90,000 gallons per hour, for 360,000 gallons over four hours, which totals approximately 2.95 acre-feet.

For the purposes of this WSA, and to provide a conservative analysis of proposed project water demands, it is assumed that fire suppression water would be stored in on-site tanks, rather than connecting to an in-street water main. It is also assumed that the project's entire storage of fire suppression water (2.95 acre-feet) would be replaced bi-annually; this is likely an over-estimation, but it provides a conservative analysis for the characterization of the proposed project water demands.

O&M Building

For the purposes of this WSA, it is assumed that the proposed project would include an O&M building. The building will not have water supplied to it nor does it require water usage for maintenance purposes, therefore there are no anticipated water demands.

1.9.3 Decommissioning or Repowering

The operational lifetime of the proposed project is anticipated to be 35 years. Therefore, although a WSA is required to assess water supply availability for a 20-year projection, this WSA addresses a 37-year projection, which includes one year of construction, 35 years of O&M, and one year of decommissioning or repowering. Due to this length of time, it is highly speculative to assume what the water demands at the time of decommissioning or repowering will be. In order to address this issue, it is assumed that water demands for decommissioning or repowering will be the same in duration (12 months) and intensity (75 acre-feet) as the construction period.

2. Water Supply Analysis

This section provides an assessment of water supply availability and reliability for the proposed project, as required by SB 610, which amended California Water Code to require detailed analysis of water supply availability for certain types of development projects. The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies, and guaranteeing land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to meet project demands. SB 610 requires the preparation of a WSA for a project that is subject to CEQA and meets certain requirements, each of which is discussed below.

California Water Code, as amended by SB 610, requires a WSA address the following questions:

- Is there a public water system that will service the proposed project?
- Is there a current Urban Water Management Plan (UWMP) that accounts for the project demand?
- Is groundwater a component of the supplies for the project?
- Are there sufficient supplies to serve the project over the next twenty years?

In addition to these, the primary question to be answered in a WSA is:

Will the total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand of the proposed project, in addition to existing and planned future uses of the identified water supplies, including agricultural and manufacturing uses?

The following discussions address the SB 610 WSA questions as they relate to the project:

Is the proposed project subject to CEQA?

California Water Code Section 10910(a) states any city or county that determines a project, as defined in Section 10912, is subject to CEQA must prepare a WSA. Projects requiring an issuance of a discretionary permit by a public agency, projects undertaken by a public agency, and projects funded by a public agency are subject to CEQA. The project requires issuance of discretionary permits from Kern County and is therefore subject to CEQA.

Is the Proposed Project a “Project” Under SB 610?

California Water Code, as amended by SB 610, states any proposed action that meets the definition of “project” under SB 610 is required to prepare a WSA to demonstrate whether sufficient water supplies are available to meet requirements of the project under normal and drought conditions. Water Code Section 10912 defines a “project” as any one of six different development types with certain water use requirements. The following is a description of each development type and their associated water requirements:

- **RESIDENTIAL DEVELOPMENT** - A proposed residential development of more than 500 dwelling units is defined as a “project” under SB 610. The project is not a residential development.
- **SHOPPING CENTER OR BUSINESS ESTABLISHMENT** - A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space is defined as a “project” under SB 610. The project is not a shopping center or business establishment.
- **COMMERCIAL OFFICE BUILDING** - A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space is defined as a “project” under SB 610. The project is not a commercial office building.
- **HOTEL OR MOTEL** - A proposed hotel or motel, or both, having more than 500 rooms is defined as a “project” under SB 610. The project is not a hotel or motel.

- INDUSTRIAL, MANUFACTURING, OR PROCESSING PLANT OR INDUSTRIAL PARK - A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area is defined as a “project” under SB 610.

The project is not a manufacturing plant, processing plant, or industrial park. However, it is an industrial facility occupying more than 40 acres and therefore this analysis conservatively determined the project to be considered a “project” under Water Code Section 10912. Therefore, this WSA has been prepared to satisfy the requirements of SB 610.

Is There a Public Water System that Will Serve the Proposed Project?

California Water Code Section 10912 defines a “public water system” as a system that has 3,000 or more service connections and provides piped water to the public for human consumption. The project would source water from existing groundwater well(s) on the project site, or it would be purchased for a local water WDWA member district, which would provide groundwater from the Kern Subbasin, either directly as raw groundwater, or indirectly as water available in a banking or exchange program. WDWA member districts are not public water systems; this WSA assumes the project would not be served by a public water system.

Is There a Current UWMP that Accounts for the Project Demand?

California’s urban water suppliers prepare UWMPs to support long-term resource planning and ensure adequate water supplies. Every urban water supplier that either delivers more than 3,000 AFY of water annually or serves more than 3,000 connections is required to assess the reliability of its water sources over a 20-year period under normal-, single-dry, and multiple-dry year scenarios. These are the same requirements of a WSA, as specified by SB 610. UWMPs must be updated and submitted to DWR every five years for review and approval (DWR 2020). There is not currently an UWMP that accounts for the proposed project. However, there are numerous water supply management plans in place, as discussed throughout this WSA, and particularly in Section 2.1.1, Groundwater Management.

Is Groundwater a Component of the Supplies for the Project?

The project’s water demands may be met in part or in full by groundwater produced from the adjacent Kern Subbasin of the San Joaquin Valley Groundwater Basin. The local groundwater resources are introduced above in Section 1.2.1, Groundwater Resources, and management of local groundwater resources is discussed in Section 2.1.1, Groundwater Management.

Are There Sufficient Supplies to Serve the Project Over the Next Twenty Years?

The sufficiency of water supplies identified as potential sources to serve the project is assessed in the following sections. Groundwater resources in the project area are described in Section 1.8.1, Groundwater Resources, surface water resources are described in Section 1.8.2, Surface Water Features, and Section 1.8.3, Water Purveyors. Water supply reliability is discussed in Section 2.1.1, Groundwater Management, and in Section 2.1.2, Water Supply Reliability.

The information and analysis provided in this WSA support the conclusion that there are sufficient water supplies available in the project area to meet the needs of the project over the next 20 years (the assessment period required per SB 610 for a WSA). Conclusions associated with the sufficiency of available water supplies are discussed in Section 2.2, Water Supply Availability Conclusions.

2.1 Overview of Water Supply

The information and analysis provided herein constitutes a WSA consistent with the requirements of California Water Code as amended by SB 610. It is assumed that water supply for the proposed project would be produced from an on- or off-site groundwater well in the Kern Subbasin, and/or it would be purchased from a WDWA member water district. Therefore, the following sections describe the management of groundwater within the Kern Subbasin, in order to characterize the reliability of local groundwater as a potential supply source for the proposed project.

2.1.1 Groundwater Management

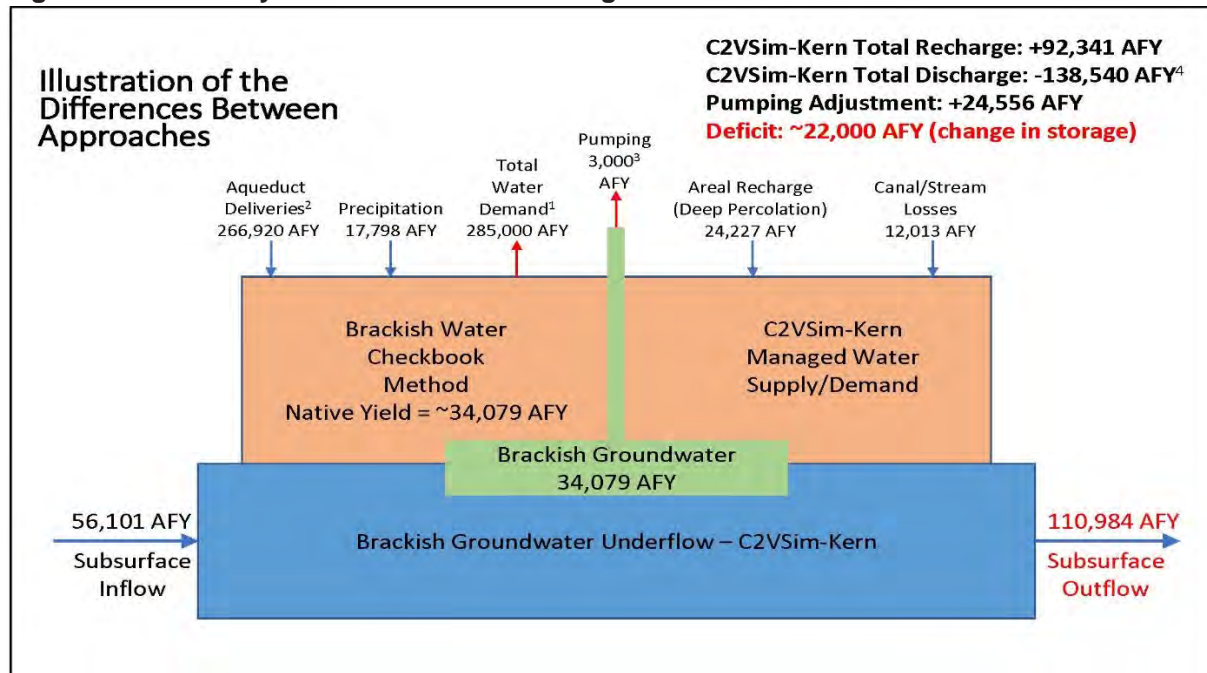
To facilitate the implementation of the KGA Umbrella GSP, KGA's jurisdictional area is divided into management areas formed by the portion of the Subbasin that underlies the boundaries of each member agency and any associated non-districted lands (KGA 2020). Each member agency or "Chapter" of KGA has developed its own management area GSP to support the development of the KGA Umbrella GSP. The proposed project site is within the WDWA Management Area.

For the Kern Subbasin as a whole, the GSAs have coordinated on two basin-wide water budget approaches which are described in the KGA Umbrella GSP (KGA 2020) and include:

1. Development of a numerical model based on the California Central Valley Groundwater / Surface Water Simulation Model (C2VSim) to estimate the basin-wide water budget; and
2. Development of a "checkbook" water accounting approach that estimates the supply, demand, and shortages within the Kern Subbasin using certain management assumptions.

In addition to the above approaches, KGA Chapters including the WDWA prepared water budgets on a management area-basis. Unique to the WDWA, all sources of groundwater are eventually degraded due to the geology and are unsuitable for most use. Therefore, the WDWA used a "Brackish Water Checkbook" approach combining SWP surface water, various supplemental surface water supplies, a preliminary value of operational Native Yield, and a current value of precipitation to estimate the available water supply. In this model, groundwater pumping is considered part of the Native Yield, which in the checkbook model traditionally encompasses all groundwater recharges/discharges but does not include groundwater underflow. The brackish groundwater is considered as "outside" the water balance unless blended or treated. A comparison of the current water budget using the different approaches developed for the WDWA Management Area is illustrated below, in Figure 6.

Figure 6: Preliminary WDWA Groundwater Budget Current Conditions



Source: WDWA 2020

In addition to the current water budget, future water budget conditions were also developed using the locally calibrated model, and informed by DWR-provided inputs for climate variables and water supply assumptions including changes to imported SWP water supply deliveries. The future water budget projections addressed the 50 years between 2021 and

2070, and included consideration to the effects of climate change, as well as the effects of implementation of groundwater supply management projects and programs, referred to as “Projects and Management Actions” (PMAs). Table 4, below, provides an overview of PMA efforts that have been developed for groundwater supply management in the WDWA Management Area of the Kern subbasin. The PMAs were developed to address sustainability goals, undesirable results, and minimum thresholds (MTs) and measurable objectives (MOs) for the WDWA. Recognizing that the hydrogeologic characteristics of the WDWA are transitory through time and that adaptive management is an iterative process, the PMAs were developed with consideration to climate change and drought resiliency, as well as coordination with adjacent groundwater management areas (WDWA 2020).

Table 4: WDWA – Kern Subbasin Management Area PMAs

PMA	Purpose	Expected Benefits	Status
1. Collect Representative Hydrogeologic Data	Obtain representative data related to aquifer characteristics and groundwater elevation monitoring within the WDWA.	<ul style="list-style-type: none"> - The ability to generate representative data for use in updating native yield/sustainable yield, sentry MTs/MOs and various water budget elements; - Improved numerical groundwater modeling results; and, - Better forecasting and planning of adaptive management projects and management actions. 	Implemented following the approval of the Chapter Groundwater Sustainability Plan and subsequent acceptance of the groundwater Monitoring Network Plan.
2. Water Resource Coordination	Implement focused reduction demand measures, invest in efficient irrigation technologies, and coordinate groundwater resource monitoring and reporting.	<ul style="list-style-type: none"> - More reliability and flexibility in water availability; - Drought resiliency; and - Sustainable water strategies for both short- and long-term planning horizons. 	Some Water Resource Coordination Programs are already in-place and ongoing. Others will begin planning during the 5-year reassessment period after the KCS Implementation.
3. Conjunctive Reuse of Naturally Degraded Brackish Groundwater	Integrate the treatment and conjunctive use of brackish groundwater and oil field produced water for potential multiple beneficial uses.	<ul style="list-style-type: none"> - Increase drought resiliency, regional and local water self-reliance, and flexible integrated water management; - Potentially help protect, maintain and restore important ecosystems (e.g., Kern National Wildlife Refuge); - Provide a potential alternative water source for use by local disadvantaged communities; - Increase WDWA operational flexibility and regulatory efficiency; - Help mitigate the rate of subsidence through the treatment, potential banking and conjunctive reuse of surplus oilfield produced water; and, - Provide a new reliable local source of quality water derived from groundwater that is currently unsuitable for beneficial use. 	Preliminary planning for a Project Engineering feasibility study for the first phase of the project has already begun. It is expected there will be at a minimum two phases of distributed treatment facility construction.

Source: WDWA 2020

The PMAs developed for WDWA Management Area, as presented above, largely incorporate conjunctive use management, which is the combined management of surface water and groundwater resources. Conjunctive use programs have been developed to capture and transport surface water during wet years for use in recharging the local groundwater and offset use of groundwater pumping. Projects such as interties, pipelines, and recharge basins have been developed and implemented throughout the Kern Subbasin to deliver, bank, and return surface water, as well as replenish aquifers to better prepare for and manage during times of dry periods when beneficial users are more reliant on groundwater (KGA 2020).

PMA #3 was developed for the WDWA to augment the current balance of water resources with water not currently

considered usable. Sources assessed in the feasibility study include brackish groundwater and oilfield produced water. Treated water from these sources could provide a new water source for communities to improve water reliability and drought resiliency, supplement Aqueduct water used for irrigation, potentially provide surface flows to the Kern National Wildlife Refuge, and protect groundwater quality by reducing the volume of naturally degraded groundwater migrating to the adjacent groundwater management areas.

The timing and design of PMA 1 will commence following the approval of the Chapter GSP. Some programs and studies in PMAs 2 and 3 were initiated prior to the completion of the Chapter GSP. The type and timing of PMA implementation will be adjusted in response to observed conditions, as needed to facilitate the achievement of sustainability goals within the management area.

The WDWA sustainability goal for its management area of the Kern Subbasin is to eliminate the current modeled supply deficit, currently modeled using C2VSim-Kern at approximately 22,000 AFY, after adjusting for the model over estimation of brackish groundwater pumped from this Management Area. The WDWA intends to achieve this sustainability goal through the implementation of PMAs identified above in Table 4. As shown in Table 4, the current status of most PMAs varies; this is because the PMAs being implemented at any given time are subject to change depending upon observed conditions within the management area, and are adjusted as needed in response to observed conditions, to best facilitate achievement of the WDWA's sustainability goal of eliminating the supply deficit by 2040. The supply deficit was identified through the WDWA's modeling and may be updated following the implementation of PMA #1.

The modeled water budget scenarios presented in the Chapter GSP (WDWA 2020) included current and future "baseline" conditions, or conditions without any PMA implementation, as well as scenarios that included consideration to the effects of climate change, and the supply benefits associated with implementation of the PMAs. As mentioned, the Brackish Water Checkbook model is considered the most accurate for assessment of supply within the WDWA management area, because it accounts for currently unusable groundwater resources and underflow; the other modelling approaches overestimate the current and future groundwater pumping estimates, without the implementation of PMAs. Following implementation of PMAs, the high projection for 2040 is a surplus of approximately 15,000 AFY. This project includes an increase in demand from 285,000 AFY currently to 316,000 AFY due to climate change, and an increase of groundwater/oilfield production water from 3,000 AFY currently up to 34,079-68,158 AFY. The WDWA Management Area will be in sustainable conditions by 2040, through successful implementation of PMAs.

2.1.2 Water Supply Reliability

The reliability of water supply within the WDWA Management Area is dependent upon the successful implementation of PMAs, which may include any combination of the PMAs identified in Table 4, and will be selected by the WDWA based upon observed conditions within the management area, toward the sustainability goal of eliminating the supply deficit by 2040. PMA #3 will rely on technical feasibility and regulatory and public acceptance. In addition, the volume of SWP supplies delivered to the WDWA will potentially decrease under the 2030 Climate Change Scenario relative to the current water budget shown in Figure 6 and the Baseline Scenario (WDWA 2020). If the volume of SWP water declines, WDWA assumes that management actions would be taken by the WDWA and its growers to reduce demand or increase supply from alternate sources.

As discussed above in Section 2.1.1, *Groundwater Management*, through the implementation of PMAs the WDWA can achieve its sustainability goal by 2040 despite the effects of climate change and decreasing SWP water deliveries. In addition, the WDWA is an active participant in the various surface water transfer, exchange, and purchase markets in the Central Valley, and will continue working towards securing additional supply through those sources.

Based upon the anticipated benefits of conjunctive use management and successful implementation of PMAs 1 through 3, the WDWA Management Area of the Kern Subbasin can achieve a state of sustainable supply conditions by 2040. It is also anticipated that PMAs will continue to be implemented within the management area after sustainable conditions are achieved, such that the management area will continue to be characterized by sustainable supply conditions. Therefore, this management area of the Kern Subbasin is anticipated to have reliability of the available supply, including with

consideration to the effects of climate change, as well as reduced quantities of SWP water deliveries.

In addition, implementation of the proposed project would convert the existing land uses on the project site from agricultural to solar energy development, which is generally less water intensive; this land use conversion would support water supply reliability for the project, as the project site is irrigated approximately every two years to grow wheat.

The water demands to irrigate wheat depend on site-specific soil characteristics and design of the irrigation system. In general, growers typically use a minimum of 8.6 inches of water per acre in a drought year to grow wheat for grazing (UC DANR [University of California Division of Agriculture and Natural Resources] 2022). For the purposes of this WSA, it is assumed that an average of approximately 8.6 inches (0.716 foot) of water is applied to the irrigated portions of the project site every two years. Assuming that 320 acres of the site are irrigated every other year, this equates to approximately 114.7 AFY of water ($320 \text{ acres} \times 0.716 \text{ foot/acre} / 2 \text{ years} = 114.7 \text{ acre-feet}$). This is a broad estimation, which assumes water would be consistently applied to the irrigated portions of the site throughout the growing period, every other year. For comparison, the proposed project's operational water demands are conservatively estimated to be conservatively 1.73 AFY, which increases to 5.65 AFY when amortized to include the 75-AFY construction and decommissioning water demands, respectively, as detailed in Table 3. This results in a potential reduction of 109 AFY used by converting from agricultural use to solar energy development. Therefore, implementation of the proposed project could accelerate achievement of sustainable conditions in the basin, further improving water supply reliability for the project.

2.2 Water Supply Availability Conclusions

In accordance with California Water Code, as amended by SB 610, this WSA identifies and characterizes all known and potential water demands of the project, in comparison to the water supplies available to the project over a 20-year projection, with consideration to varying drought conditions and ongoing long-term supply management activities. It is assumed that water for the project would be produced from an on- or off-site groundwater well near the Kern Subbasin, and/or it would be purchased from a WDWA member water district. For the purposes of this WSA the purchased water would be sourced by the WDWA member water district from the local Kern Subbasin, either directly through pumping the water, or indirectly through a banking or exchange program.

As discussed in Section 1.9, Water Demands, and detailed in Table 3, the proposed project's amortized annual water demand is 5.65 AFY; this is the project's total maximum water demand averaged over all phases of the project, accounting for 37 years to capture one year each for construction and decommissioning or repowering, and 35 years for operation and maintenance. During a normal O&M year for the project, water demands are conservatively estimated to be approximately 1.73 AFY, although the project applicant estimates that operational demands may be as low as 0.25 AFY. Operational water demands consist of water required for washing the solar panels, and water for emergency fire suppression that would be stored on-site for use as needed.

Long-term water supply availability projections provided in the KGA Umbrella GSP and the WDWA Management Area GSP were reviewed and assessed in comparison to the anticipated water demands of the project. As discussed in Section 2.1.1, Groundwater Management, and Section 2.1.2, Water Supply Reliability, the Kern Subbasin is currently projected to be affected by overdraft conditions due to decreasing SWP water deliveries, and the anticipated effects of climate change. The PMAs identified in Table 4 are designed to improve groundwater sustainability by improving the model of groundwater use, utilizing groundwater currently considered unusable, and expanding existing conjunctive use programs. With implementation of PMAs, the projected 2070 supply deficit may be eliminated by 2040. As discussed above, the project site is occasionally irrigated for agriculture. Because the proposed project would convert the site to solar energy development, it would also reduce the amount of water currently applied to the project site, thereby facilitating achievement of sustainable groundwater conditions.

Based on the information and analysis provided herein, although the proposed project would occur while overdraft conditions are present in the Kern Subbasin, the project would not impede existing management efforts towards reaching a sustainable balance in the basin, and would actually facilitate achievement of the WDWA's sustainability goal by providing

some of the same effects on groundwater supply as would be achieved through implementation of PMAs. In addition, once the 2070 supply deficit is eliminated, which is anticipated to occur by 2040, the Kern Subbasin would be maintained in sustainable conditions through the continued implementation of PMAs. Therefore, this WSA concludes that sufficient water supply is available to meet the project's maximum potential water demands over a 35-year operational lifespan, and that water supply is reliable under normal-year, single-dry-year, and multiple-dry-year conditions, which are reflected in the WDWA's projections of the effects of climate change. Although regional water shortages may occur during the project's lifetime, such conditions are projected to occur regardless of the proposed project, and are accounted for in the KGA Umbrella GSP as well as the WDWA Management Area GSP.

2.3 Regulatory Setting

Federal

Clean Water Act

The federal Clean Water Act (CWA) is the primary surface water protection legislation throughout the country. The CWA seeks to restore and maintain the chemical, physical, and biological integrity of surface waters, and to support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." Point-source pollutant discharges and polluted runoff (nonpoint sources) into Waters of the United States (WOTUS) are addressed. The CWA establishes water quality standards and creates a framework for issuing permits, monitoring discharges, and managing polluted runoff.

The Project Site is located approximately 0.2 miles west of LHWD Canal 1, an irrigation canal, and approximately 1.35 miles southwest of the California Aqueduct. It is unlikely the project would require CWA Section 401 and 404 permits for construction, operation, or decommissioning activities (as discussed under the relevant sections below), but if needed such permits would be issued by the Central Valley Regional Water Quality Control Board (RWQCB) and/or the United States Army Corps of Engineers (USACE).

CLEAN WATER ACT SECTION 303(D)

Under Section 303(d) of the CWA, States are required to develop and update a list of water bodies under their jurisdiction which fail to meet water quality standards even after point sources of pollution have utilized the minimum levels of pollution control. These are referred to as '303(d) impaired' bodies. Jurisdictions must establish priority rankings for 303(d) impaired water bodies and develop action plans to improve water quality to minimum standards. The plans include the setting of Total Maximum Daily Loads (TMDLs) for the pollutants which are impairing the water bodies; these limits are stricter than the normal minimum standards in order to bring the impaired bodies into compliance over time.

There are no 303(d) listed bodies in the vicinity of the Project Site.

CLEAN WATER ACT SECTION 401

Under Section 401 of the CWA, the RWQCBs have regulatory authority over actions in WOTUS and/or the State of California through the issuance of water quality certifications, which are issued in conjunction with any federal permit (e.g., permits issued by the USACE under Section 404 of the CWA, described below). Section 401 of the CWA provides the SWRCB and the RWQCBs with the regulatory authority to waive, certify, or deny any proposed activity that could result in a discharge to surface waters of the State. To waive or certify an activity, these agencies must find that the proposed discharge would comply with State water quality standards, including those protecting beneficial uses and water quality. If these agencies deny the proposed activity, the federal permit cannot be issued. This water quality certification is generally required for projects requiring Section 404 authorization involving the discharge of dredged or fill material to wetlands or other WOTUS but may be required for other projects. While unlikely, any such request for certification (or waiver thereof) would need to be submitted to the Central Valley RWQCB. Water will not be discharged from the site during the

construction, operations, and decommissioning phases of the project.

CLEAN WATER ACT SECTION 402

Section 402 of the CWA regulates point-source discharges to surface waters and requires that all construction sites on an acre or greater of land, as well as municipal, industrial, and commercial facilities discharging wastewater or stormwater directly from a point source (e.g., pipe, ditch, or channel) into a surface water of the United States must obtain permission under the National Pollutant Discharge Elimination System (NPDES). All NPDES permits are written to ensure that the surface water receiving discharges will achieve specified water quality standards.

The SWRCB is the permitting authority in California and adopted an NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order 2009-0009, as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). Containment and spill cleanup are encompassed in the Storm Water Pollution Prevention Plan (SWPPP) which is required to be developed as a condition of permit issuance. Requirements for post-construction control of stormwater runoff are included under Provision C.3, which allows permitting authorities to use the permit process to enforce appropriate source control and treatment measures in new development to address operational stormwater and wastewater discharges.

CLEAN WATER ACT SECTION 404

Under Section 404 of the Clean Water Act, proposed discharges of dredged or fill material into WOTUS require USACE authorization. WOTUS generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands (with the exception of isolated wetlands). Federal regulations regarding the definition of WOTUS change with some regularity under different administrations. The Clean Water Rule was promulgated in 2015, expanding the definition of WOTUS and increasing the waters under USACE jurisdiction. In 2020 the Navigable Waters Protection Rule was issued and reversed the Clean Water Rule, removing almost 60% of previously regulated waters from federal jurisdiction. In June 2021 the United States Environmental Protection Agency (USEPA) and USACE announced a new rulemaking process to revise or reverse the Navigable Waters Protection Rule. The USACE identifies wetlands using a multi-parameter approach, which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. According to the USACE Wetlands Delineation Manual (USACE 1987), except in certain situations, all three parameters must be satisfied for an area to be considered a jurisdictional wetland.

National Flood Insurance Program

The FEMA National Flood Insurance Program (NFIP) includes a flood hazard mapping program which identifies and ranks flood hazard areas. Under this program, FEMA produces Flood Insurance Rate Maps, which delineate flood risk areas and risk levels. Special Flood Hazard Areas are defined as areas within a 100-year floodplain, which corresponds to a 1% annual chance of flooding. It also delineates areas that are in moderate flood hazard areas, defined as areas between a 0.2% and 1.0% chance of flooding annually. Special Flood Hazard Areas are further divided into Zones, which provide information on the degree of flooding within the risk area, including average depth of flooding. Kern County is a participating jurisdiction in the NFIP, and all new development must comply with the minimum requirements of the NFIP.

The project will not be developed in a flood hazard area (S2S, 2021)

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967 requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters and designates SWRCB as the state water pollution control agency under the CWA. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation

procedures. The Water Quality Control Plan, or Basin Plan, protects designated beneficial uses of State waters through the issuance of Waste Discharge Requirements, designation of water quality objectives and through the development of TMDLs under CWA Section 303(d). The Basin Plans are updated every 3 years. Anyone proposing to discharge waste that could affect the quality of the waters of the State must make a report of the waste discharge to the RWQCB or SWRCB as appropriate, in compliance with the Porter-Cologne Act.

The Water Quality Control Plan for the Central Valley Region is the Basin Plan that covers Kern County, including the project site, and is discussed under Local regulations, below.

Sustainable Groundwater Management Act

In September 2014, Governor Brown signed legislation requiring that California's critical groundwater resources be sustainably managed by local agencies. The SGMA gives local agencies the power to sustainably manage groundwater, provides for the creation of regional GSAs and requires GSP to be developed for medium- and high-priority groundwater basins. These basins or subbasins were required to adopt groundwater management plans by 2020 or 2022, depending upon whether the basin is in critical overdraft. GSAs will have until 2040 or 2042 to achieve groundwater sustainability.

The Kern Subbasin is designated a High Priority Basin by DWR due to historic levels of overdraft from agricultural use, resulting in subsidence and, in some cases, complete disconnection between groundwater and overlying surface water systems. As discussed under Section 1.2.1, Groundwater Resources, and Section 1.2.3, Water Purveyors above, the WDWA is the GSA for this portion of the Kern Subbasin and is a member agency of the KGA, which functions as the GSA for the overall Kern Subbasin. WDWA has developed a Management Area GSP under the KGA Umbrella GSP to meet the regulatory requirements of SGMA.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code, Section 10610 et seq.), which requires urban water suppliers to develop an UWMP to actively pursue the efficient use of available supplies as well as conduct drought assessments and planning. This Act also requires the provision of water service to be affordable to lower income households (Section 10631.1). Similarly, Government Code Section 65589.7 (SB 1087) requires water service providers to reserve water allocations for low-income housing. Every five years, water suppliers are required to update their UWMPs to identify short-term and long-term water demand management measures to meet growing water demands. As discussed under 2.1.1 Groundwater Management, above, there is no UWMP which accounts for the proposed project, but there are numerous water supply management plans in place for the Kern Subbasin, including the KGA Umbrella GSP.

Local

Kern County General Plan

The Kern County General Plan has a set of policies and implementation measures related to groundwater supply that would apply to the proposed project, including:

- Policy 1.3.1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6–2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.
- Policy 1.3.2: In order to minimize risk to Kern County residents and their property, new development will not be permitted in hazard areas in the absence of implementing ordinance and programs. The ordinances will establish conditions, criteria and standards for the approval of development in hazard areas.

- Implementation Measure 1.3 C: Cooperate with the Kern County Water Agency to classify lands in the County overlying groundwater according to groundwater quantity and quality limitations.
- Policy 1.10.35: Ensure that adequate water storage, treatment, and transmission facilities are constructed concurrently with planned growth.
- Policy 1.10.39: Encourage the development of the County's groundwater supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.
- Policy 1.10.41: Review development proposals to ensure adequate water is available to accommodate projected growth.
- Implementation Measure 1.10 X: Encourage effective groundwater resource management for the long-term benefit of the County through the following:
 - Promote groundwater recharge activities in various zone districts.
 - Support for the development of Urban Water Management Plans and promote Department of Water Resources grant funding for all water providers.
 - Support the development of Groundwater Management Plans
 - Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water, and groundwater and desalination
- Implementation Measure 1.10 Y: Promote efficient water use by utilizing measures such as:
 - Requiring water-conserving design and equipment in new construction
 - Encouraging water-conserving landscaping and irrigation methods
 - Encouraging the retrofitting of existing development with water conserving devices

RWQCB Water Quality Control Plan for the Tulare Lake Region

The Tulare Lake Basin Plan for the Central Valley RWQCB includes Chapter 3.2, Water Quality Objectives for Ground Waters, which outlines protective measures for groundwater within the Tulare Lake Region outlines policies and regulations for groundwater basin water quality and management within the RWQCB jurisdiction. This Chapter outlines the levels of regulatory control over groundwater supply and recharge from the RWQCB, other State agencies including SWRCB and DWR, and the USEPA, Federal Energy Regulatory Commission, and Bureau of Land Management.

Kern County Water Quality Control Plan

Under the Basin Plan, the Kern County Engineering and Survey Services Department requires the completion of an NPDES applicability form for all projects that disturb one or more acres within Kern County, even though many of the waters within Kern County are not technically subject to federal regulations as they are closed systems that never contact oceans or other WOTUS bodies. The Basin Plan also requires that projects not otherwise subject to SB 610/SB 221 are still required to provide a water supply assessment similar to that required by SB 610/SB 221.

Kern County Water Well Permitting

The Kern County Public Health Services Department requires the submittal of an application to construct, reconstruct/modify, deepen, or destroy any water wells within the County's jurisdiction. The application requires the disclosure of details including but not limited to the well's location, depth, diameter, sealing material, as well as the depth to groundwater at that location. A water sample must also be taken at the proposed well location. No work related to water well construction may occur prior to approval from the Department, and approval of water quality and final construction features is required before the water well is put to use.

3. Environmental Analysis

The following analysis is provided to support environmental documentation pursuant to CEQA. The conclusions of the CEQA analysis provided in this section are summarized in Table 5.

3.1 Methodology

This section analyzes impacts on groundwater supplies and recharge and applicable groundwater management plans from implementation of the proposed project. Analysis is informed by Appendix G of the CEQA Guidelines and is based on review of available information on local and regional water supply and management, groundwater management plans and projections, and projected future supply and demand scenarios as determined by the applicable agencies and as described throughout this water supply assessment. Supply calculations used in this analysis encompassed all phases of project lifespan, including construction, operation, and projected decommission and were based upon available information about the project requirements and industry-standard assumptions regarding water use for similar projects. Potential significant impacts were evaluated based on review of this data and consideration of changes that may result from implementation of the project in comparison to existing and projected conditions.

3.2 Significance Criteria

According to Appendix G of the CEQA Guidelines, a water supply-related impact would be considered potentially significant if the project would result in one of the following conditions:

- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

The significance thresholds listed above are two of the five thresholds identified in Section IX, Hydrology and Water Quality, of Appendix G to the CEQA Guidelines. The three significance thresholds from Section IX that are not addressed herein are applicable to hydrology and water quality, and are therefore addressed separately in the project Hydrology Report (S2S 2021).

3.3 CEQA Checklist

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the potential significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines (2019), the “Environmental Checklist Form”. The Environmental Checklist Form is a screening tool used to determine whether an effect may be significant.

Table 5: Summary of Impacts

Impact Statement	Proposed Project's Level of Significance	Applicable Mitigation Measures
Hydrology and Water Quality		
Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than significant impact	none
Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than significant impact	none

A draft California Environmental Quality Act Initial Study Checklist for these two Water Quality Impact Statements has been included in Appendix A for reference and does not equate to final findings of a CEQA environmental document.

4. References

- DWR (California Department of Water Resources). 2013. California Water Plan 2013: Tulare Lake Hydrologic Region Report. Available: file:///C:/Users/amescher/Downloads/CWP-Update-2013-Tulare-Lake-Hydrologic-Region.pdf. Accessed February 11, 2022.
- DWR (California Department of Water Resources). 2006. California's Groundwater Bulletin 118 – Tulare Lake Hydrologic Region, San Joaquin Valley Groundwater Basin, Kern County Subbasin. Available: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/5_022_14_KernCountySubbasin.pdf. Accessed February 10, 2022.
- California Department of Conservation Farmland Mapping & Monitoring Program (FMMP). 2018. California Department of Conservation's Important Farmland Map. Available: <https://www.conservation.ca.gov/dlrp/fmmp>. Accessed February 2022.
- KCWA (Kern County Water Agency). 2021. Kern County Water Agency website: Agency Functions. Available: <https://www.kcwa.com/agencyfunction/>. Accessed August 19, 2021.
- KGA (Kern Groundwater Authority). 2020. Final Groundwater Sustainability Plan. January. Available: http://www.kerngwa.com/assets/kga-umbrella-gsp_final.pdf. Accessed February 2022.
- Surf to Snow Environmental Resource Management (S2S). 2021. Hydrology and Water Quality Study. September. Accessed February 2022.
- UC DANR (University of California Division of Agriculture and Natural Resources). 2022. Irrigation for wheat and other small grains in a drought year. Available: <https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=47628>. Accessed February 14, 2022.
- United States Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Available: <https://www.lrh.usace.army.mil/Portals/38/docs/USACE%2087%20Wetland%20Delineation%20Manual.pdf>. Accessed: February 2022.
- WAKC (Water Association of Kern County). 2021. Agricultural Water Use. Available: www.kernag.com. Accessed August 27, 2021.
- Westside District Water Authority (WDWA). 2020. Chapter Groundwater Sustainability Plan. January. Available: https://www.westsidedwa.org/wp-content/uploads/2020/01/Westside-District-Water-Authority-Management-Area-Plan_1.pdf. Accessed February 10, 2022.

Appendix A

CEQA Initial Study Checklist

CEQA Initial Study Checklist

Water Supply Assessment

The following information is provided to support the preparation of the Environmental Impact Report (EIR) for the Azalea Solar Project, based on information assessed in the Water Supply Assessment (WSA). This information is also prepared assuming the project would obtain water from an on- or off-site groundwater well in the Kern Subbasin, and/or it would be purchased from a Westside Water District Water Authority (WDWA) member water district. This has been prepared solely for the purpose of informing the user. Accordingly, Discussion provided is only to provide guidance, and should not be relied upon without further assessment. An independent evaluation is recommended based on the planned Azalea Solar Project.

III. HYDROLOGY AND WATER QUALITY				
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

PROJECT IMPACTS

IMPACT IIIA: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

THE PROJECT WOULD INTRODUCE A NEW WATER DEMAND THAT WOULD BE MET USING LOCAL WATER RESOURCES; HOWEVER, THE PROJECT WOULD ALSO DECREASE EXISTING WATER DEMANDS ON THE PROJECT SITE BY CONVERTING THE LAND USE FROM IRRIGATED AGRICULTURE TO SOLAR ENERGY PRODUCTION. THE PROJECT WOULD ALSO INTRODUCE IMPERVIOUS SURFACES IN THE FORM OF THE SOLAR PANELS AND SUPPORT FACILITIES; HOWEVER, NATURAL GROUND COVER WOULD BE MAINTAINED AS MUCH AS POSSIBLE, AND THE PROJECT WOULD NOT INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE. PROJECT DECOMMISSIONING WILL REVERT THE SITE TO ITS PREVIOUS CONDITION BY REMOVING ALL INSTALLED IMPERVIOUS SURFACES. THEREFORE, THE PROJECT WOULD NOT IMPEDE SUSTAINABLE GROUNDWATER MANAGEMENT OF THE BASIN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As detailed under Section 2.1 and 2.2 in the WSA, the current use of the project site is agricultural and utilizes local water for its water needs. Implementation of the proposed project would convert use of the project site from water-intensive agriculture to solar energy production with an estimated amortized demand of 5.65 AFY. The net use of local water resources at the project site would be reduced from implementation of the project.

Recharge to the Kern Subbasin occurs primarily via infiltration through the surface including through use of imported recharge water and is highly managed by local and regional agencies including the WDWA and the KCWA. Implementation of the proposed project would increase the amount of impermeable surface area in the form of solar panels positioned over the ground surface. However, precipitation would runoff the solar panels to the ground surface, and runoff from the project site overall would be managed through use of on-site stormwater retention basins that allow for the captured stormwater to infiltrate to the groundwater and net decrease of infiltration would be minimal.

At the end of the solar facility's lifecycle, the facility will be decommissioned. Decommissioning of the facility would revert the site to undeveloped land that supports agricultural production and wildlife habitat. Decommissioning and restoration involves removing aboveground and belowground structures, restoring topsoil, revegetation, and

seeding.

Therefore, because the proposed project would reduce existing water demands on the site, and because potential impacts associated with changes to impermeable surfaces would be mitigated to avoid adverse impacts to infiltration and recharge, potential impacts to groundwater supply would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance

Impacts would be less than significant for the solar facility and no mitigation is required for the project.

IMPACT III B: Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The topic of water quality is addressed in the Hydrology Technical Report, prepared by Surf to Snow Environmental Resource Management, Inc in 2021; the impact analysis provided below therefore does not include analysis of water quality, including as related to water quality control plans in the project area.

THE PROJECT WOULD CONVERT LAND USES ON THE SITE FROM ACTIVE AGRICULTURE CONSISTING OF IRRIGATED CROPS TO SOLAR ENERGY PRODUCTION, WHICH IS CONSISTENT WITH THE MANAGEMENT DIRECTION OF THE KERN GROUNDWATER AUTHORITY'S UMBRELLA GROUNDWATER SUSTAINABILITY PLAN FOR THE KERN SUBBASIN OF THE SAN JOAQUIN VALLEY GROUNDWATER BASIN AND THE WESTSIDE DISTRICT WATER AUTHORITY (WDWA) CHAPTER GROUNDWATER SUSTAINABILITY PLAN (GSP) FOR THE WDWA MANAGEMENT AREA, ADJACENT TO WHERE THE PROJECT IS LOCATED. THEREFORE, THE PROJECT WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF A SUSTAINABLE GROUNDWATER MANAGEMENT PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As detailed in Section 2.2, Water Supply Availability Conclusions above, the KGA's Umbrella GSP is the sustainable groundwater management plan that covers the Kern Subbasin. Additionally, the WDWA GSP covers the management area within the Kern Subbasin adjacent to the Project location. Water for the proposed project would most likely be obtained from an on- or off-site groundwater well in the Kern Subbasin, and/or it would be purchased from a WDWA member water district and imported to the site. Either source would likely rely on Kern Subbasin groundwater, which is managed through the Umbrella GSP and the WDWA Chapter GSP, and thus utilization of local groundwater resources would be required to comply with both GSPs and would not conflict with them.

The Kern Subbasin is currently projected to reach overdraft conditions by 2070 due to decreased SWP deliveries and the effects of climate change. Implementation of the PMAs described in Section 2.1.1 are expected to reduce or eliminate the overdraft conditions. Supply projections used to arrive at the 2070 projected overdraft date included use of the project site as agriculture. Implementation of the proposed project would be consistent with PMAs identified to manage the basin sustainably. The proposed project would facilitate implementation of the groundwater sustainability plan by eliminating an estimated 109 Acre-feet per year of water used for site agriculture and would not obstruct or conflict with the plan. Potential impacts associated with conflicting with a local groundwater management plan would be less than significant.

Mitigation Measures

No mitigation is required.

Level of Significance

Impacts would be less than significant for the solar facility and no mitigation is required for the project.

Appendix B

DWR Guidebook for Implementation
of Senate Bill 610

Appendix B

The Water Supply Assessment (WSA) for the proposed Azalea Solar Project (“project”) was prepared using guidance contained in the California Department of Water Resources’ (DWR) Guidebook for Implementation of Senate Bill (SB) 610 and SB 221 of 2001 (DWR Guidebook). The California DWR prepared the Guidebook to assist water suppliers in preparation of the water assessments and the written verification of water supply availability required by SB 610 and SB 221; the DWR has no regulatory or permitting approval authority concerning water assessments or verifications of sufficient water supply, and provides the Guidebook purely as an assistance tool. The following table provides a detailed description of how the DWR Guidebook was used in preparing the project’s WSA.

Table B-1: Azalea Solar Project WSA – Consistency with DWR Guidelines

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
Section 1 (page 2). Does SB 610 or SB 221 apply to the proposed development?	Is the Project subject to SB 610?	WSA Section 3.0
	Is the Project subject to CEQA (Water Code §10910(a))? If yes, continue.	Yes, the project subject to CEQA.
	Is it a “project” as defined by Water Code §10912(a) or (b)? If yes, to comply with SB 610 go to Section 2, page 4.	WSA Section 2.0 Yes, the project is considered to meet the definition of “project” per Water Code §10912(a) or (b).
	Is the project subject to SB 221? Does the tentative map include a “subdivision” as defined by Government Code §66473.7(a)(1)? If no, stop.	No, the project does not include a “subdivision;” SB 221 does not apply to the project, and no further action relevant to SB 221 is required.
Section 2 (page 4). Who will prepare the SB 610 analysis?	Is there a public water system (“water supplier”) for the project (Water Code §10910(b))? If no, go to Section 3, page 6.	WSA Section 2.0 No, there is no public water system for the project.
Section 3 (page 6). Has an assessment already been prepared that includes this project?	Has this project already been the subject of an assessment (Water Code §10910(h))? If no, go to Section 4, page 8.	No, the project has not been the subject of an assessment.
Section 4 (page 8). Is there a current Urban Water Management Plan?	Is there an adopted urban water management plan (UWMP) (Water Code §10910(c))? If yes, continue. If yes, information from the UWMP related to the proposed water demand for the project may also be used for carrying out Section 5, Steps 1 and 2, and Section 7; proceed to Section 5, page 10 of the Guidelines.	WSA Section 2.0 There is not an UWMP that accounts for the proposed project. However, there are multiple groundwater management plans that were assessed for this WSA, including the Kern Groundwater Authority (KGA)’s Umbrella Groundwater Sustainability Plan (GSP) for the Kern Subbasin, and Westside District Water Authority (WDWA) Management Area GSP, which addresses groundwater management in the portion of the Kern Subbasin within the WDWA service area.
Section 5 (page 10). What information should be included in an assessment?	Step One (page 13). Documenting wholesale water supplies.	Kern County Water Agency (KCWA) is the local SWP water wholesaler that distributes imported SWP water to the project area.
	Step Two (page 17). Documenting Supply if Groundwater is a Source	The project’s water demands may be met with groundwater supplies from the Kern Subbasin of the San Joaquin Valley Groundwater Basin.
	Specify if a groundwater management plan or any other specific authorization for groundwater management for the basin has been adopted and how it affects the water supplier’s use of the basin.	WSA Section 2.0. There is an Integrated Regional Water Management Plan (IRWMP) and a Groundwater Management Plan (GWMP) for the project area that assessed conditions in the Kern Subbasin and were used to inform the WSA.
	The description of the groundwater basin may be excerpted from the groundwater management plan from DWR Bulletin 118, California’s Ground Water, or from some other document that has been published and that discusses the basin boundaries, type of rock that constitutes the aquifer, variability of the aquifer material, and total groundwater in storage (average specific	WSA Sections 1.8.1 and 2.1.1 provide descriptions of the groundwater basin characteristics using available resources, including DWR Bulletin 118.

Appendix B

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	yield times the volume of the aquifer).	
	In an adjudicated basin the amount of water the urban supplier has the legal right to pump should be enumerated in the court decision.	The project is not located in an adjudicated groundwater basin.
	The Department of Water Resources has projected estimates of overdraft, or "water shortage," based on projected amounts of water supply and demand (basin management), at the hydrologic region level in Bulletin 160, California Water Plan Update. Estimates at the basin or subbasin level will be projected for some basins in Bulletin 118. If the basin has not been evaluated by DWR, data that indicate groundwater level trends over a period of time should be collected and evaluated.	The WDWA Management Area GSP discusses groundwater level trends.
	If the evaluation indicates an overdraft due to existing groundwater extraction, or projected increases in groundwater extraction, describe actions and/or program designed to eliminate the long-term overdraft condition.	Management agencies in the Kern Subbasin, including the WDWA, project a water supply deficit in the Kern Subbasin in 2070, which is largely associated with decreasing deliveries of imported SWP water, as well as the effects of climate change. Projects and management actions (PMAs) to address and eliminate this projected deficit have been developed and are being implemented, towards the sustainability goal of eliminating the projected 2070 deficit by 2040. These conditions would occur regardless of the project. In addition, the project would reduce existing water demands on the project site, thereby facilitating attainment of the sustainability goal (eliminate the projected 2070 deficit by 2040).
	If water supplier wells are plotted on a map, or are available from a geographic information system, the amount of water extracted by the water supplier for the past five years can be obtained from the Department of Health Services, Office of Drinking Water and Environmental Management	Water pumping for the project would not initiate until the onset of construction activities.
	Description and analysis of the amount and location of groundwater pumped by the water supplier for the past five years. Include information on proposed pumping locations and quantities. The description and analysis is to be based on information that is reasonably available, including, but not limited to, historic use records from DWR.	The WDWA Management Area GSP addresses available historical groundwater pumping data.
	Analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the water supplier.	WSA Sections 1.8.1. and 2.1.1 discuss location, amount, and sufficiency of groundwater supplies from the Kern Subbasin.
	Step 3 (page 21). Documenting project demand (Project Demand Analysis)	WSA Section 1.9. Construction of the project would require up to approximately 75 acre-feet of water. Operational water demands, which include water used for fire suppression, solar PV panel washing and concentrate, and operation of the proposed O&M building, would total approximately 1.73 AFY.
	Step 4 (page 26). Documenting dry year(s) supply.	WSA Section 2.1.2 discusses water supply reliability scenarios.
	Step 5 (page 31). Documenting dry year(s)	WSA Section 2.1.2 discusses water supply reliability

Appendix B

Guidelines Section Number and Title (DWR, 2003)	Guidelines Direction	Relevant WSA Section and Response
	demand.	scenarios.
Section 6 (page 33). Is the projected water supply sufficient or insufficient for the proposed project?		WSA Section 2.1.2 summarizes why the identified water supply/supplies are considered sufficient for the project.
Section 7 (page 35). If the projected supply is determined to be insufficient	Does the assessment conclude that supply is “sufficient”? If no, continue.	WSA Section 3. It is reasonably anticipated that sufficient water supplies are available for the project
Section 8 (page 38). Final SB 610 assessment actions by lead agencies.	The lead agency shall review the WSA and must decide whether additional water supply information is needed for its consideration of the proposed project. The lead agency “shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.”	The WSA for the project will be included as part of the EIR for the project. Per SB 610, the lead agency will approve or disapprove a project based on a number of factors, including but not limited to the water supply assessment.

This Page Intentionally Left Blank

Appendix L

Noise Study

Azalea Solar Project Noise Study

Kern County

APN 043-210-16

APN 043-210-17

APN 043-210-18

APN 043-210-27

APN 043-210-28

APN 043-220-01

APN 043-220-21

APN 043-220-22

Kings County

APN 048-350-017

APN 048-350-020

Lost Hills, California 93249

Prepared for:

SF Azalea, LLC

50 California Street, Suite 820

San Francisco, California 94111

September 2021 (Updated January 2022)



S2S Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583
www.s2serm.com

TABLE OF CONTENTS

1 – INTRODUCTION.....	1
1.1 Project Description.....	1
1.2 Fundamentals of Acoustics	1
2 – ENVIRONMENTAL SETTING	5
2.1 Local Setting.....	5
2.2 Existing ambient sound levels.....	6
3 – ENVIRONMENTAL ANALYSIS	7
3.1 Significance Criteria.....	7
3.2 Noise Analysis	7
3.3 Cumulative Effects	13
4 – REFERENCES.....	14

LIST OF FIGURES

- 1 Vicinity Map
- 2 Project Location Map
- 3 Noise Contours

LIST OF TABLES

- 1 Definitions of Acoustical Terms
- 2 Typical Sound Levels Measured in the Environment and Industry
- 3 Construction Equipment and Composite Site Noise Levels
- 4 Average Construction Noise Levels at Various Distances
- 5 Vibration Source Amplitudes for Construction Equipment
- 6 Human Reactions and Effects on Buildings from Continuous or Frequent Intermittent Vibration Levels

LIST OF APPENDICES

- A. Sample CEQA Checklist

List of Abbreviations and Acronyms

BMP	Best Management Practice
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
dB	decibels
dBA	decibels A-weighted
EPA	United States Environmental Protection Agency
Gen-Tie	Generator tie line
Hz	Hertz
ISO	International Organization for Standardization
kV	kilovolt
L _{dn} or DNL	Day-Night Noise Level
L _{eq}	equivalent noise level
Ln	Percentile level
MW	Megawatt
PG&E	Pacific, Gas, & Electric Company
PV	Photovoltaic
S2S	Surf to Snow Environmental Resource Management

1 – INTRODUCTION

SF Azalea, LLC (SF Azalea) contracted with Surf to Snow Environmental Resource Management (S2S) to prepare this Noise Study of the following parcels located in Lost Hills, California (herein referred to as “Site”): APNs 043-210-16, -17, -18, -27, -28; 043-220-01, -21, and -22. Also included in this scope are the project access roads currently located at APNs 048-350-017 and 048-350-020.

SF Azalea is proposing to construct the Azalea Solar Array Project (Project), a renewable energy project that will produce electric power using solar photovoltaic (PV) modules on approximately 340 acres of originally undeveloped rangeland in rural northwestern Kern County (County). Project sources of noise will include trucks and other construction vehicles during construction, and noises emitted from the inverters and substation transformers during operation. This study assesses the potential effects of noise on sensitive receptors and in relation to Kern County ordinances related to noise.

1.1 PROJECT DESCRIPTION

The Azalea Solar Project is located on an approximately 640-acre site located in northwestern Kern County located approximately 6 miles east of Highway 33, 5 miles west of Interstate 5, and 4 miles north of the intersections of King Rd and Twisselman Rd, in Lost Hills, California (Figure 1). The Site is located in an agricultural area in Northwest Kern County and consists of a 1-square mile parcel of land with relatively flat to gently sloping open grassland that is currently used for cattle grazing and periodic irrigated wheat farming. The Site is bordered to the north and west by vacant parcels used for dry farming and grazing, and to the South and East by parcels used for agriculture (Figs, Pistachios, and Almonds). The Project location is shown on the Project Location Map (Figure 2). The project area is sparsely populated and the nearest incorporated community to the project site is Lost Hills, CA, located approximately 18 miles to the South. The nearest existing occupied residence is about 0.67 miles to the east and a small cluster of homes is located approximately 1.16 miles south.

The Project is proposed as a solar photovoltaic energy generation facility, consisting of single-axis tracking solar photovoltaic panel arrays capable of producing up to 60 megawatts (MW) of electricity with batteries for energy storage. The energy storage equipment will be located on a 5-acre portion of the project site to provide energy storage. The project electrically interconnects with the regional grid via an 0.7-mile-long generator tie-line (Gen-Tie) to an existing Pacific Gas & Electric (PG&E) substation.

The temporary construction phase would include construction of access roads, laydown/staging areas and running water and bathroom facilities. Project construction is expected to begin in 2022 and last for 12 months, including construction activities such as site preparation, grading and earthwork, concrete foundation construction, structural steel work, electrical work, Gen-Tie installation, and architectural and landscaping work. Project operations are expected to commence by the end of 2022, with final closeout items completed in 2023.

1.2 FUNDAMENTALS OF ACOUSTICS

Acoustics is the study of sound, and noise is defined as unwanted sound. Airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure creating a sound wave. Acoustical terms used in this report are summarized in Table 1.

The most common metric is the overall A-weighted sound level measurement that has been adopted by regulatory bodies worldwide. The A-weighting network measures sound similar to the way in which a person perceives or hears sound. There is consensus that A-weighting is appropriate for estimation of the hazard of noise-induced hearing loss. With respect to other effects, such as annoyance, A-weighting is acceptable if there is largely middle and high frequency noise present, but if the noise is unusually

high at low frequencies, or contains prominent low-frequency tones, the A-weighting may not give the most appropriate measure. Compared with other noise sources, solar and battery storage facilities are not typically substantial sources of unusual low-frequency noise and are broad band or do not generate strong low-frequency tones. Therefore, A-weighting provides the most appropriate measure for evaluating acceptable and unacceptable sound levels for projects such as this Project.

Table 1. Definitions of Acoustical Terms

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise or sound at a given location. The ambient level is typically defined by the energy averaged equivalent noise level (L_{eq}).
Background Noise Level	The underlying ever-present lower-level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as traffic, typically make up the background. The background level is generally defined by the L90 percentile noise level.
Intrusive	Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal content, the prevailing ambient noise level as well as the sensitivity of the receiver. The intrusive level is generally defined by the L10 percentile noise level.
Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Hertz is a measure of the pitch of the sound. Middle C of a piano has a frequency of 262 Hz while the lowest C on an 88 key piano has a frequency of 33 Hz and the highest C has a frequency of 4186 Hz.
Pure Tone	A pure tone as used by the California Energy Commission (CEC) exists if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the two contiguous bands by 5 decibels (dB) for center frequencies of 500 Hz and above, or by 8 dB for center frequencies between 160 Hz and 400 Hz, or by 15 dB for center frequencies less than or equal to 125 Hz.
Sound Pressure Level Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
A-Weighted Sound Pressure Level (dBA)	The sound level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear. All sound levels in this report are A-weighted unless stated otherwise.
Equivalent Sound Level (L_{eq})	The average sound level, on an equal energy basis, during the measurement period.
Percentile Level (L_n)	The sound level exceeded during “n” percent of the measurement period, where “n” is a number between 0 and 100 (for example, L90)
Day-Night Noise Level (L_{dn} or DNL)	The energy averaged A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels penalty for the hours between 10:00 p.m. to 7:00 a.m.

A-weighted sound levels are typically measured or presented as equivalent noise level (L_{eq}), which is defined as the average noise level, on an equal energy basis for a stated period of time and is commonly used to measure steady-state sound or noise that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_n , where “n” represents the percentile of time the sound level is exceeded. The L90 is a measurement that represents the noise level that is exceeded during 90 percent of the measurement

period. Similarly, the L10 represents the noise level exceeded for 10 percent of the measurement period.

Some metrics used in determining the impact of environmental noise consider the differences in response that people have to daytime and nighttime noise levels. During the nighttime, exterior background noises are generally lower than those of daytime levels. However, most household noise also decreases at night and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to nighttime noise levels, the day-night sound level (L_{dn} or DNL) was developed. L_{dn} is a noise index that accounts for the greater annoyance of noise during the nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a 24-hour period and applying a weighting factor to nighttime L_{eq} values. The weighting factor, which reflects the increased sensitivity to noise during nighttime hours, is added to each hourly L_{eq} sound level before the 24-hour L_{dn} is calculated. For the purposes of assessing noise, the 24-hour day is divided into two time periods, with the following weightings:

- Daytime: 7:00 a.m. to 10:00 p.m. (15 hours) weighting factor of 0 decibels (dB).
- Nighttime: 10:00 p.m. to 7:00 a.m. (9 hours) weighting factor of 10 dB.

The two time periods are then averaged to compute the overall L_{dn} value. For a continuous noise source, the L_{dn} value is easily computed by adding 6.4 dB to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from the power plant was 60.0 decibels (A-weighted scale) (dBA), the resulting L_{dn} from the plant would be 66.4 dBA.

The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and,
- Physiological effects such as startling and hearing loss.

In most cases, environmental noise produces effects in the first two categories only. However, workers in industrial plants may experience noise effects in the third category. No completely satisfactory way exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard results from the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparing 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.

Table 2 shows the relative A-weighted noise levels of common sounds measured in the environment and in industry for various sound levels.

Table 2. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	A-Weighted Sound Level (db)	Noise Environments	Subjective Impression
Shotgun (at shooter's ear)	140	Carrier flight deck	Painfully loud
Civil defense siren (at 100 feet)	130		
Jet takeoff (at 200 feet)	120		Threshold of pain
Loud rock music	110	Rock music concert	
Pile driver (at 50 feet)	100		Very loud
Ambulance siren (at 100 feet)	90	Boiler room	
Pneumatic drill (at 50 feet)	80	Noisy restaurant	
Busy traffic; hair dryer	70		Moderately loud
Normal conversation (at 5 feet)	60	Data processing center	
Light traffic (at 100 feet); rainfall	50	Private business office	
Bird calls (distant)	40	Average living room, library	Quiet
Soft whisper (at 5 feet); rustling leaves	30	Quiet bedroom	
	20	Recording studio	
Normal breathing	10		Threshold of hearing

Source: Beranek, 1998.

2 – ENVIRONMENTAL SETTING

2.1 LOCAL SETTING

The Project site has a General Plan Land Use Designation of Extensive Agriculture (8.3) for all parcels¹. All five parcels belong to the Exclusive Agriculture (A) zoning district. The Azalea Solar site and the surrounding vicinity are home to numerous existing agricultural and industrial operations such as the neighboring nut farms and oil well operations.

The Project encompasses existing agricultural land (see Figure 2). The nearest residence or other sensitive receptor is located approximately 0.67 miles from the northeast corner of the project site.

2.1.1 Kern County General Plan

The Kern County General Plan (2009) Noise Element establishes goals, objectives and policies that address noise issues within the County's jurisdiction. The noise element recommends the following goals and policies for industrial related activities in the County:

- 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.
- Policy 1. Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.
- Policy 2. Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health.
- 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.
- 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- L_{dn} or less in outdoor activity areas.
 - (b) 45 dB- L_{dn} or less within living spaces or other noise sensitive interior spaces.
- Policy 7. Employ the best available methods of noise control.

2.1.2 Kern County Noise Municipal Code

Kern County has adopted a Municipal Code (Chapter 8.36 and Section 19), which established noise standards for the various land use districts. While the distance between the project and closest residence, at 0.67 miles, is substantially greater than that referenced in the code (500 feet), it is included below for completeness:

Title 19 Kern County Zoning Ordinance

Section 19.04.252 of the Kern County Zoning Ordinance defines exterior noise level as “the noise level as measured near the exterior of a structure usually within fifty (50) feet of the structure.” Chapter 19.80, Special Development Standards, Section 19.80.030.S (1) restricts non-mobile sources of noise produced by commercial or industrial uses (except those located within the M-3 district) located within 500 feet of

¹ Source: Kern County GIS - <https://maps.kerncounty.com/H5/index.html?viewer=KCPublic>

a residential use or residential zone district. Section 19.80.030.S (1) provides that such uses shall not generate noise that exceeds an average 65 dB L_{dn} between the hours of 7:00 a.m. and 10:00 p.m., and shall not generate noise that exceeds 65 dB, or which would result in an increase of 5 dB or more from ambient sound levels, whichever is greater, between the hours of 10:00 p.m. and 7:00 a.m.

Title 8 Kern County Health and Safety Ordinance

Chapter 8.36 Noise Control

The Noise Control Ordinance in the Kern County Ordinance (Section 8.36.020 et seq.) regulates construction-related noise by means of a limitation on the hours of construction activity for projects located within 1,000 feet of an occupied residential dwelling. In such cases, construction is prohibited between the hours of 9 PM and 6 AM on weekdays and 9 PM and 8 AM 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 from this section.

2.2 EXISTING AMBIENT SOUND LEVELS

Existing ambient sound levels in the Project area are typical of rural environments, where background noise levels typically range between 35 and 45 dBA L_{dn} .² At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week. The variation is caused for different reasons, for example, changing weather conditions, the effects of seasonal vegetative cover, and human activities.

² United States Department of State, September Environmental Impact Statement for the Keystone Oil Pipeline Project, 2007.

3 – ENVIRONMENTAL ANALYSIS

Noise will be produced during the construction and operation of the Azalea Solar Project. Potential noise impacts from Azalea Solar construction, and operation activities are assessed in this report.

3.1 SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) is a screening tool, not a method for setting thresholds of significance. Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to determine whether a project requires an Environmental Impact Report, a Mitigated Negative Declaration or a Negative Declaration. As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects but does not provide a means of judging whether they are indeed significant in a given set of circumstances." The answers to the Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Appendix G are instructive.

In terms of potential noise impacts, Appendix G, asks, in part, whether the project would:

- Generate excessive groundborne vibration or groundborne noise levels?
- Generate a substantial permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies?
- Generate a substantial temporary or periodic increase in ambient noise levels in the project vicinity in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies?

A draft California Environmental Quality Act Initial Study Checklist for Noise, addressing these questions for the project, has been included in Appendix A.

Noise from the project is evaluated against Kern County's requirements. The County has established quantitative guidelines for determining appropriate noise levels for various land uses in the Noise Element of its General Plan and in its noise ordinance.

3.2 NOISE ANALYSIS

3.2.1 Construction Impacts

3.2.1.1 Project Construction Noise

Construction activities at the Azalea Solar Project site are expected to be typical of other solar power facilities in terms equipment used and other types of activities performed. There are no demolition activities associated with the construction of the Project. Construction activities at the project site are anticipated to last 12 months, approximately 2022 to 2023.

The noise level will vary during the construction period, depending on the activities being performed. Construction of solar power plants can be divided into five phases that use different types of construction equipment. The five phases are demolition (not applicable for this project), site preparation, and excavation; concrete pouring; steel erection; mechanical; and clean-up (Miller et al., 1978). In addition to onsite construction-related activities, additional sources of noise include the transport of materials to and from the site, and construction worker traffic during commute hours. Vehicles traveling on public roads are regulated by a number of state and local agencies.

There are no conclusive impacts during construction requiring mitigations for CEQA compliance, however S2S recommends best management practices (BMPs) that will limit offsite noise impacts by ensuring that vehicles are appropriately muffled and that noisy activities at construction parking areas (loud stereos or conversations) are limited. Examples of BMPs that may be implemented include:

- Give preference to the use quieter technology or other mitigation measures rather than lengthening construction duration.
- Train workers and contractors to use equipment in ways that minimize noise.
- Ensure that site managers periodically check the site, nearby residences and other sensitive receptors for noise problems so that solutions can be quickly applied.
- Avoid the use of radios and stereos outdoors and the overuse of public address systems where neighbors can be affected.
- Avoid shouting and minimize talking loudly and slamming vehicle doors.
- Keep truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours and other relevant practices.

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control, and the Empire State Electric Energy Research Company have extensively studied noise from individual pieces of construction equipment and power plant construction (EPA, 1971; Barnes et al., 1976). Given the dynamic nature of construction activities and because specific information on the types, quantities, and operating schedules of construction equipment is not available at this point in the project development, information from these documents for larger more complex power facilities are used to estimate noise from construction.

The loudest equipment types generally operating at a site during each phase of construction are presented in Table 3. The composite average or equivalent site noise level, representing the average sound level for each phase is also presented in Table 3. Due to the logarithmic nature of the decibel scale, composite averages for different noise sources are calculated as a logarithmic average of the two loudest sources. At times, actual sound levels may exceed the long-term average sound levels as precise estimates of construction noise levels are challenging to make given the dynamic nature of construction activities.

Table 3. Construction Equipment and Composite Site Noise Levels

Construction Phase	Loudest Construction Equipment	Equipment Noise Level (dBA) at 50 feet	Composite Site Noise Level (dBA) at 50 feet
Demolition, Site Clearing, and Excavation	Dump Truck Backhoe	91 85	92
Concrete Pouring	Concrete Mixer	85	85
Steel Erection	Pile Driver (Impact) Derrick Crane Jack Hammer	101 88 88	101
Mechanical	Derrick Crane Pneumatic Tools	88 86	90

Source: EPA, 1971; Barnes et al., 1976.

Notes:

Composite noise level calculated using the following equation for the two loudest sources of noise:

$$Leq (composite) = 10 * \log_{10} \left(\sum_{i=1}^n 10^{\frac{L_i}{10}} \right)$$

To estimate the construction noise levels at a specific distance, the following equation³ was used:

$$L_{max} = \text{Construction } L_{max} \text{ at 50 feet} - 20 * \log(D/D_o) - \text{sound shielding}$$

Where L_{max} = highest A-weighted sound level occurring during a noise event during the time that noise is being measured.

At 50 feet = the reference measurement distance (standard is 50 feet)

D = the distance from the noise source

D_o = the reference measurement distance

This equation provides a conservative estimate of the construction noise levels based on level terrain. Noise volumes at the Azalea Solar Project site will likely be dampened by the terrain as well as surface features (e.g., orchards) between the site and the nearest receptors. Table 4 shows the estimated average unshielded construction noise levels at various distances.

Table 4. Average Construction Noise Levels at Various Distances

Construction Phase	Noise Level (dBA)			
	At 500 feet	At 1,500 feet	At 3,000 feet	At 3,540 feet ¹
Demolition, Site Clearing, and Excavation	72	62	56	55
Concrete Pouring	65	55	49	48
Steel Erection	81	71	65	64
Mechanical	70	60	54	53

¹ Approximate distance of the nearest receptor to the project property line. Actual location of construction noise sources likely to be an additional 500 feet away from the nearest receptor, based on final design.

As shown in Table 4, the estimated maximum noise level during construction is 64 dBA, from an intermittent source of noise (impact pile driver). This is less than the Kern County Noise Ordinance standard of 65 dBA exterior (L_{dn}). The construction phase of the project would therefore not result in any significant noise impacts and would not violate County noise ordinances or standards.

While the distance to the closest existing residence exceeds 0.67 miles (3,540 feet), and the maximum anticipated construction noise is less than the Kern County Noise Ordinance, BMPs for noise reduction are recommended to minimize potential construction noise effects. For example, haul trucks and other engine-powered equipment will be required to be equipped with adequate mufflers and operated in accordance with posted speed limits, and truck engine exhaust brake use will be limited to emergencies.

3.2.1.2 Construction Traffic

Construction would also generate offsite noise from vehicle traffic. Noise from daily construction worker commute trips and truck trips would cause a temporary and short-term increase in traffic due to the additional number of vehicles on the roads, potentially increasing traffic noise levels along roadways used to access the project site. The Project is expected to generate a total peak passenger car equivalent volume of approximately 390 average daily trips (ADT) (Stantec, 2021). Off-site construction noise levels are assessed based on the potential to result in a perceptible increase in traffic-related noise levels.

³ Source U.S. DOT Federal Highway Administration Roadway Construction Model User Guide:
https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction_noise/rcnm/rcnm09.cfm

However, to result in a perceptible increase (3 dBA or greater) in the resulting traffic noise level, a doubling of the noise source (i.e., doubling vehicle traffic volumes) would be required. The minimum current volume on roads that may be affected by construction is 870 ADT (Stantec, 2021). The increased traffic levels during peak construction would not double the ADT for any roads used on the project, and therefore would not lead to a perceptible increase in traffic noise.

3.2.1.3 Construction Vibration

Operation of construction equipment and construction techniques generate ground vibration. If amplitudes are high enough, ground vibration has the potential to damage structures, cause cosmetic damage (e.g., crack plaster), and be a source of annoyance to individuals who live or work close to vibration-generating activities. Pile driving and grading activities are the primary sources of vibration during the construction of solar facilities. The California Department of Transportation (Caltrans) and United States Federal Transit Administration (FTA) have extensively studied the effects on construction related vibration during road work (Caltrans, 2013). Given the dynamic nature of construction activities and because specific information on the types, quantities, and operating schedules of construction equipment is not available at this point in the project development, the analysis of vibrations from project related construction activities is based on general equipment evaluations by the FTA.

Table 5 presents reference peak particle velocities (PPVs) for typical construction equipment. PPV, a measurement of vibration, is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. Using the reference PPV values, vibration from construction equipment can be estimated at a variety of distances using the following formula:

$$PPV_{\text{Equipment}} = PPV_{\text{Ref}} (25/D)^n \text{ (in/sec) (Eq. 12)}$$

Where:

$PPV_{\text{Equipment}}$ = PPV from the equipment at the receptor.

PPV_{Ref} = reference PPV at 25 ft.

D = distance from equipment to the receiver in ft.

$n = 1.1$ (the value related to the attenuation rate through ground). The lower the value, the less attenuation is assumed. The Caltrans suggested conservative value for “n” is 1.1.

Table 5 also presents the $PPV_{\text{Equipment}}$ at the distance of the nearest receptor, an estimated conservative distance of approximately 3,540 feet.

Table 5. Vibration Source Amplitudes for Construction Equipment

Equipment ¹	Reference PPV at 25 feet (in/sec) ²	PPV _{equipment, nearest receptor} (in/sec) ³
Pile Driver (Impact), Typical³	0.644	0.0028
Pile Driver (Sonic), Typical	0.170	0.0007
Vibratory Roller	0.210	0.0009
Hoe Ram	0.089	0.0004
Large Bulldozer	0.089	0.0004
Caisson Drilling	0.089	0.0004
Loaded Trucks	0.076	0.0003
Jackhammer	0.035	0.0002
Small Bulldozer	0.003	0.0000

¹ Equipment shown in bold is expected to be used on the project site.

² Source: Federal Transit Authority, 2006.

³ Receptor distance conservatively estimated at 3,540 feet from nearest vibration source.

⁴ Shallow piles (6-9' below surface grade) anticipated for the project, which may cause minor vibrations. The reference peak particle velocity used to provide a conservative estimate.

in/sec = inches per second

PPV = Peak Particle Velocity

Table 6 presents the effects on PPV on humans and buildings from continuous or frequent intermittent vibration levels. As presented in Table 5, the maximum PPV at the nearest receptor is anticipated from pile driving activities, at a value of 0.0028 in/sec.

Table 6. Human Reactions and Effects on Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect.
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure.
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected.
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings.
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings.
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures.
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures.

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013

As shown in Tables 5 and 6, the maximum PPV at the nearest receptor is three times lower than peak participle velocity value that is barely perceptible to humans, and therefore the impacts of vibration would be less than significant.

3.2.2 Operations Impacts

3.2.2.1 Transmission Line and Switchyard Noise Levels

One of the electrical effects of high-voltage transmission lines is corona. Corona is the ionization of air at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and production of ozone. Corona is a concern with transmission lines of 345 kV and greater and with lines that are at higher elevations. Higher levels of corona noise are also associated with rain, fog, or foul weather conditions.

No offsite electrical transmission components of 345 kV or higher are proposed as part of the project. The Project proposes the installation of a 220 kV Gen-Tie line which will run approximately 0.7 miles offsite to the PG&E substation. The audible noise associated with the 220-kV transmission lines and switchyards in the area is not expected to change and will not result in any significant noise impacts.

3.2.2.2 Operational Noise Impacts

Project operational noise sources would include ground-mounted PV system blocks, in which the design includes an optional axis tracker that would enable panels to rotate to follow the sun's path. Noise levels from similar PV systems are documented to range up to approximately 48 dBA at 40 feet. Operational noise sources would also include transformers and inverters. Single step-up, three-phase, pad-mounted, ventilated transformers can generate noise levels ranging up to approximately 85 dBA L_{eq} at a reference distance of 1 meter (approximately 3.3 feet). Fan-cooled inverters can generate noise levels of up to approximately 79.4 dBA L_{eq} at a reference distance of 1 meter (approximately 3.3 feet). The project may also include a battery system for electrical storage, which would be operationally silent, and the flywheel system would generate minimal noise. While the system to be used is unknown, if cooling fans are required by the battery system the approximate noise level is 74 dBA L_{eq} at 33 feet.

A noise model of the proposed Project has been developed using the noise3D modeling software by Kramer-Schalltechnik GmbH of Sankt Augustin, Germany. The noise3D model is capable of modeling very complex industrial plants. The sound propagation factors used in the model are compliant with International Organization for Standardization (ISO) 9613-2, Acoustics – Sound Attenuation during Propagation Outdoors (ISO, 1996). The software is also compliant with ISO 17534, meeting the quality requirements to ensure the software program adheres to a consistently implementable calculation method/procedure.

The model divides the proposed facility into a list of individual noise sources representing each piece of equipment that produces a significant amount of noise. Using these noise levels as a basis, the model calculates the noise level that would occur at each receptor from each source after losses from distance, air absorption, enclosures and blockages are considered. The sum of all these individual levels is the total plant level at the modeling point.

Reference sound levels for various pieces of equipment were incorporated into the acoustical model. The results are depicted in Figure 3 and are based on the following conservative equipment sound levels:

- Inverters: 64 dBA at 33 feet
- Battery Storage System: 74 dBA at 33 feet

- Substation Step-up Transformer : 85 dBA at 3 feet

As depicted in Figure 3, the sound level decreases with distance from the facility. The operational sound level (in other words, noise attributable to the project) at the closest existing residence is predicted to be less than 45 dBA L_{eq} , equivalent to an L_{dn} of 51 dBA. This is less than the existing L_{dn} and less than the County Noise Ordinance standards of 65 dBA exterior (L_{dn}) and 45 dBA interior (L_{dn}). Project operations would therefore not result in any significant noise impacts and would not violate County noise ordinances or standards.

3.2.2.3 Ground and Airborne Vibration

Similar PV facilities have not resulted in ground or airborne vibration impacts. The project is primarily driven by solar PV cells installed on array posts, the operation of which does not result in any ground vibration. The use of regular maintenance vehicle operation and vehicles used to clean and wash the panels also would not have any vibration related impacts on nearby receptors. Therefore, the project would not cause noise impacts from either groundborne or airborne vibration.

3.3 CUMULATIVE EFFECTS

Section 15355 of the CEQA Guidelines defines “cumulative impacts” as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” Subsection b of Section 15355 states, in part, that “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.” Thus, cumulative impacts under CEQA involve the potential interrelationships of two or more projects, not the impacts from a single project.

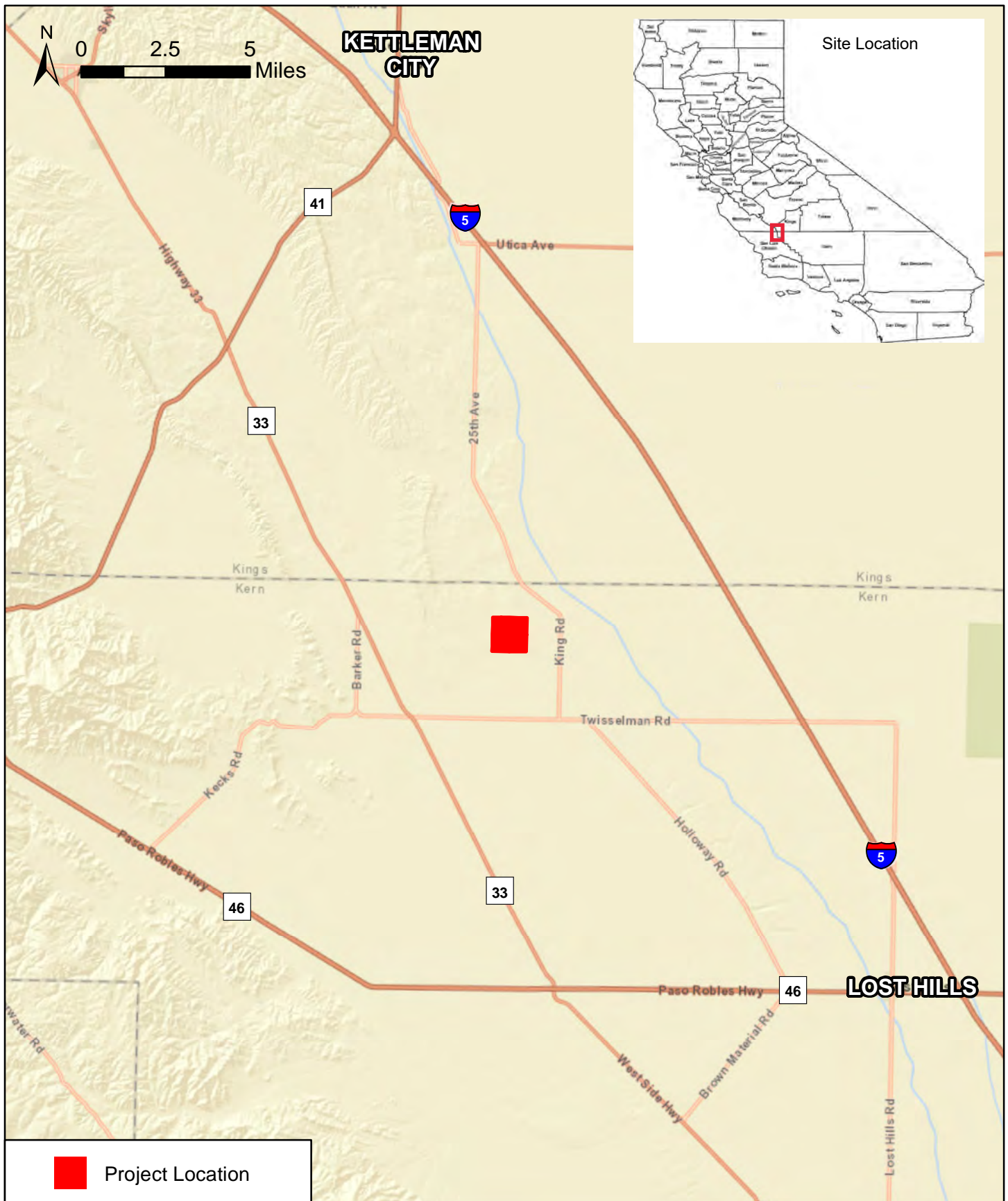
Specifically, under Section 15130 of the CEQA Guidelines, an EIR is required to discuss cumulative impacts when the project’s incremental effect is “cumulatively considerable.” Section 15065(a)(3) then defines “cumulatively considerable” as meaning “that the incremental effects of an individual project are significant when viewed in connection with the effects of other closely related past projects, the effects of other current projects and the effects of probable future projects.” Therefore, a cumulative impact refers to the Project’s incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effects of the proposed project (Public Resources Code §21083; CCR, Title 14, §§15064(h), 15065(c), 15130, and 15355).

There are no current known or reasonably foreseeable future projects whose impacts may compound or increase the incremental effects of the proposed project plans. Potential cumulative noise impacts from construction and/or operation of the proposed project are not expected to differ from those of the project alone. Given the insignificant levels of noise expected from the project and distance from sensitive receptors, the potential incremental noise impacts from the project would not, even when combined with other unforeseen projects, result in significant cumulative impacts from noise. Furthermore, these projects would also be required to comply with applicable federal, state, and local laws, ordinances, regulations, and standards. The proposed project’s cumulative noise impacts are therefore expected to be less than significant.

4 – REFERENCES

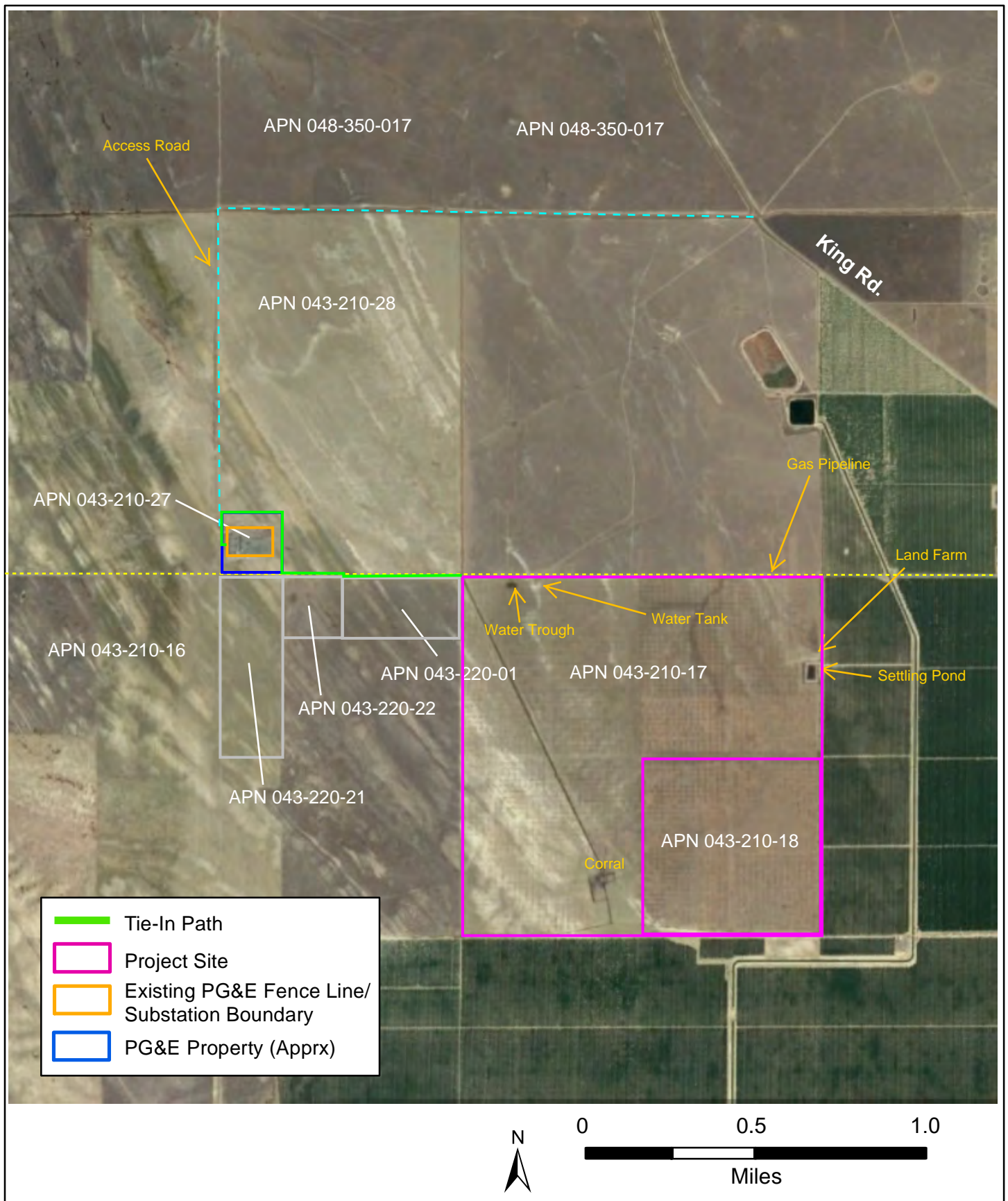
1. Barnes, J.D., L.N. Miller, and E.W. Wood. 1976. Prediction of noise from power plant construction. Bolt Beranek and Newman, Inc. Cambridge, MA. Prepared for Empire State Electric Energy Research Corporation, Schenectady, NY.
2. Beranek, L.L. 1998. Noise and Vibration Control. Institute of Noise Control Engineering. McGraw Hill.
3. California Department of Transportation (Caltrans), 2013. Transportation and Construction Vibration Guidance Manual. Division of Environmental Analysis Environmental Engineering Hazardous Waste, Air, Noise, Paleontology Office.
4. Svinkin, Mark R. 2008, Soil and Structure Vibrations from Construction and Industrial Sources, International Conference on Case Histories in Geotechnical Engineering
5. International Organization for Standardization (ISO). 1996. Acoustics—Attenuation of sound during propagation outdoors, Part 2: General method of calculation. ISO 9613-2. Geneva, Switzerland.
6. Kern County. 2009. Kern County General Plan Noise Element. Bakersfield, California. Amended September 22. [online]: www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf. Accessed May 13, 2019.
7. Kern County. 2017. Kern County Zoning Ordinance. Bakersfield, California. November. [online]: <https://psbweb.co.kern.ca.us/planning/pdfs/KCZONov2017.pdf> Accessed May 13, 2019.
8. Miller, L.N., E.W. Wood, R.M. Hoover, A.R. Thompson, S.L. Thompson, and S.L. Paterson. 1978. Electric Power Plant Environmental Noise Guide, Vol. 1. Bolt Beranek & Newman, Inc. Cambridge, MA. Prepared for Edison Electric Institute, New York.
9. Miller, Laymon N., et al. 1984. Electric Power Plant Environmental Noise Guide, 2nd Edition. Edison Electric Institute, New York.
10. Stantec, 2021, Azalea Solar Project Traffic Impact Analysis.
11. U.S. Environmental Protection Agency (EPA). 1971. Noise from Construction Equipment and Operations, U.S. Building Equipment, and Home Appliances. Prepared by Bolt Beranek and Newman for EPA Office of Noise Abatement and Control. Washington, DC.
12. U.S. Environmental Protection Agency (EPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. EPA-550/9-74-004. March.
13. U.S. Federal Transit Authority (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. Prepared by John A. Volpe National Transportation Systems Center. September.

FIGURES



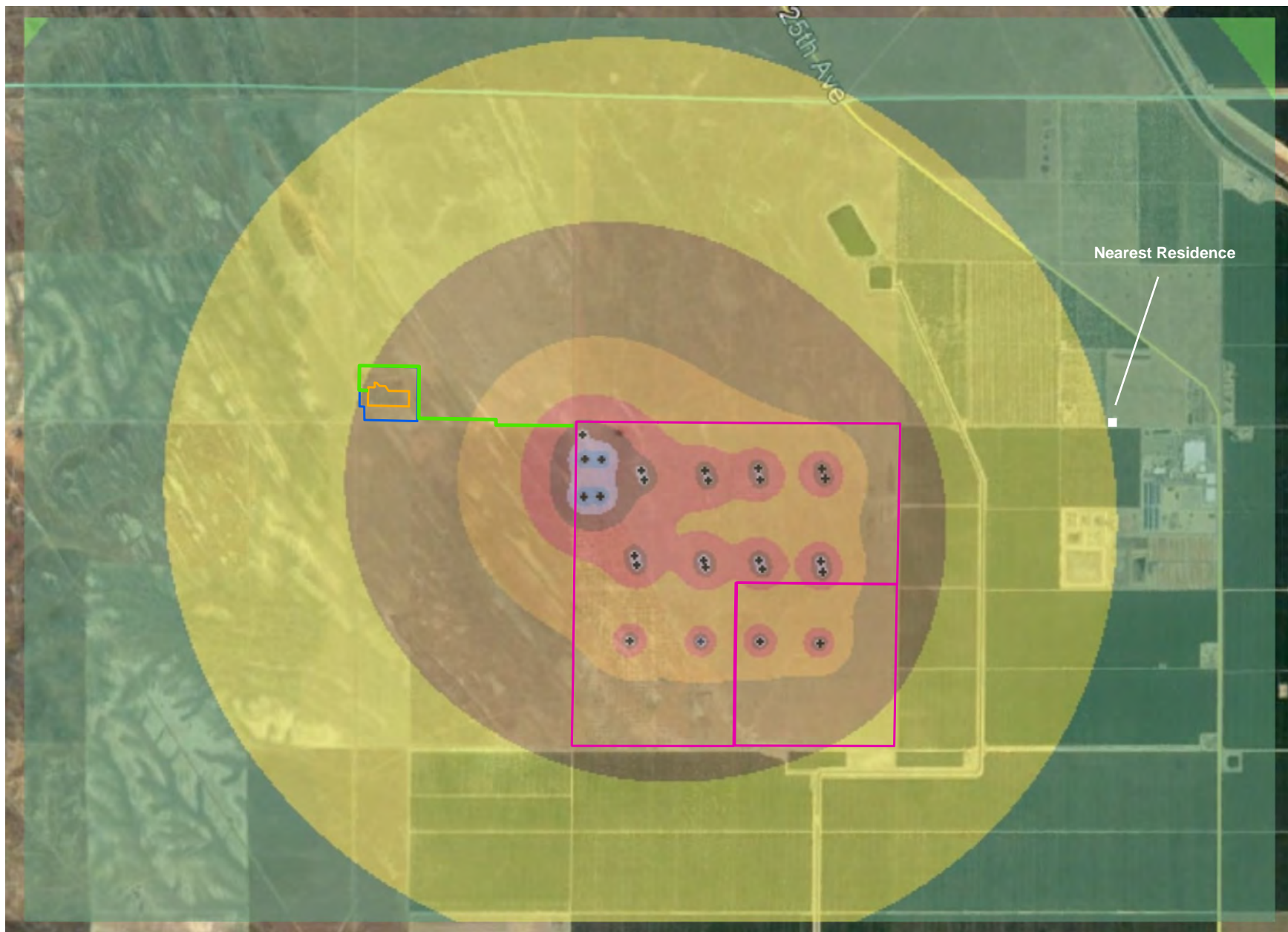
Surf to Snow ERM
 2246 Camino Ramon
 San Ramon, CA 94583
 (925) 326-3041

Figure 1
Vicinity Map
Azalea Solar Facility Project
Kern County, CA

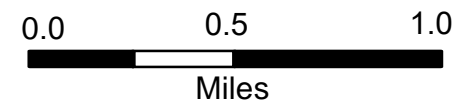


Surf to Snow ERM
2246 Camino Ramon
San Ramon, CA 94583
(925) 326-3041

Figure 2
Project Location
Azalea Solar Facility Project
Kern County, CA



Noise Range (dBA)	Color
0 - 35	Light Green
35 - 40	Green
40 - 45	Dark Green
45 - 50	Yellow
50 - 55	Light Brown
55 - 60	Orange
60 - 65	Red
65 - 70	Dark Red
70 - 75	Purple
75 - 80	Blue



Surf to Snow ERM
2246 Camino Ramon
San Ramon, CA 94583
(925) 326-3041

- Noise Source (Inverters, Transformers, and Batteries)
- Tie-In Path
- Project Site
- Existing PG&E Fence Line/Substation Boundary
- PG&E Property (Apprx)

Figure 3
Noise Contours
Azalea Solar Facility Project Kern
County, CA

APPENDIX A

CEQA Initial Study Checklist

CEQA Initial Study Checklist

Noise

The following information is provided to support a CEQA Initial Study for the Azalea Solar Project, based on information assessed in the Noise Study. This has been prepared solely for the purpose of informing the user and should not be construed as a formal CEQA initial Study. Accordingly, Discussion provided is only to provide guidance, and should not be relied upon without further assessment. An independent evaluation is recommended based on the planned Azalea Solar Project.

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

PROJECT IMPACTS

Impact a: Will the Project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

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 nearest residence is approximately 0.67 mile east of the project site. The nearest school is Lost Hills Elementary School, approximately 16 miles south of the site in the community of Lost Hills. Delano Regional Medical Center is the closest emergency medical facility and is approximately 35 miles east of the project site.

Noise would be generated during construction by vehicles and equipment on the site, including heavy equipment (e.g., graders, dozers, excavators, backhoes). The Kern County General Plan Noise Element sets a 65-decibel limit on exterior noise levels from stationary sources (i.e., non-transportation sources) at sensitive receptors. The Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) prohibits a variety of nuisance noises. Construction-related 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. In such cases, construction is prohibited between the hours of 9 p.m. and 6 a.m. on weekdays and 9 p.m. and 8 a.m. on weekends. The project proponent would adhere to the provisions of Kern County Ordinance Section 8.36.020. There are no sensitive receivers near the project site and therefore the project would not expose persons to or generate noise levels in excess of established standards. This impact is less than significant.

Operation of the facility would not generate a significant noise level. Moreover, vehicle trips during operation, which would be minimal, would not significantly increase ambient noise levels in the project vicinity. As a result, the project would not result in a substantial permanent increase in ambient noise in the project vicinity. Therefore, impacts are expected to be less than significant, and no further analysis of this issue is warranted in an EIR.

Mitigation Measures

No mitigation measures are required beyond adherence to Kern County Ordinance Code Title 8, Health and Safety, Chapter 8.36, Noise Control, Section 8.36.020, Prohibited Sounds, regarding hours of construction.

Level of Significance

Impacts would be less than significant for the Solar Facility and Gen Tie-In.

Impact b: Will the Project generate excessive groundborne vibration or groundborne noise levels?

Groundborne vibration and groundborne noise could originate from earth movement during the construction phase of the project. The project would comply with all applicable requirements for long-term operation as well as design measures to reduce excessive groundborne vibration and noise. Moreover, there are no sensitive receivers near the project site. The impact is considered less than significant.

Mitigation Measures

No mitigation measures are required beyond adherence to Kern County Ordinance Code Title 8, Health and Safety, Chapter 8.36, Noise Control, Section 8.36.020, Prohibited Sounds, regarding hours of construction.

Level of Significance

Impacts would be less than significant for the Solar Facility and Gen Tie-In.

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

The proposed Project is not located within an airport land use plan or within two miles of a public airport or private airstrip. Therefore, implementation of the proposed Project would not result in the exposure of people to excessive aircraft noise levels.

Mitigation Measures

Not Applicable

Level of Significance after Mitigation

Not Applicable

This Page Intentionally Left Blank

Appendix M

Traffic Impact Analysis



Azalea Solar Project Traffic
Impact Analysis
Kern County

October 7, 2021

Prepared for:

S2S Environmental Resource
Management

Prepared by:

Stantec Consulting Services Inc.



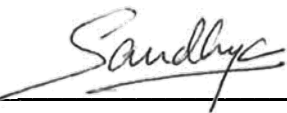
AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

This document entitled Azalea Solar Project Traffic Impact Analysis was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of S2S Environmental Resource Management (the "Client").

Prepared by 
(signature)


Kelsey Carton

Transportation Planner

Prepared by 
(signature)

Sandhya Perumalla ENV SP

Senior Transportation Planner

Reviewed by 
(signature)

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering



Table of Contents

1.0	INTRODUCTION.....	1.1
1.1	PROPOSED PROJECT.....	1.1
2.0	EXISTING CONDITIONS	2.1
2.1	EXISTING ROADWAY SYSYTEM	2.1
2.2	EXISTING TRAFFIC DATA	2.1
3.0	LEVEL OF SERVICE METHODOLOGY	3.1
3.1	SIGNIFICANCE CRITERIA	3.1
3.2	LITERATURE REVIEW	3.2
3.2.1	Kern County General Plan	3.2
3.3	EXISTING TRAFFIC OPERATIONS.....	3.3
4.0	PROJECT TRIP GENERATION.....	4.1
4.1	CONSTRUCTION TRIP GENERATION	4.1
4.2	OPERATIONS TRIP GENERATION.....	4.2
4.3	PROJECT TRIP DISTRIBUTION.....	4.2
4.4	EXISTING PLUS PROJECT CONDITIONS.....	4.3
5.0	CUMULATIVE CONDITIONS.....	5.1
6.0	VMT ANALYSIS.....	6.1
7.0	CEQA FINDINGS	7.1
8.0	CONCLUSION	8.1
9.0	REFERENCES.....	9.1

LIST OF TABLES

Table 2-1: ADT Volumes on Potentially Affected Roadway Segments	2.2
Table 3-1: Allowable Daily Service Volume by Roadway Segment.....	3.1
Table 3-2: Existing Level of Service of Study Segments	3.3
Table 4-1: Construction Trip Generation	4.2
Table 4-2: Existing plus Construction Traffic LOS of Study Segments.....	4.3

LIST OF FIGURES

Figure 1-1 Project Location Map	1.2
Figure 1-2 Project Site Plan	1.3

LIST OF APPENDICES

APPENDIX A	TRAFFIC COUNTS.....	A.1
APPENDIX B	ELAND 1 SOLAR FARM PROJECT TRIPS	B.1
APPENDIX C	KERN COUNTY EIR PROJECT LIST.....	C.1



Acronyms and Abbreviations

AADT	annual average daily traffic
ADT	average daily traffic
Applicant	SF Azalea, LLC
Caltrans	California Department of Transportation
HCM	Highway Capacity Manual
I-5	Interstate 5
LOS	level of service
O&M	operations and maintenance
PCE	Passenger car equivalent
Project	Azalea Solar Project
SR	State Route
Stantec	Stantec Consulting Services Inc.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Introduction
October 2021

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has performed a traffic impact analysis for the Azalea Solar Project (Project), the proposed construction and operation of a 60-megawatt alternating current solar facility (Facility) located in unincorporated land primarily in Kern County with a portion in Kings County, California. SF Azalea, LLC (applicant) is seeking approval of a conditional use permit for the Project. The purpose of the analysis is to determine the amount of traffic generated by the Project during construction and operation and to identify potential traffic-related significant impacts on the affected portions of the circulation system.

1.1 PROPOSED PROJECT

The proposed Facility would be located on approximately 340 acres of the 640-acre site, located approximately 2.5 miles northwest of Twisselman and King Roads intersection, approximately 10 miles south of Utica Avenue, approximately 15 miles northwest of the community of Lost Hills, approximately 6 miles west of Interstate 5, and approximately 5 miles east of State Route 33. See Figure 1-1 for the Project Location Map.

The proposed Facility would be in Kern County and the access road would cross from Kings County into Kern County. The Facility will interconnect to the existing Pacific Gas and Electric (PG&E) Arco Substation that is located on approximately 20 acres northwest of the proposed Facility. See Figure 1-2 for the Project Site Plan. Primary access to the proposed Facility is off King Road, approximately one mile north of the Project Site along an existing unnamed paved road. Two options are being considered for access road from King Road—one to the north, and the other to the west boundary of the Project site.

The construction and testing of the proposed Facility is expected to commence in 2022 and would extend for approximately 12 months. The proposed Facility elements would be completed either in phases or concurrently over the construction period.

During construction, the number of workers on the site would vary daily, with approximately 50 workers per day during non-peak construction, and up to 500 workers per day at the peak of construction. Employees would be encouraged to carpool during construction. Crews would typically work five 8-hour days per week. Saturday, Sunday, evening, and night work may be necessary to offset schedule deficiencies or to complete critical construction activities.

The Project would require an operational staff of up to five full-time employees (includes both day and night shifts). Typically, three of the staff would work during the day shift (sunrise to sunset), and the remainder would work during the night shifts and weekend.

After the useful life of the Project, the panels would be disassembled from the mounting frames and the Project area would be restored to its pre-development condition.



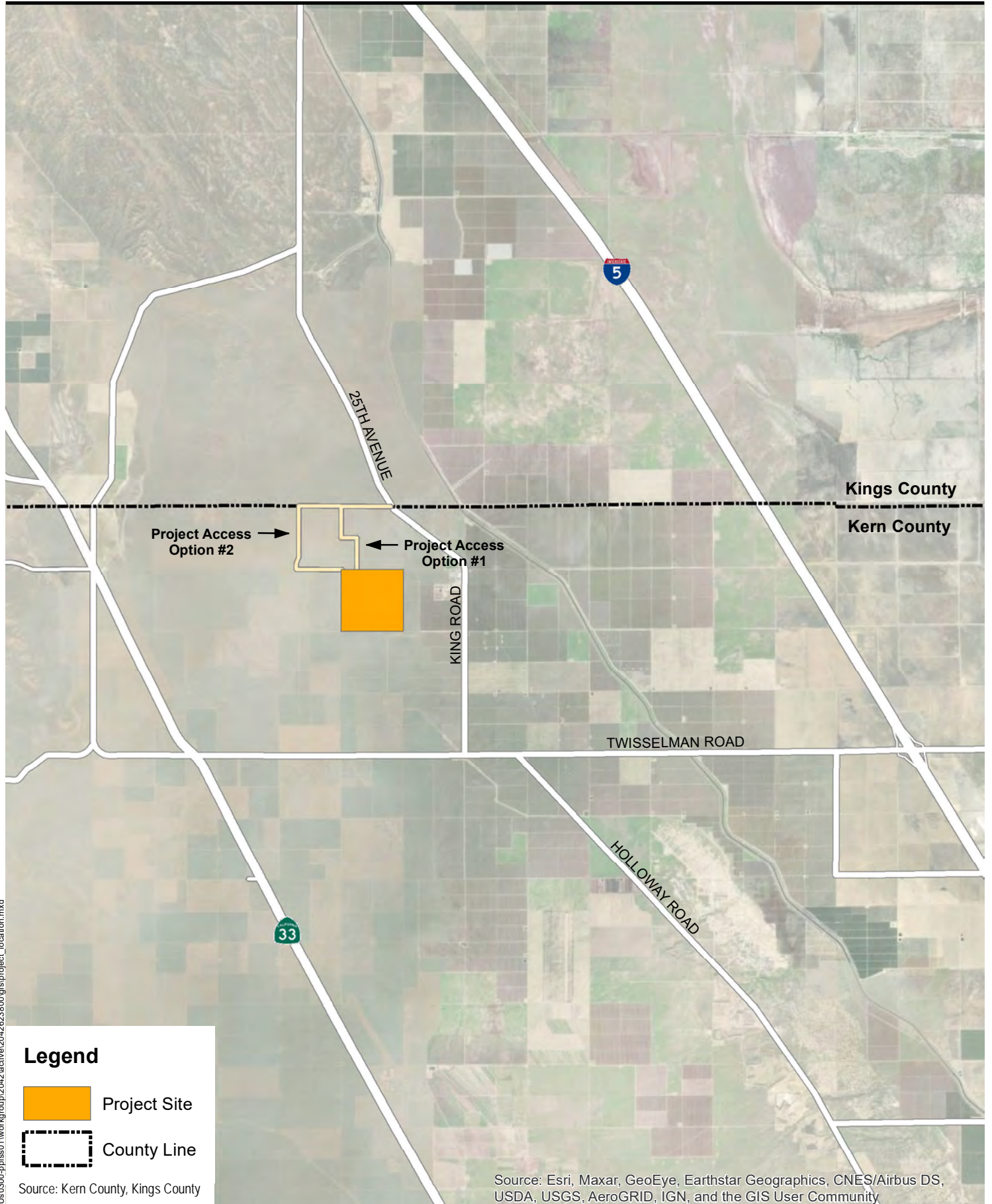


Figure 1-1
Project Location
1.2

AZELA SOLAR PROJECT
TRAFFIC IMPACT ANALYSIS

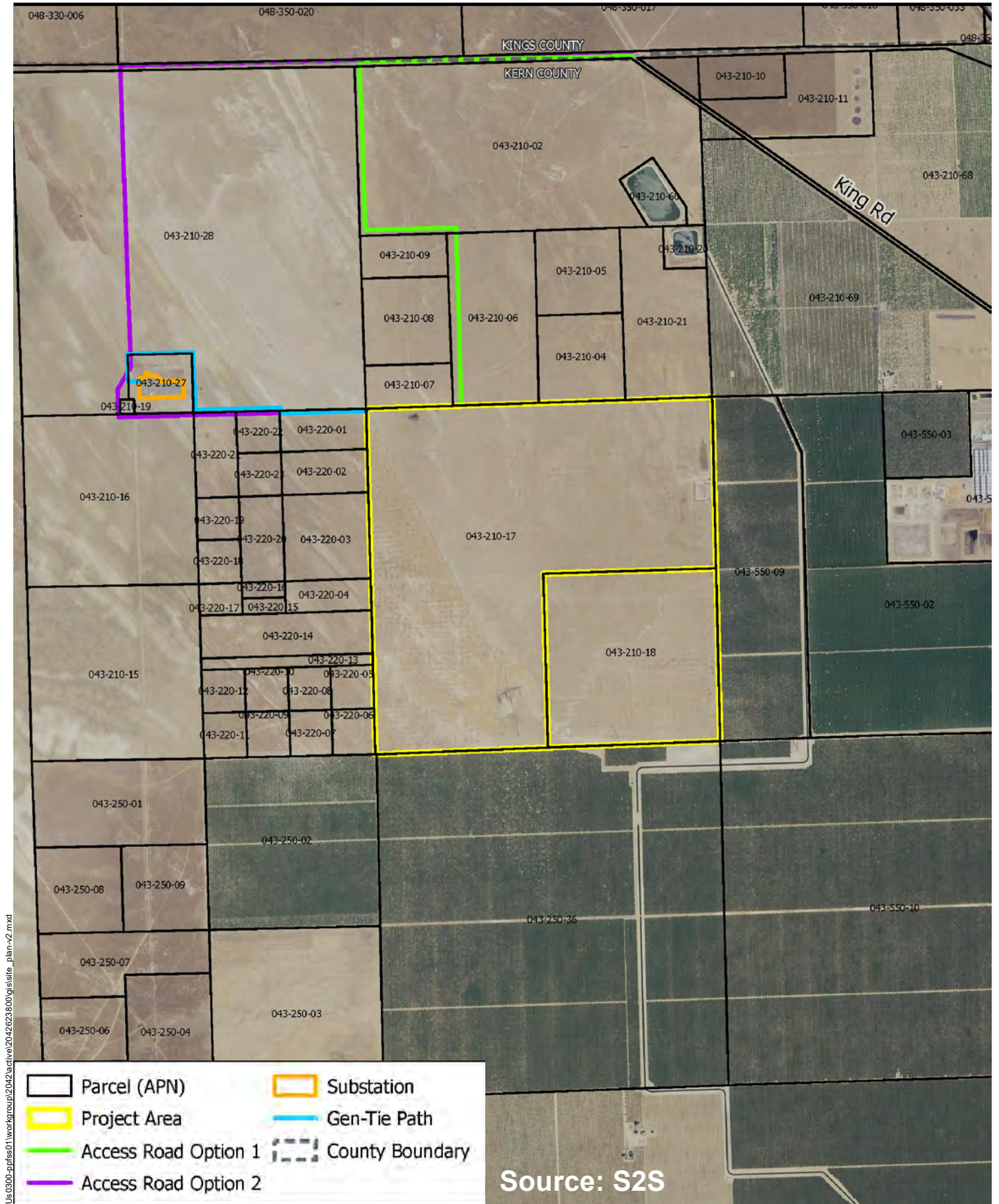


Figure 1-2
Project Site Plan
1.3

AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Existing Conditions
October 2021

2.0 EXISTING CONDITIONS

2.1 EXISTING ROADWAY SYSTEM

Interstate 5 (I-5) freeway is a four-lane divided highway, located approximately six miles east of the site, and State Route 33 (SR-33) is a two-lane undivided highway, located approximately six miles west of the site, that provide regional access to the Project site. The following local roadways provide access to the Project area.

King Road is a two lane un-divided paved roadway that runs generally north-south in the vicinity of the Project. Kern County General Plan does not provide classification for this roadway. There are no posted speed limits along this roadway but is assumed to be 55 miles per hour (mph). There are no bicycle or pedestrian facilities present.

Twisselman Road is a two lane un-divided paved roadway that runs east-west. The Kern County General Plan does not provide classification for this roadway. There are no posted speed limits along this roadway but is assumed to be 55 mph. There are no bicycle or pedestrian facilities present.

Access to the Project site from I-5 would be via Twisselman Road, King Road and the unnamed paved road off of King Road, one-mile north of the Project site. As mentioned in Section 1.1, two options are being considered for access road from King Road—one to the north, and the other to the west boundary of the Project site. The existing unnamed paved road would include minor improvements and construction of a new 20-foot wide access road for approximately 1 -1.25 miles depending on the final selection of the site access route.

2.2 EXISTING TRAFFIC DATA

This section summarizes existing traffic volumes on roadways that could be affected by the Project. Existing traffic count data was collected in August 2021 by a professional traffic data collection firm, Transportation Studies inc. (TSI), for each study area midblock location to represent existing traffic. See Appendix A for the traffic count worksheets. Additional traffic count data was obtained from the California Department of Transportation (Caltrans) Traffic Census Program for the most recent available year (Caltrans 2019). Table 2-1 summarizes the 24-hour average daily traffic (ADT) volumes collected at the three study locations and annual average daily traffic (AADT) for the three locations obtained from Caltrans.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Existing Conditions
October 2021

Table 2-1: ADT Volumes on Potentially Affected Roadway Segments

Roadway Segment	ADT/AADT
1. King Road north of Twisselman Road	1,233
2. Twisselman Road east of King Road	1,112
3. Twisselman Road west of King Road	870
4. I-5 n/o junction SR 46*	38,000
5. I-5 n/o Twisselman Road*	38,000
6. I-5 s/o Twisselman Road*	38,000
* AADT source - 2019 Traffic Volumes, Caltrans Traffic Census Program. Notes: ADT = average daily traffic, AADT = annual average daily traffic, SR = State Route	



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Level of Service Methodology
October 2021

3.0 LEVEL OF SERVICE METHODOLOGY

Level of service (LOS) is a qualitative index of the performance of an element of a transportation system. LOS is a rating scale from A to F, with A indicating no congestion and F indicating severe congestion and delays. The Highway Capacity Manual (HCM), a standard reference published by the Transportation Research Board, contains specific criteria and methods for assessing LOS.

The Kern County General Plan does not currently provide capacity thresholds for determining LOS of a roadway segment; therefore, Kings County LOS thresholds from Kings County 2035 General Plan Circulation Element are utilized in this analysis. As mentioned in Section 1.1, Kings County is approximately one mile north of the Project site and the access driveway passes into Kings County. Kern County and Kings County are very similar in terms of general transportation characteristics (ex: absence of sidewalks or designated bicycle lanes or shared usage with motor vehicles on roadways, traffic volumes, and patterns etc.), so utilizing the LOS thresholds detailed in the Kings County 2035 General Plan Circulation Element is appropriate. King County's LOS threshold volumes that represent the maximum daily traffic volumes that would allow roadway segments to maintain an acceptable LOS are shown in Table 3-1.

Table 3-1: Allowable Daily Service Volume by Roadway Segment

Roadway Type	Total Daily Vehicles in Both Directions (ADT)				
	LOS A	LOS B	LOS C	LOS D	LOS E
6-Lane Freeway	36,900	61,100	85,300	103,600	115,300
4-Lane Freeway	23,800	39,600	55,200	67,100	74,600
6-Lane Arterial	7,300	44,700	52,100	53,500	-
4-Lane Arterial (turn lanes)	4,800	29,300	34,700	35,700	-
4-Lane Collector	2,400	14,650	17,350	17,850	-
2-Lane Facility	-	4,200	13,800	16,400	16,900

Source: 2035 Kings County General Plan Circulation Element

3.1 SIGNIFICANCE CRITERIA

Kern County historically used a threshold of LOS D for the minimum acceptable operation of its transportation facilities. King County also specifies LOS D as the threshold for acceptable traffic operations for its roadway network. Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and arterials. Although Caltrans has not designated a LOS standard, for consistency a threshold of LOS D is utilized to determine the effect of the Project on traffic and transportation.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Level of Service Methodology
October 2021

3.2 LITERATURE REVIEW

3.2.1 Kern County General Plan

The Kern County General Plan is the foundation and central feature of the local planning process. It is prepared, adopted and maintained by the County to govern the physical development of all land area under its jurisdiction. Following are the important functions that the General Plan is intended to serve:

- *The identification of the community's physical development goals and goals relating to environmental, economic, and other factors.*
- *The incorporation of policies for maintaining or improving the character of existing developed uses and for guiding the location and nature of future development in order to ensure that the community's goals are achieved.*
- *The consideration of aspects of local conditions affecting physical development and change in order to ensure that problems and opportunities are analyzed and addressed adequately within the context of local, regional, Statewide, and national goals and policies.*
- *The provision of information to the citizens of the community about the planning and decision-making process of the local government.*
- *The description of procedures and measures intended to improve the coordination of local government actions affecting the development of the community.*

The Circulation Element of the Kern County General Plan consists of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminal, and other local public utilities and facilities that are all correlated with the land use element of the general plan. The purpose of the circulation element is to set up local Goals and guiding Policies about building transportation improvements. Following is a list of the Plan's seven unique Goals:

- *To make certain that transportation facilities needed to support development are available. To ensure that these facilities occur in a timely manner so as to avoid traffic degradation.*
- *Kern County intends to provide plans for circulation infrastructure in support of the Land Use, Open Space and Conservation Element.*
- *To plan for transportation modes available to all segments of the population, including people with restricted mobility.*
- *Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.*
- *Maintain a minimum Level of Service (LOS) D for all roads throughout the County unless the roads are part of an adopted Community Plan or Specific Plan which utilizes Smart Growth policies that encourage efficient multi-modal movements.*



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Level of Service Methodology
October 2021

- *Coordinate with the California Department of Transportation (Caltrans) regarding various transportation developments within the County.*
- *Kern County through its representatives on the Kern COG Board of Directors shall coordinate with Kern County cities and Caltrans to develop more effective transportation planning and congestion management programs.*

3.3 EXISTING TRAFFIC OPERATIONS

Existing traffic conditions for the study roadway segments were evaluated based on the Kings County's LOS threshold volumes that represent Allowable Daily Service Volume by Roadway Segment provided in Table 3-1. The roadway capacities for the target LOS D were compared to the observed traffic volumes noted above in Table 2-1.

As shown in Table 3-2 below, all the roadway segments currently operate at an acceptable LOS A or B. Accordingly, under existing conditions all roadway segments meet the County and Caltrans target of LOS D.

Table 3-2: Existing Level of Service of Study Segments

Roadway Segment	Roadway Type	Allowable Daily Service Volume (LOS D)	ADT	LOS
1. King Road north of Twisselman Road	Two-Lane Facility	16,400	1,233	A
2. Twisselman Road east of King Road	Two-Lane Facility	16,400	1,112	A
3. Twisselman Road west of King Road	Two-Lane Facility	16,400	870	A
4. I-5 n/o junction SR 46*	4-Lane Freeway	67,100	38,000	B
5. I-5 n/o Twisselman Road*	4-Lane Freeway	67,100	38,000	B
6. I-5 s/o Twisselman Road*	4-Lane Freeway	67,100	38,000	B
Notes: ADT = average daily traffic, LOS = level of service, SR = State Route				



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Project Trip Generation
October 2021

4.0 PROJECT TRIP GENERATION

4.1 CONSTRUCTION TRIP GENERATION

Trip generation is defined as the number of vehicle trips produced by a particular type of land use or Project. A trip is defined as vehicle movement in one direction. The total number of trips generated by a particular land use type or Project includes both inbound and outbound trips. During construction, truck trips would be routed on I-5. Based on the information provided by the Project Applicant, upon exiting I-5 at Twisselman Road interchange, construction traffic would access the Project site from Twisselman Road, King Road, and an existing unnamed paved road.

The Project site is 640 acres in size. Construction of the Project is expected to initiate in 2022 and would take approximately 12 months to be completed in the following six phases:

- Phase 1: Site Preparation
- Phase 2: Grading and Earthwork
- Phase 3: Concrete Foundations
- Phase 4: Structural Steel Work
- Phase 5: Electrical/Instrumentation Work
- Phase 6: Collector Line Installation

For the purposes of this analysis, the estimated construction schedule for the Project was based on phased construction trip generation from the Eland 1 Solar Farm Traffic Analysis (Appendix O, Eland 1 Solar Project Draft Supplemental Environmental Impact Report, Stantec, January 12, 2018). The Eland 1 Solar Farm project, also located in Kern County, is similar in use and setting to the proposed Azalea Solar Project. Therefore, construction phase trip generation for the 2,652-acre Eland 1 project was scaled proportionately to obtain estimated construction phase trip generation for the approximately 640-acre Project site. See Appendix B for Eland 1 Project trips. The 2,652 acres Eland 1 solar farm project generates a total of approximately 1,605 passenger car equivalent (PCE) trips. The 640-acre proposed Project is 24 percent smaller in size than Eland 1, therefore, scaling down the Eland 1 trips by the same proportion of 24 percent, the proposed Project would generate approximately 390 PCE trips during the peak month.

The analysis of construction trip generation is based on the average daily volume of construction traffic. The construction period with the highest construction trip generation was found to be during the overlap of phases 2, 3, 4 and 5¹. The construction trip generation for the Project is shown in Table 4-1. As shown, the Project is expected to generate a total peak PCE volume of approximately 390 ADT.

¹ Based upon a synthesis of the construction schedule and trip generation for the Eland 1 Solar Project.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Project Trip Generation
October 2021

Table 4-1: Construction Trip Generation

Phase	Description	Work days	Month / ADT (PCE)											
			1	2	3	4	5	6	7	8	9	10	11	12
1	Site Preparation	65	38	38										
2	Grading and Earthwork	90		118	118	118								
3, 4, 5	Foundations, Steel, and Electrical	305			272	272	272	272	272	272	272	272	272	272
6	Collector Line Installation	40										24	24	24
TOTAL		500	38	156	390	390	272	272	272	272	272	296	296	296
<p>Note: ADT are shown in Passenger Car Equivalents (PCE), PCE Factor = 2.16 Trip generation was scaled based on acreage from Eland 1 Solar Project Draft Supplemental Environmental Impact Report Appendix O, Traffic Analysis Eland 1 Solar Farm (Stantec, January 12, 2018)</p>														

During construction, the number of workers on the site would vary daily, with approximately 50 workers per day during non-peak construction, and up to 500 workers per day at the peak of construction. As noted above, detailed worker trip data by phase of construction was referenced from the Eland 1 Solar Project Draft Supplemental Environmental Impact Report and scaled based on the size of the Project, resulting in the trip generation estimates (in PCE) shown in the previously referenced Table 4-1.

The Project is limited to 150 trips per day per unpaved road to comply with San Joaquin Valley Air Pollution Control District Standards for an unpaved roadway. As shown in the Table 4-1, the total number of daily trips would typically exceed the 150 trips per day limit. Trip reduction measures, or acceptable access treatments would be required to address the District standards.

4.2 OPERATIONS TRIP GENERATION

Based on information provided by the Project applicant, once constructed the solar facility would have up to five full-time employees, and the staff would split work between daytime and nighttime shifts. If all employees work during the day shift, a conservative estimate would be approximately 13 trips per day for the full facility based on an average trip rate of 2.5 trips per employee², which is not perceptible and therefore would be considered to have no negative or undesirable effects to the surrounding roadway network.

4.3 PROJECT TRIP DISTRIBUTION

The geographic distribution of the Project-generated trips was determined based on the Project site location in relation to the surrounding uses while taking into account proposed driveway location, existing

² The average trip rate of 2.5 trips per employee assumes that employee work during the day/night shift is 2 trips (one trip in and one trip out). Some employees may travel an additional trip in between (e.g., lunch, errand, etc.) as well as occasional deliveries to the site, therefore an average of 2.5 trips per employee is assumed.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Project Trip Generation
October 2021

flow patterns and engineering judgement. A most conservative scenario for each roadway segment is evaluated with approximately 100 percent of the Project trips assigned to each roadway segment individually as a worst-case scenario, i.e., 100 percent of the Project trips could travel on Kings Road, east Twisselman Road and on I-5.

4.4 EXISTING PLUS PROJECT CONDITIONS

This section describes the potential effects of the Project on traffic and transportation during construction. Project generated construction traffic was added to existing conditions to represent existing plus Project conditions. Similar to the analysis of the existing traffic conditions, the existing plus construction conditions for the roadway segments were evaluated based on Kings County's LOS threshold volumes that represent Allowable Daily Service Volume LOS criteria by Roadway Segment provided in Table 3-1. The roadway capacities were compared to the existing plus construction traffic volumes.

As shown, all the roadway segments continue to operate at LOS A or B even with addition of construction traffic and are below the County and Caltrans target threshold of LOS D.

Table 4-2: Existing plus Construction Traffic LOS of Study Segments

Roadway Segment	Roadway Type	Allowable Daily Service Volume (LOS C)	ADT	LOS
1. King Road north of Twisselman Road	Two-Lane Facility	13,800	1,623	A
2. Twisselman Road east of King Road	Two-Lane Facility	13,800	1,502	A
3. Twisselman Road west of King Road	Two-Lane Facility	13,800	1,260	A
4. I-5 n/o junction SR 46*	4-Lane Freeway	55,200	38,390	B
5. I-5 n/o Twisselman Road*	4-Lane Freeway	55,200	38,390	B
6. I-5 s/o Twisselman Road*	4-Lane Freeway	55,200	38,390	B
Notes: ADT = average daily traffic, LOS = level of service, SR = State Route				



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Cumulative Conditions
October 2021

5.0 CUMULATIVE CONDITIONS

Cumulative conditions have been considered, as construction of other developments in the vicinity during the same construction timeframe as the proposed Project could have a temporary negative cumulative impact on traffic conditions. Current environmental documents listed on the Kern County website were reviewed to ascertain their distance from the Project and whether they would be constructed in a similar timeframe. See Appendix C for the list of Projects in Kern County provided on the Kern County planning website. This review returned no Projects within a 6-mile radius, with the closest Project being located approximately 14-miles from the Project. On this basis it is assumed there will be no additional traffic impacts under cumulative conditions.



6.0 VMT ANALYSIS

The following analysis evaluates Project-related vehicle miles traveled (VMT) and complies with the updated California Environmental Quality Act (CEQA) guidelines that incorporate the requirements of Senate Bill 743 (SB 743). SB 743 requires the Governor's Office of Planning and Research (OPR) to establish recommendations for identifying and mitigating transportation impacts under CEQA. Generally, SB 743 moves away from using delay-based level of service (LOS) as the metric for identifying Project impacts and instead uses VMT. The final Technical Advisory released by OPR in December 2018 provides guidance on evaluating transportation impacts and VMT and is the guidance on which this analysis is based.

Prior to undertaking a detailed VMT analysis, the Technical Advisory recommends that lead agencies conduct a screening process "to quickly identify when a Project should be expected to cause a less-than-significant impact without conducting a detailed study". The Technical Advisory suggests that lead agencies may screen out VMT impacts using Project size criteria, maps of low VMT areas, transit availability, and provision of affordable housing. For this Project, the screening criteria related to Project size is applicable in regard to the amount of traffic that is generated.

The OPR Technical Advisory recommends that absent substantial evidence indicating that a Project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

The Project is consistent with the County's General Plan and SCS. And as discussed in 0, a conservative estimate of the Project's daily trip generation is approximately 13 trips per day for the full facility based on an average trip rate of 2.5 trips per employee. Therefore, the Project would generate substantially fewer than the 110-trip-per-day threshold and can be assumed to cause a less-than-significant transportation impact.

Construction-related VMT is addressed in the context of air quality and greenhouse gas (GHG) as part of a separate study. Construction VMT is temporary, and therefore is not applicable to the transportation thresholds of significance recommended in the OPR Technical Advisory, which are based on a measurement of the operational average VMT per capita.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

CEQA Findings
October 2021

7.0 CEQA FINDINGS

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

a) *Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*

Construction of the Project does not conflict with the County of Kern General Plan, any program plan, ordinance, or policy addressing the circulation system. See Section 3.2 for the Kern County General Plan and Circulation Element goals. Construction vehicles associated with the Project would cause a temporary and short-term increase in traffic due to the additional number of vehicles on the roads. This temporary traffic volume increase would be spread out over the entire project alignment, and the increased traffic levels during peak construction would remain within acceptable limits in the context of road capacities and LOS as shown in Table 4-2.

There would be a limited number of pedestrian and bicycle facilities in the Project area, and these would not be affected by the construction activity except for limited circumstances. The Project would follow County and Caltrans's guidelines for work area traffic control, which includes providing accommodations for pedestrians and bicyclists when applicable. The Project will ensure that traffic controls and other traffic safety measures are in place to maintain proper traffic flow during temporary construction activities. The Project does not propose to amend or adjust roadway classifications, roadway network, transit routes, or bicycle network as identified in the County of Kern General Plan.

During construction, existing facilities in the Project area would not be affected by Project-related construction activity except for limited circumstances. Therefore, the Project construction would not cause a conflict with a program plan, ordinance, or policy related to the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and therefore would have a less than significant impact.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

CEQA Findings
October 2021

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

The number of vehicle-miles of travel associated with the Project's construction is temporary and not subject to the intent of CEQA Guidelines Section 15064.3, subdivision (b), which promotes the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses; therefore, Project-related construction impacts will be less than significant.

Ongoing operation of the Project will generate 13 trips per day, which is less than the County's 110 trips per day impact threshold, allowing the Project to be screened out from requiring VMT analysis and the Project can be assumed to have a less than significant impact.

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

During construction, the Project will comply with the County of Kern's Traffic Control Plan Requirements for work area traffic control for work performed in the County's right-of-way. The existing unnamed paved road leading to the Project site would include minor improvements and construction of a new 20-foot wide access road for approximately 1-1.25 miles depending on the final selection of the site access route. Also, there would be no incompatible uses introduced to the Project area which could cause vehicle conflicts.

As there will be no increase in hazards due to geometric design features or incompatible uses, the impact is considered to be less than significant.

d) Result in inadequate emergency access?

Construction of the Project will not result in inadequate emergency access. Development of the Project site will not alter or impede emergency response routes or plans set in place by the County. In regard to site emergency access, the Project driveways are designed to comply with turning radius requirements for emergency vehicles and will not cause hazardous driving conditions. The existing unnamed paved road leading to the Project site would include minor improvements and construction of a new 20-foot wide access road for approximately 1-1.25 miles depending on the final selection of the site access route. The Project's detailed design will be completed in compliance with California Fire Code requirements and not impair emergency vehicle access in the vicinity of the Project during construction and in ongoing operation. Compliance with the California Fire and Building Codes will be mandated through the plan check and approval process. This process will also ensure that adequate access for emergency services is provided, and the County's emergency response plan will be upheld during construction.

As no non-compliant features are proposed, the impact is considered to be less than significant.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

Conclusion
October 2021

8.0 CONCLUSION

Under existing traffic conditions, all roadway study segments currently operate at LOS A or B, which is above the target threshold of LOS D. As described in the Project Description, construction equipment and vehicles would access the Project site via I-5, Twisselman Road, and King Road. Accordingly, the most conservative overall daily trip generation (ADT with PCE) during construction is estimated to be 390 ADT using a PCE factor 2.16.

During construction, with the addition of construction traffic on the study area roadway segments, the ADT would be below the LOS D thresholds, which indicates that there would be no negative or undesirable effects on the roadway segments. The capacity analysis indicates that there would be no negative or undesirable effects on roadway segments based on the conservative assumption regarding construction trips. Construction of the Project is not expected to cause any negative effects to the surrounding transportation network.

After the construction, the solar facility would have up to 5 full-time employees that would generate approximately 13 trips per day which is not perceptible and therefore would be considered to have no negative effects to the surrounding roadway network.

The Project is limited to 150 trips per day per unpaved road to comply with San Joaquin Valley Air Pollution Control District Standards for unpaved roadway. However, the trips would exceed the 150 trips per day limit.

The Project is consistent with the County's General Plan and SCS and generates substantially fewer daily operational trips than the 110 trip per day threshold of significance for VMT impact. Therefore, based on the OPR recommended screening criteria, the Project can be assumed to cause a less-than-significant transportation impact.

VMT associated with construction of the Project is addressed in the context of air quality and GHG as part of a separate study. Construction VMT is temporary and is not applicable to the transportation impact thresholds of significance.



AZALEA SOLAR PROJECT TRAFFIC IMPACT ANALYSIS

References
October 2021

9.0 REFERENCES

Association of Environmental Professionals (2021). 2021 CEQA California Environmental Quality Act Statute & Guidelines.

Caltrans. 2002. Caltrans' Guide for the Preparation of Traffic Impact Studies.

Caltrans. 2019. Traffic Volumes on California State Highways. Available at:
<https://dot.ca.gov/programs/traffic-operations/census>. 2019-Traffic-Volumes_caltrans_traffic_census_program.xlsx Accessed on September 7, 2021.

[Environmental Documents - Kern County Planning & Natural Resources Dept. \(kernplanning.com\)](#)
Accessed on September 7, 2021

Governor's Office of Planning and Research. 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA

[Kern County General Plan. September 22, 2009. Kern County Planning Department. Accessed on September 7, 2021](#)

Kings County. 2010. 2035 Kings County General Plan. Available at:
<https://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan>. Accessed on September 9, 2021

Stantec. January 2018. Eland 1 Solar Project Draft Supplemental Environmental Impact Report



Appendix A TRAFFIC COUNTS



Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : KING ROAD
Segment : N/O TWISSELMAN ROAD
Client : STANTEC

Site: LOST HILLS
Date: 08/24/21
D2108026

Interval	NB				SB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	1	9	36	0	1	4	16	0	2	13	52		
12:15	0		11		0		5		0		16			
12:30	0		12		1		2		1		14			
12:45	1		4		0		5		1		9			
01:00	0	2	10	30	0	0	20	44	0	2	30	74		
01:15	0		7		0		6		0		13			
01:30	2		9		0		12		2		21			
01:45	0		4		0		6		0		10			
02:00	0	0	14	39	1	1	14	97	1	1	28	136		
02:15	0		10		0		13		0		23			
02:30	0		7		0		52		0		59			
02:45	0		8		0		18		0		26			
03:00	1	1	7	39	1	4	37	61	2	5	44	100		
03:15	0		12		0		9		0		21			
03:30	0		10		1		7		1		17			
03:45	0		10		2		8		2		18			
04:00	0	15	1	16	0	3	12	39	0	18	13	55		
04:15	1		2		0		19		1		21			
04:30	4		3		2		6		6		9			
04:45	10		10		1		2		11		12			
05:00	9	96	8	51	3	29	12	30	12	125	20	81		
05:15	11		6		8		10		19		16			
05:30	34		23		7		4		41		27			
05:45	42		14		11		4		53		18			
06:00	19	58	1	10	2	11	12	24	21	69	13	34		
06:15	22		2		3		9		25		11			
06:30	9		3		4		2		13		5			
06:45	8		4		2		1		10		5			
07:00	16	49	1	14	5	20	6	23	21	69	7	37		
07:15	12		8		4		5		16		13			
07:30	5		3		6		4		11		7			
07:45	16		2		5		8		21		10			
08:00	1	13	6	15	8	30	6	29	9	43	12	44		
08:15	6		1		6		7		12		8			
08:30	4		5		8		4		12		9			
08:45	2		3		8		12		10		15			
09:00	3	29	1	3	9	44	13	53	12	73	14	56		
09:15	4		1		17		16		21		17			
09:30	6		0		10		16		16		16			
09:45	16		1		8		8		24		9			
10:00	8	29	1	2	7	33	11	34	15	62	12	36		
10:15	8		0		1		11		9		11			
10:30	5		0		13		8		18		8			
10:45	8		1		12		4		20		5			
11:00	0	12	1	1	11	39	2	7	11	51	3	8		
11:15	1		0		6		1		7		1			
11:30	8		0		14		4		22		4			
11:45	3		0		8		0		11		0			
Totals	305		256		215		457		520		713			
Split%	58.7		35.9		41.3		64.1							
Day Totals		561				672			1,233					
Day Splits		45.5				54.5								
Peak Hour	05:30		05:00		08:45		02:15		05:30		02:15			
Volume	117		51		44		120		140		152			
Factor	0.70		0.55		0.65		0.58		0.66		0.64			

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : TWISSELMAN ROAD
Segment : E/O KING ROAD
Client : STANTEC

Site: LOST HILLS
Date: 08/24/21
D2108027

Interval	WB				EB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	6	33	0	0	4	14	0	0	10	47		
12:15	0		9		0		3		0		12			
12:30	0		12		0		4		0		16			
12:45	0		6		0		3		0		9			
01:00	2	2	3	12	0	0	9	30	2	2	12	42		
01:15	0		3		0		4		0		7			
01:30	0		4		0		10		0		14			
01:45	0		2		0		7		0		9			
02:00	1	2	12	43	2	4	6	77	3	6	18	120		
02:15	0		12		1		16		1		28			
02:30	1		11		1		31		2		42			
02:45	0		8		0		24		0		32			
03:00	0	0	3	22	0	0	28	48	0	0	31	70		
03:15	0		1		0		9		0		10			
03:30	0		8		0		7		0		15			
03:45	0		10		0		4		0		14			
04:00	1	12	4	22	1	8	8	33	2	20	12	55		
04:15	0		8		0		12		0		20			
04:30	3		4		6		11		9		15			
04:45	8		6		1		2		9		8			
05:00	13	92	10	33	2	32	18	34	15	124	28	67		
05:15	14		10		7		8		21		18			
05:30	23		9		8		2		31		11			
05:45	42		4		15		6		57		10			
06:00	12	53	4	11	16	29	6	16	28	82	10	27		
06:15	20		2		4		4		24		6			
06:30	9		4		7		4		16		8			
06:45	12		1		2		2		14		3			
07:00	14	44	0	10	4	16	4	16	18	60	4	26		
07:15	12		4		3		0		15		4			
07:30	6		4		5		2		11		6			
07:45	12		2		4		10		16		12			
08:00	6	17	2	6	2	17	5	30	8	34	7	36		
08:15	4		3		4		8		8		11			
08:30	4		0		4		4		8		4			
08:45	3		1		7		13		10		14			
09:00	4	34	4	22	10	21	12	55	14	55	16	77		
09:15	10		3		1		16		11		19			
09:30	8		6		8		15		16		21			
09:45	12		9		2		12		14		21			
10:00	8	36	0	3	12	24	11	36	20	60	11	39		
10:15	8		1		2		13		10		14			
10:30	7		1		2		8		9		9			
10:45	13		1		8		4		21		5			
11:00	0	16	0	1	10	39	2	7	10	55	2	8		
11:15	4		1		10		1		14		2			
11:30	6		0		5		4		11		4			
11:45	6		0		14		0		20		0			
Totals	308		218		190		396		498		614			
Split%	61.8		35.5		38.2		64.5							
Day Totals		526				586				1,112				
Day Splits		47.3				52.7								
Peak Hour	05:30		02:00		05:15		02:15		05:30		02:15			
Volume	97		43		46		99		140		133			
Factor	0.58		0.90		0.72		0.80		0.61		0.79			

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L
Tustin, CA. 92780

Location : TWISSELMAN ROAD
Segment : W/O KING ROAD
Client : STANTEC

Site: LOST HILLS
Date: 08/24/21
D2108028

Interval	WB				EB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	2	2	24	0	0	8	23	0	2	10	47		
12:15	0		9		0		8		0		17			
12:30	1		6		0		4		1		10			
12:45	1		7		0		3		1		10			
01:00	2	4	12	28	0	0	10	32	2	4	22	60		
01:15	0		8		0		6		0		14			
01:30	2		4		0		8		2		12			
01:45	0		4		0		8		0		12			
02:00	1	3	12	56	0	2	6	32	1	5	18	88		
02:15	1		7		1		12		2		19			
02:30	1		28		1		6		2		34			
02:45	0		9		0		8		0		17			
03:00	0	3	15	45	1	1	18	54	1	4	33	99		
03:15	1		9		0		12		1		21			
03:30	0		10		0		14		0		24			
03:45	2		11		0		10		2		21			
04:00	1	2	8	35	1	10	3	15	2	12	11	50		
04:15	0		15		2		1		2		16			
04:30	1		8		6		5		7		13			
04:45	0		4		1		6		1		10			
05:00	4	24	8	21	2	44	7	37	6	68	15	58		
05:15	11		8		8		3		19		11			
05:30	1		3		18		16		19		19			
05:45	8		2		16		11		24		13			
06:00	5	26	6	19	20	42	0	10	25	68	6	29		
06:15	7		7		13		2		20		9			
06:30	6		5		5		4		11		9			
06:45	8		1		4		4		12		5			
07:00	6	22	1	12	6	23	1	9	12	45	2	21		
07:15	2		5		3		4		5		9			
07:30	12		4		6		2		18		6			
07:45	2		2		8		2		10		4			
08:00	11	25	0	4	2	8	2	5	13	33	2	9		
08:15	4		2		4		0		8		2			
08:30	8		2		1		2		9		4			
08:45	2		0		1		1		3		1			
09:00	3	36	3	21	6	19	2	3	9	55	5	24		
09:15	20		1		0		1		20		2			
09:30	7		3		1		0		8		3			
09:45	6		14		12		0		18		14			
10:00	6	31	0	4	8	22	0	1	14	53	0	5		
10:15	4		1		2		0		6		1			
10:30	16		1		6		0		22		1			
10:45	5		2		6		1		11		3			
11:00	4	18	0	2	2	10	1	1	6	28	1	3		
11:15	6		2		4		0		10		2			
11:30	4		0		2		0		6		0			
11:45	4		0		2		0		6		0			
Totals	196		271		181		222		377		493			
Split%	52.0		55.0		48.0		45.0							
Day Totals		467				403				870				
Day Splits		53.7				46.3								
Peak Hour	09:15		02:30		05:30		03:00		05:30		02:30			
Volume	39		61		67		54		88		105			
Factor	0.49		0.54		0.84		0.75		0.88		0.77			

Transportation Studies, Inc.

2640 Walnut Avenue, Suite L

Tustin, CA. 92780

Location : HOLLOWAY ROAD
Segment : S/O TWISSELMAN ROAD
Client : STANTEC

Site: LOST HILLS
Date: 08/24/21
D2108029

Interval	NB				SB				Combined				Day:	Tuesday
Begin	AM		PM		AM		PM		AM		PM			
12:00	0	0	6	18	0	0	0	7	0	0	6	25		
12:15	0		2		0		5		0		7			
12:30	0		8		0		0		0		8			
12:45	0		2		0		2		0		4			
01:00	0	0	1	2	0	0	1	1	0	0	2	3		
01:15	0		0		0		0		0		0			
01:30	0		0		0		0		0		0			
01:45	0		1		0		0		0		1			
02:00	0	0	3	14	0	0	3	12	0	0	6	26		
02:15	0		5		0		1		0		6			
02:30	0		2		0		6		0		8			
02:45	0		4		0		2		0		6			
03:00	0	0	1	12	0	0	0	4	0	0	1	16		
03:15	0		1		0		0		0		1			
03:30	0		4		0		2		0		6			
03:45	0		6		0		2		0		8			
04:00	0	5	0	3	0	4	2	7	0	9	2	10		
04:15	1		2		0		1		1		3			
04:30	3		0		2		4		5		4			
04:45	1		1		2		0		3		1			
05:00	4	26	3	8	5	30	0	11	9	56	3	19		
05:15	5		3		4		5		9		8			
05:30	8		0		10		4		18		4			
05:45	9		2		11		2		20		4			
06:00	4	16	0	2	4	12	2	2	8	28	2	4		
06:15	6		1		4		0		10		1			
06:30	2		0		4		0		6		0			
06:45	4		1		0		0		4		1			
07:00	10	31	0	5	4	9	1	3	14	40	1	8		
07:15	8		2		2		0		10		2			
07:30	3		1		0		2		3		3			
07:45	10		2		3		0		13		2			
08:00	6	16	0	1	0	3	1	1	6	19	1	2		
08:15	4		0		2		0		6		0			
08:30	4		0		0		0		4		0			
08:45	2		1		1		0		3		1			
09:00	1	15	1	1	0	2	1	2	1	17	2	3		
09:15	6		0		2		0		8		0			
09:30	2		0		0		0		2		0			
09:45	6		0		0		1		6		1			
10:00	5	13	0	0	2	3	1	4	7	16	1	4		
10:15	0		0		0		0		0		0			
10:30	5		0		0		2		5		2			
10:45	3		0		1		1		4		1			
11:00	0	8	0	0	0	2	0	0	0	10	0	0		
11:15	2		0		0		0		2		0			
11:30	4		0		0		0		4		0			
11:45	2		0		2		0		4		0			
Totals	130		66		65		54		195		120			
Split%	66.7		55.0		33.3		45.0							
Day Totals		196				119				315				
Day Splits		62.2				37.8								
Peak Hour	07:00		12:00		05:00		05:15		05:00		02:00			
Volume	31		18		30		13		56		26			
Factor	0.77		0.56		0.68		0.65		0.70		0.81			

Appendix B ELAND 1 SOLAR FARM PROJECT TRIPS



Eland 1 - Overall ADT with PCE trips by Phase

Total		Portion of Trips =	100.0%											
Phase	Description	Work Days	Month											
			1	2	3	4	5	6	7	8	9	10	11	12
1	Site Preparation	65	158	158										
2	Grading and Earthwork	90		486	486	486								
3,4,5	Foundations, Steel, Electrical	305			1121	1121	1121	1121	1121	1121	1121	1121	1121	1121
6	Collector line installation	40										99	99	99
Total		500	158	644	1607	1607	1121	1121	1121	1121	1121	1220	1220	1220

Appendix C KERN COUNTY EIR PROJECT LIST



Environmental Documents

See also: Notices of Preparation (<https://kernplanning.com/planning/notices-of-preparation/>) to view notices stating that Environmental Impact Reports will be prepared for various major projects. For additional help in viewing a PDF within your browser click here (<http://helpx.adobe.com/acrobat/using/display-pdf-browser-acrobat-xi.html>).

IMPORTANT - PDF File Linking Issue (<https://kernplanning.com/planning/pdf-file-errors/>)

Environmental Documents Archive (<https://kernplanning.com/planning/environmental-documents/eda/>)

Projects

99 Houghton Industrial Park Project (https://kernplanning.com/environmental-doc/99-houghton/)	Posted On: 2019-11-04 03:05	Last Updated: 2019-11-04 03:30	learn more (https://kernplanning.com/environmental-doc/99-houghton/)
Aratina Solar Project (https://kernplanning.com/environmental-doc/aratina-solar-project/)	Posted On: 2021-05-28 09:09	Last Updated: 2021-05-28 09:09	learn more (https://kernplanning.com/environmental-doc/aratina-solar-project/)
AV Apollo Solar Project (https://kernplanning.com/environmental-doc/av-apollo-solar-project/)	Posted On: 12/23/2019	Last Updated: 05/29/2020	learn more (https://kernplanning.com/environmental-doc/av-apollo-solar-project/)
AVEP Solar Project (https://kernplanning.com/environmental-doc/avep-solar-project/)	Posted On: 2021-01-11 03:17	Last Updated: 2021-01-11 03:17	learn more (https://kernplanning.com/environmental-doc/avep-solar-project/)
Bellefield Solar Project (https://kernplanning.com/environmental-doc/bellefield-solar-project/)	Posted On: 2021-07-02 09:04	Last Updated: 2021-07-02 09:04	learn more (https://kernplanning.com/environmental-doc/bellefield-solar-project/)
Big Beau Solar Project (https://kernplanning.com/environmental-doc/big-beau-solar-project/)	Posted On: 01/28/2020	Last Updated: 01/28/2020	learn more (https://kernplanning.com/environmental-doc/big-beau-solar-project/)
Boron Commercial Development Project (https://kernplanning.com/environmental-doc/boron-eir/)	Posted On: 2018-07-24 04:21	Last Updated: 2018-10-11 03:51	learn more (https://kernplanning.com/environmental-doc/boron-eir/)

Camino Solar Project (https://kernplanning.com/environmental-doc/camino-solar-project/)	Posted On: 02/13/2020	Last Updated: 02/13/2020	learn more (https://kernplanning.com/environmental-doc/camino-solar-project/)
Clean Harbors Hazardous Waste Disposal Facility Project (https://kernplanning.com/environmental-doc/clean-harbors-hazardous-waste-disposal-facility-project/)	Posted On: 07/02/2012	Last Updated: 07/02/2012	learn more (https://kernplanning.com/environmental-doc/clean-harbors-hazardous-waste-disposal-facility-project/)
Edwards AFB Solar Project (https://kernplanning.com/environmental-doc/edwards-afb-solar-project/)	Posted On: 2019-06-04 02:53	Last Updated: 2020-01-23 03:49	learn more (https://kernplanning.com/environmental-doc/edwards-afb-solar-project/)
Eland 1 Solar Project (https://kernplanning.com/environmental-doc/eland-1-solar-project/)	Posted On: 2018-12-06 04:49	Last Updated: 2020-10-12 01:17	learn more (https://kernplanning.com/environmental-doc/eland-1-solar-project/)
Fremont Solar (Springbok 2 Solar Farm) Project (https://kernplanning.com/environmental-doc/fremont-solar-springbok-2-solar-farm-project/)	Posted On: 04/10/2015	Last Updated: 04/10/2015	learn more (https://kernplanning.com/environmental-doc/fremont-solar-springbok-2-solar-farm-project/)
Golden Hills Wastewater Treatment System Improvement Project (https://kernplanning.com/environmental-doc/golden-hills-wastewater-treatment-system-improvement-project/)	Posted On: 09/02/2016	Last Updated: 09/02/2016	learn more (https://kernplanning.com/environmental-doc/golden-hills-wastewater-treatment-system-improvement-project/)
Grapevine Specific and Community Plan (2019) (https://kernplanning.com/environmental-doc/grapevine-specific-community-plan-2019/)	Posted On: 2019-08-29 04:18	Last Updated: 2020-01-14 04:47	learn more (https://kernplanning.com/environmental-doc/grapevine-specific-community-plan-2019/)
Highway 46 Warehouse Project (https://kernplanning.com/environmental-doc/highway-46-warehouse-project/)	Posted On: 2018-02-22 04:47	Last Updated: 2018-09-14 09:30	learn more (https://kernplanning.com/environmental-doc/highway-46-warehouse-project/)

Johe Ranch Mining Project (https://kernplanning.com/environmental-doc/johe-ranch/)	Posted On: 2020-11-06 12:04	Last Updated: 2020-12-15 06:22	learn more (https://kernplanning.com/environmental-doc/johe-ranch/)
Lost Hills Composting and Bioenergy (https://kernplanning.com/environmental-doc/lost-hills-compost/)	Posted On: 2021-05-18 02:09	Last Updated: 2021-05-18 02:09	learn more (https://kernplanning.com/environmental-doc/lost-hills-compost/)
Maricopa Sun Solar Complex Project (https://kernplanning.com/environmental-doc/maricopa-sun-solar-complex-project/)	Posted On: 03/10/2011	Last Updated: 04/13/2015	learn more (https://kernplanning.com/environmental-doc/maricopa-sun-solar-complex-project/)
Northwest Petroleum – Addendum EIR (https://kernplanning.com/environmental-doc/northwest-petroleum/)	Posted On: 2018-12-20 09:03	Last Updated: 2019-04-25 11:09	learn more (https://kernplanning.com/environmental-doc/northwest-petroleum/)
Pastoria Solar Project (https://kernplanning.com/environmental-doc/pastoria-solar-project/)	Posted On: 2020-06-25 03:20	Last Updated: 2020-08-27 01:30	learn more (https://kernplanning.com/environmental-doc/pastoria-solar-project/)
PWD Shafter/Wasco Composting (https://kernplanning.com/environmental-doc/pwd-shafter-wasco-composting/)	Posted On: 2021-02-17 04:35	Last Updated: 02/17/2021	learn more (https://kernplanning.com/environmental-doc/pwd-shafter-wasco-composting/)
Raceway 2.0 Solar Project (https://kernplanning.com/environmental-doc/raceway_2-0_solar_project/)	Posted On: 2021-03-17 11:53	Last Updated: 2021-06-28 01:56	learn more (https://kernplanning.com/environmental-doc/raceway_2-0_solar_project/)
RB Inyokern Solar Project (https://kernplanning.com/environmental-doc/rb-inyokern-solar-project/)	Posted On: 2020-07-02 12:12	Last Updated: 2020-10-28 11:24	learn more (https://kernplanning.com/environmental-doc/rb-inyokern-solar-project/)
RE Garland Solar Project (https://kernplanning.com/environmental-doc/re-garland-solar-project/)	Posted On: 06/01/2015	Last Updated: 06/01/2015	learn more (https://kernplanning.com/environmental-doc/re-garland-solar-project/)
Recology Blossom Valley Organics – South (https://kernplanning.com/environmental-doc/recology_eir/)	Posted On: 2018-05-22 02:00	Last Updated: 2018-08-10 03:17	learn more (https://kernplanning.com/environmental-doc/recology_eir/)

Ridgecrest Recycling & Sanitary Landfill (https://kernplanning.com/environmental-doc/ridgecrest-recycling-sanitary-landfill/)	Posted On: 07/06/2015	Last Updated: 07/06/2015	learn more (https://kernplanning.com/environmental-doc/ridgecrest-recycling-sanitary-landfill/)
Sanborn Solar Project (https://kernplanning.com/environmental-doc/sanborn-solar-project/)	Posted On: 02/04/2020	Last Updated: 02/04/2020	learn more (https://kernplanning.com/environmental-doc/sanborn-solar-project/)
Soledad Mountain Project (https://kernplanning.com/environmental-doc/soledad-mountain-project/)	Posted On: 08/29/2014	Last Updated: 07/09/2020	learn more (https://kernplanning.com/environmental-doc/soledad-mountain-project/)
Supplemental Recirculated Environmental Impact Report (2020/2021) for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting (https://kernplanning.com/environmental-doc/oil-and-gas-sreir/)	Posted On: 2020-04-20 06:59	Last Updated: 2021-04-08 05:29	learn more (https://kernplanning.com/environmental-doc/oil-and-gas-sreir/)
Valley Solar Project – Addendum by Rival Power and Energy (https://kernplanning.com/environmental-doc/valley-solar-project-addendum-rival-power-energy/)	Posted On: 10/05/2015	Last Updated: 10/05/2015	learn more (https://kernplanning.com/environmental-doc/valley-solar-project-addendum-rival-power-energy/)
Windhub Solar Project (https://kernplanning.com/environmental-doc/windhub-solar-project/)	Posted On: 2018-08-22 04:19	Last Updated: 2019-04-25 11:08	learn more (https://kernplanning.com/environmental-doc/windhub-solar-project/)

View Environmental Docs Archive (<https://kernplanning.com/planning/environmental-documents/eda/>)

Posted in Planning (<https://kernplanning.com/category/planning/>)