Draft
Environmental Impact Report

SCH# 2021060079

Volume 2

Appendices A through D

ROSAMOND SOUTH SOLAR PROJECT

by Golden Fields Solar IV, LLC *(PP19151)*

Specific Plan Amendment No. 40, Map No. 231
Specific Plan Amendment No. 33, Map No. 232
Zone Change Case No. 157, Map No. 231
Zone Change Case No. 43, Map No. 232
Zone Change Case No. 18, Map No. 233
Conditional Use Permit No. 20, Map No. 231
Conditional Use Permit No. 40, Map No. 232
Conditional Use Permit No. 46, Map No. 232
Conditional Use Permit No. 44, Map No. 232
Conditional Use Permit No. 16, Map No. 233
Specific Plan Amendment No. 31, Map No. 32 (circulation)
Nonsummary Vacations Map No. 231
Nonsummary Vacations Map No. 232

Kern County
Planning and Natural Resources Department
Bakersfield, California

July 2022

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Kern County
Planning and Natural Resources Department
Bakersfield, California

Technical Assistance by:
Kimley-Horn

July 2022

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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.

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Appendix A
Initial Study/Notice of Preparation and Notice of Preparation Responses

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Fax: (661) 862-8601 TTY Relay 1-800-735-2929
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Web Address: http://kernplanning.com/

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: June 3, 2021

TO: See Attached Mailing List

FROM: Kern County Planning and Natural Resources Department
Attn: Terrance Smalls
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 ROSAMOND SOUTH SOLAR PROJECT 2.0 BY GOLDEN FIELDS SOLAR, 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 **July 3, 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 **Friday, June 25, 2021 at 1:30 p.m**.

PROJECT TITLE: Rosamond South Solar Project by Golden Fields Solar IV, LLC (PP19151); SPA 40, Map #231; SPA 33, Map #232; ZCC 157, Map #231; ZCC 43, Map #232; ZCC 18, Map #233; CUP 120, Map #231; CUP 40, Map #232; CUP 46, Map #232; CUP 44, Map #232; CUP 16, Map #233; and SPA 31, Map #232.

PROJECT LOCATION: The proposed project site is located in the Mojave Desert within unincorporated Kern County, bounded by Rosamond Boulevard to the north, 90th Street West to the east, West Avenue A to the south and 170th Street West to the west. The proposed project site is in the vicinity of the unincorporated communities of Boron and Desert Lake and north of the of Edwards Air Force Base boundary. Access to the site would be from Rosamond Boulevard, Avenue A, Avenue D, Astoria Avenue, Gaskell Road, Holiday Avenue, Willow Avenue, Kingbird Avenue, 100th Street West, 140th Street West, 130th Street West and 170th Street West.

The site is located within Section 24 Township 9 North, Range 15 West and Sections 20, 21, 27, and 28, Township 9 North, Range 14 West, and Sections 30 and 31 Township 9 N Range 13W, San Bernardino Base and Meridian.

PROJECT DESCRIPTION: Notice of Preparation/Initial Study reflects the modified project, titled the Rosamond South Solar Project.

The Rosamond South Solar Project, as proposed by Golden Fields Solar IV, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 154 megawatt-alternating current (MW-AC) of renewable energy, including up to 200 megawatts of energy storage, on approximately 1,292 acres of privately-owned land. The project site consists of 4 sites (Sites 1 through 4) located on 64 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) Amendments to the Willow Springs Specific Plan as follows:

- Specific Plan Amendment No. 40, Map No. 231 from map code designation 7.1/4.4 (Light Industrial, Comprehensive Planning Area) to 7.1 (Light Industrial) on approximately 247 acres and from map code designation 7.2/4.4 (Service Industrial, Comprehensive Planning Area) to 7.2 (Service Industrial) on approximately 118 acres

- Specific Plan Amendment No. 33, Map No. 232 from map code designation 5.3/4.4 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area) to 5.3 (Residential, Maximum 10 Units per Net Acre) on approximately 80 acres and from map code designation 5.3/4.4/2.6 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area/Erosion Hazard) to 5.3/2.6 (Residential Maximum 10 units per Net Acre/Erosion Hazard) on approximately 80 acres

b) Changes in zone classifications as follows:

- Zone Change Case No. 157, Map No. 231 – From E(2 ½) RS FPS to A FPS on approximately 607 acres

- Zone Change Case No. 43, Map No. 232 – From E(5) RS FPS to A FPS on approximately 330 acres

- Zone Change Case No. 18, Map No. 233 – From E(2 ½) RS FPS to A FPS on approximately 96 acres

c) Conditional Use Permits to allow for the construction and operation of three (3) solar facilities with a total generating capacity of approximately 154 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 200 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 231, 232, and 233) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- CUP Area 1 (solar and energy storage)
    - Conditional Use Permit No. 120, Map No. 231 for 70.99 acres
- CUP Area 2 (solar and energy storage)
    - Conditional Use Permit No. 40, Map No. 232 for 240.58 acres
- CUP Area 3 (solar and energy storage)

- Conditional Use Permit No. 46, Map No. 232 for 541.16 acres

- CUP Area 4 (solar and energy storage)
  - Conditional Use Permit No. 16, Map No. 233 for 439.26 acres

- Telecommunication Tower
  - Conditional Use Permit No. 44, Map No. 232

d) General Plan Amendments to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines within the project boundaries:

- Specific Plan Amendment No. 31, Map No. 232

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

Signature: _____

Name: Terrance Smalls, Supervising Planner

Rosamond South Solar Project - EIR
(ZC #157; CUP #120, Map #231)
WO #PP19151
I:\Planning\WORKGRPS\WP\LABELS\eir-rosamond south solar.nop.docx.doc
Sc 05/26/21

Jo Ellen Alexander
P.O. Box 2000
Rosamond, CA 93560

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1715 Chester Avenue
Bakersfield, CA 93301

Bakersfield City Public Works Dept
1501 Truxtun Avenue
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Delano City Planning Dept
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Delano, CA 93216

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Maricopa, CA 93252

City of McFarland
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McFarland, CA 93250

City of Ridgecrest
100 West California Avenue
Ridgecrest, CA 93555

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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
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Wasco, CA 93280

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Independence, CA 93526

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Hanford, CA 93230

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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
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555

China Lake Naval Weapons Center
Tim Fox, RLA - Comm Plans & Liaison
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Mail Stop 4001
China Lake, CA 93555

Edwards AFB, Mission Sustainability Liaison
412 TW, Bldg 2750, Ste 117-14
195 East Popson Avenue
Edwards AFB, CA 93524

U.S. Fish & Wildlife Service
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, CA 92262

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

State Air Resources Board
Stationary Resource Division
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Sacramento, CA 95812

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9001 Stockdale Highway
Bakersfield, CA 93311

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Planning/Land Bank Bldg.
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Fresno, CA 93778

Caltrans/Dist 9
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Bishop, CA 93514

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Director's Office
801 "K" Street, MS 24-01
Sacramento, CA 95814-3528

State Dept of Conservation
Geologic Energy Management Division
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Bakersfield, CA 93309

California Energy Commission
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Sacramento, CA 95814

California Fish & Wildlife
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Fresno, CA 93710

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Planning & Analysis Division
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Public Utilities Comm Energy Div
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San Francisco, CA 94102

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Control Board/Lahontan Region
15095 Amargosa Road - Bld 2, Suite 210
Victorville, CA 92392

State Dept of Water Resources
San Joaquin Dist.
3374 East Shields Avenue, Room A-7
Fresno, CA 93726

Kern County
Agriculture Department

Kern County Administrative Officer

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept
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 Library
Wanda Kirk/Rosamond Branch
3611 Rosamond Boulevard
Rosamond, CA 93560

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

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

Rosamond Municipal Advisory Council
P.O. Box 626
Rosamond, CA 93560

Mojave Town Council
Bill Deaver, President
P.O. Box 1113
Mojave, CA 93502-1113

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Rosamond, CA 93560

Kern County Superintendent of Schools
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Bakersfield, CA 93301

KernCOG
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Bakersfield, CA 93301

Antelope Valley-East Kern
Water Agency
6500 West Avenue N
Palmdale, CA 93551

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

East Kern Air Pollution
Control District

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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
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Anitra Kass
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Southern California Edison

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Leadership Counsel for Justice &
Accountability
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Bakersfield, CA 93301

LIUNA
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Bakersfield, CA 93301

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Arvin, CA 93203

U.S. Army
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Strategic Plans, S3, NTC
P.O. Box 10172
Fort Irwin, CA 92310

U.S. Navy
Attn: Steve Chung
Regional Community & Liaison Officer
1220 Pacific Highway
San Diego, CA 92132-5190

U.S. Air Force
Attn: David Bell/AFCEC CZPW
Western Regional/Leg Branch
510 Hickman Ave., Bld 250-A
Travis AFB, CA 94535-2729

U.S. Marine Corps
Attn: Patrick Christman
Western Regional Environmental Officer
Building 1164/Box 555246
Camp Pendleton, CA 92055-5246

U.S. Army
Attn: Tim Kilgannon, Region 9
Coordinator
Office of Strategic Integration
721 - 19th Street, Room 427
Denver, CO 80202

Terra-Gen
Randy Hoyle, Sr. Vice Pres
11512 El Camino Real, Suite 370
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Renewal Resources Group
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Rupal Patel
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Fotowatio Renewable Ventures
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AES Midwest Wind Gen
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Renewal Dev, T&D Intercon
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Wayne Mayes, Dir Tech Serv
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Michael Strickler, Sr Project Mgr
Iberdrola Renewables
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Portland, OR 97209

Recurrent Energy
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San Francisco, CA 92109

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Kelly Group
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Beyond Coal Campaign/Sierra Club
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Los Angeles, CA 90026

Robert Burgett
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Mojave, CA 93501

Structure Cast
Larry Turpin, Sales Mgr
8261 McCutchen Road
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Email: planning@kerncounty.com
Web Address: http://kernplanning.com/

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: June 3, 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 – Rosamond South Solar Project by Golden Fields Solar IV, LLC (PP19151)

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 IS/NOP and submit written comments regarding this proposed project should you wish to do so. Due to the limits mandated by State law, your response must be received by **July 3, 2021 at 5:00 p.m**. Comments can be submitted to the Kern County Planning and Natural Resources Department, Attn: Terrance Smalls, at the address shown above or to SmallsT@kerncounty.com. Your comments can also be submitted at a scoping meeting that will be held on **Friday, June 25, 2021**.

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: Rosamond South Solar Project by Golden Fields Solar IV, LLC (PP19151); SPA 40, Map #231; SPA 33, Map #232; ZCC 157, Map #231; ZCC 43, Map #232; ZCC 18, Map #233; CUP 120, Map #231; CUP 40, Map #232; CUP 46, Map #232; CUP 44, Map #232; CUP 16, Map #233; and SPA 31, Map #232.

PROJECT LOCATION: The proposed project site is located in the Mojave Desert within unincorporated Kern County, bounded by Rosamond Boulevard to the north, 90th Street West to the east, West Avenue A to the south and 170th Street West to the west. The proposed project site is in the vicinity of the unincorporated communities of Boron and Desert Lake and north of the of Edwards Air Force Base

boundary. Access to the site would be from Rosamond Boulevard, Avenue A, Avenue D, Astoria Avenue, Gaskell Road, Holiday Avenue, Willow Avenue, Kingbird Avenue, 100th Street West, 140th Street West, 130th Street West and 170th Street West.

The site is located within Section 24 Township 9 North, Range 15 West and Sections 20, 21, 27, and 28, Township 9 North, Range 14 West, and Sections 30 and 31 Township 9 N Range 13W, San Bernardino Base and Meridian.

PROJECT DESCRIPTION: Notice of Preparation/Initial Study reflects the modified project, titled the Rosamond South Solar Project.

The Rosamond South Solar Project, as proposed by Golden Fields Solar IV, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 154 megawatt-alternating current (MW-AC) of renewable energy, including up to 200 megawatts of energy storage, on approximately 1,292 acres of privately-owned land. The project site consists of 4 sites (Sites 1 through 4) located on 64 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) Amendments to the Willow Springs Specific Plan as follows:

- Specific Plan Amendment No. 40, Map No. 231 from map code designation 7.1/4.4 (Light Industrial, Comprehensive Planning Area) to 7.1 (Light Industrial) on approximately 247 acres and from map code designation 7.2/4.4 (Service Industrial, Comprehensive Planning Area) to 7.2 (Service Industrial) on approximately 118 acres

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b) Changes in zone classifications as follows:

- Zone Change Case No. 157, Map No. 231 – From E(2 ½) RS FPS to A FPS on approximately 607 acres

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c) Conditional Use Permits to allow for the construction and operation of three (3) solar facilities with a total generating capacity of approximately 154 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 200 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 231, 232, and 233) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- CUP Area 1 (solar and energy storage)

- Conditional Use Permit No. 120, Map No. 231 for 70.99 acres

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- Telecommunication Tower
  - Conditional Use Permit No. 44, Map No. 232

d) General Plan Amendments to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines within the project boundaries:

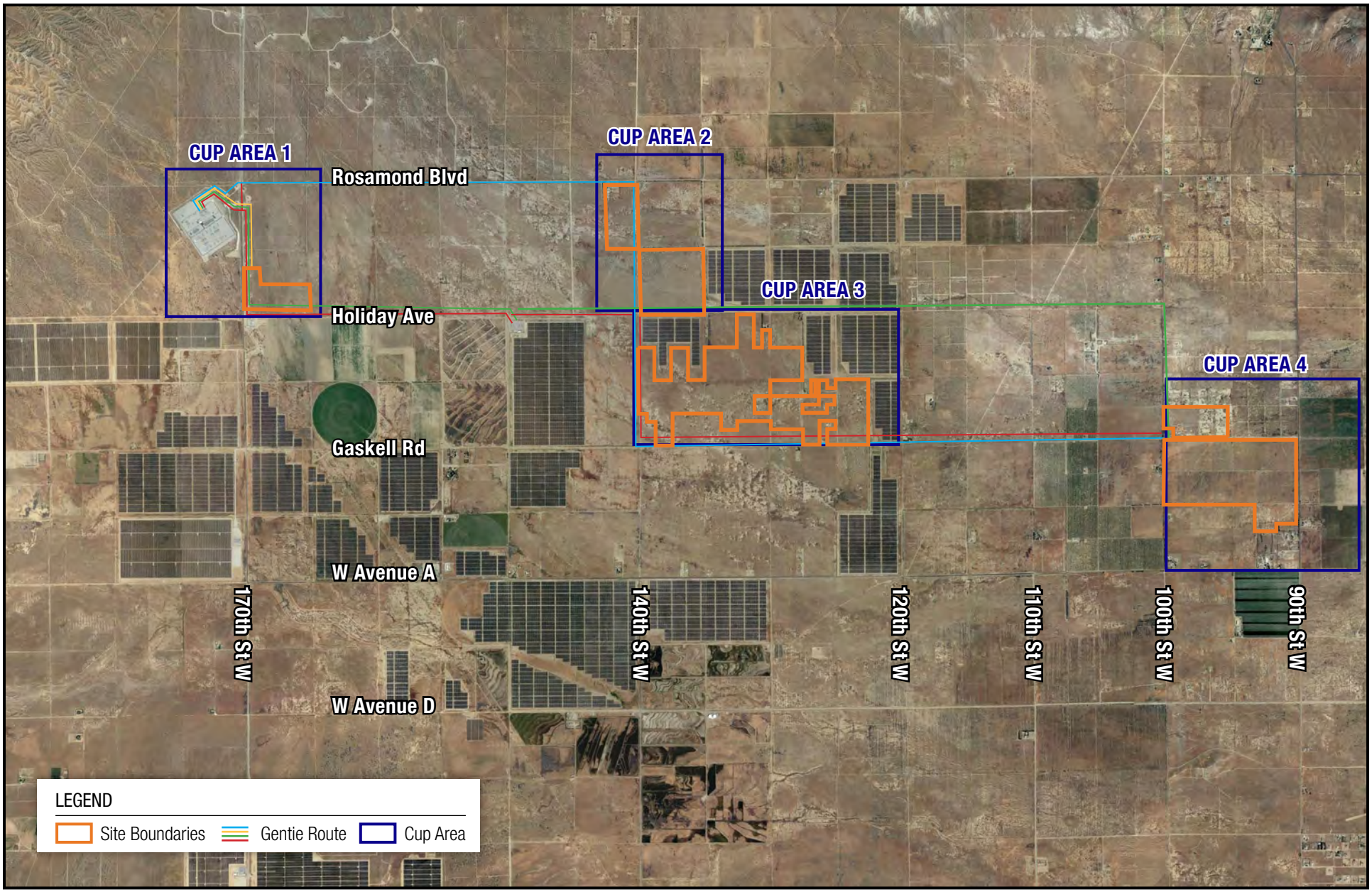
- Specific Plan Amendment No. 31, Map No. 232

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 1 -Aerial Map with Site Boundaries
Figure 2 – Local Vicinity Map



Source: Google Earth

N.T.S.

FIGURE 1: Aerial Map with Site Boundaries

Rosamond South Solar Project

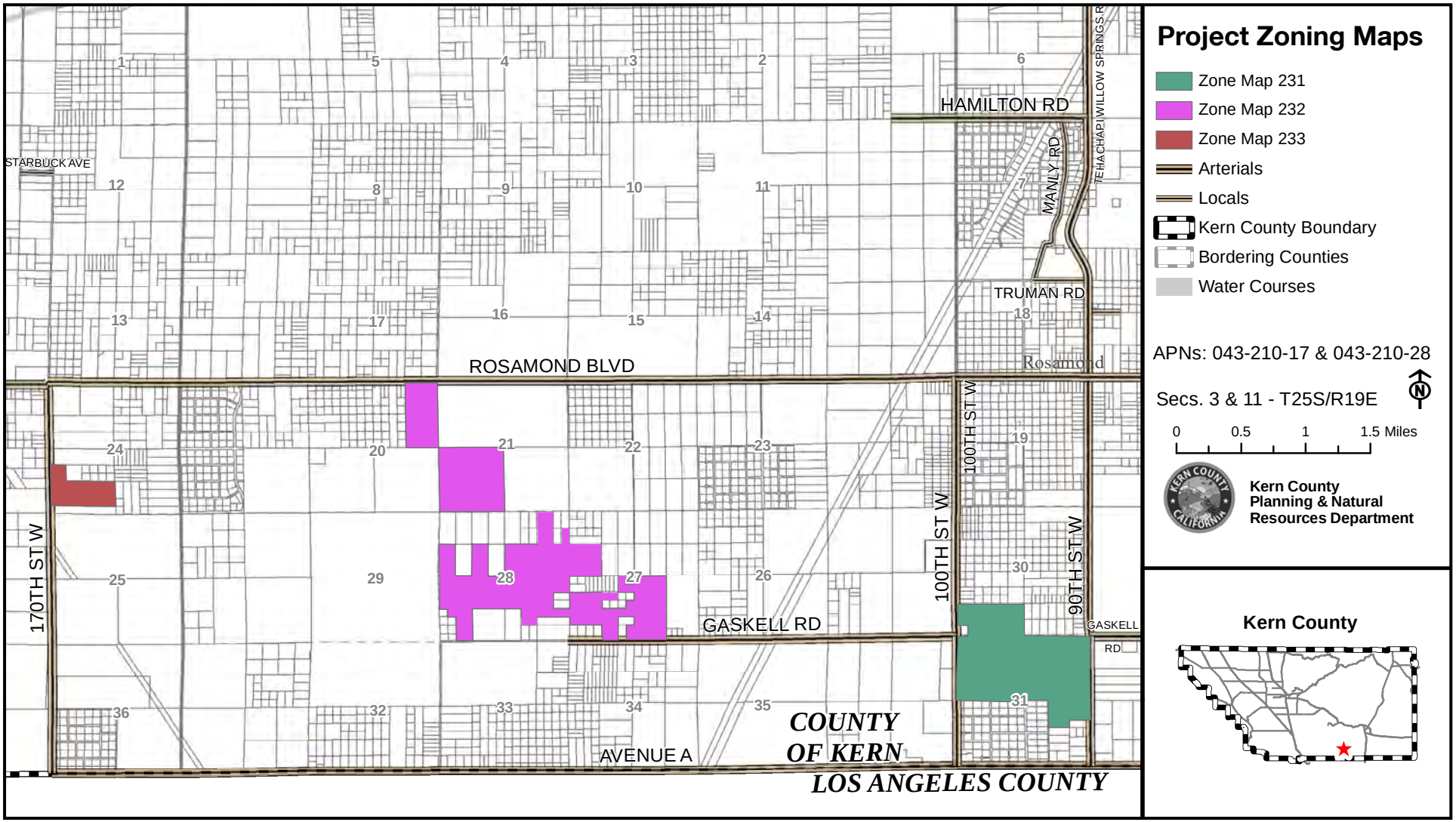


FIGURE 2: Local Vicinity Map

Rosamond South Solar Project

Rosamond South Solar Project - EIR
(ZC #157; CUP #120, Map #231)
WO #PP19151
I:\Planning\WORKGRPS\WP\LABELS\eir-rosamond south solar.noa.docx
Sc 05/26/21

359 403 07 00 3
ALVAREZ CELIA ISABEL GARCIA
PO BOX 56867
SHERMAN OAKS CA 91413-6867

359 031 22 00 5 **DUP**
ANTELOPE VALLEY E KERN WTR AG
P O BOX 3176
QUARTZ HILL CA 93534

374 011 13 00 4
ANTELOPE VALLEY EAST KERN WATER AGENCY
6500 WEST AVENUE E 15
PALMDALE CA 93551

374 400 08 00 6
BALUN ANTHONY G TR
101 EASTGATE CT U 107
ALGONQUIN IL 60102-3078

261 120 58 00 7
BARRY W & E TRUST
8124 NE SIGUARD CT
ALBUQUERQUE NM 87109

359 401 10 00 7
BENITO RAYMUNDO S & LIRA C
PO BOX 56867
SHERMAN OAKS CA 91413-6867

359 100 38 00 5
BLACKLOCK WAYNE L & GLENDA L LIV TR
P O BOX 2160
GAINESVILLE TX 76241

374 313 03 00 6
BRANCH WILLIAM O & OPAL W TR
18 SAGAMORE PL
HILLSBOROUGH NC 27278-9742

359 324 06 00 4
BURNSIDE TRUST
1311 S TREMAINE AV
LOS ANGELES CA 90019-1725

359 032 37 00 6
ALLYN HENRY GREGORY III & COTT CYNTHIA
42130 22ND ST WEST
QUARTZ HILL CA 93536

374 321 09 00 3
ANDERSON MAXINE R REV TR
11414 SERRA RD SP 49
APPLE VALLEY CA 92308-7750

359 174 14 00 4
ANTELOPE VALLEY E KERN WTR AG
P O BOX 3176
QUARTZ HILL CA 93536

359 401 18 00 1
AYALA BALTAZAR & BLANCA
5541 LAUREL CANYON BL # 1
VALLEY VILLAGE CA 91607

261 120 59 00 0
BALUYUT REVOCABLE LIVING TRUST
PO BOX 56867
SHERMAN OAKS CA 91413-1867

374 400 01 00 5
BAUER DENNIS JAMES
14420 CARLSBAD ST
SYLMAR CA 91342-5112

261 120 42 00 0
BERKOWITZ VERNON H & ANN G TR
661 PARKVIEW CT
PACIFICA CA 94044-1531

374 311 01 00 6
BODTKE KERRY W & DEBRA F TR
5143 N EVENING STAR DR
ST. GEORGE UT 84770-7365

358 330 10 00 3
BRITTAN R E & M B TR & TRS ET AL
8862 SATTERFIELD
HUNTINGTN BCH CA 92646

359 100 28 00 6
CAIN JOSEPH
6481 ATLANTIC AV N213
LONG BEACH CA 90805

374 311 03 00 2
ALPHA LP
P O BOX 280188
NORTHRIDGE CA 91328-0188

358 330 18 00 7
ANGELOPOULOS FMLY TR
9131 GAINFORD ST
DOWNEY CA 90240

359 175 06 00 8
ANTELOPE VALLEY E KERN WTR AG
554 W LANCASTER BL
LANCASTER CA 93534

261 120 18 00 1
BALONZO MARIE D
1275 LUNDY AV
SAN JOSE CA 95131-2979

374 460 20 00 8
BANUELOS REYES JUAN & LIDIA MARIBEL
PO BOX 2477
ROSAMOND CA 93560

359 331 16 00 5
BEDOY MARIA G
7517 BRETT AV
LAMONT CA 93241

359 401 13 00 6
BKH INTERNET INC
10150 LITTLE LEAF LN
SANTEE CA 92071

359 402 06 00 3
BOWDEN JAMES JR & ANN L
4878 BROOKDALE DR
MUSKEGON MI 49441-5212

359 100 11 00 6
BURLEY DAVID RICHARD REVOCABLE TRUST
2720 CENTERVILLE RD
ANDERSON SC 29625-6205

359 402 04 00 7
CALIFORNIA CHRISTIAN SCHOOLS
78640 CASTLE PINES DR
LA QUINTA CA 92253-5816

374 312 06 00 8
CAPUANO FAMILY TR
1925 MIRADOR DR
AZUSA CA 91702

358 330 13 00 2
CARAS CHRIS W & JOAN TRUST
1901 PASEO DEL MAR
PALOS VERDES ES CA 90274-2657

261 120 10 00 7
CARDENAS ANA
PO BOX 56867
SHERMAN OAKS CA 91413-1867

374 304 06 00 9
CARREON FREDRIC ANTHONY
2413 W LINCOLN AV
MONTEBELLO CA 90640-2329

374 460 10 00 9
CASHBAUGH TRUST
1290 100TH ST WEST
ROSAMOND CA 93560

374 460 08 00 4
CASTILLO PANFILO
1358 W 100TH ST
ROSAMOND CA 93560

359 332 20 00 3
CASTRO MONTOYA ALEJANDRO &
ROBLES CASTRO A D
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 020 49 00 4
CHANG DANA TUNG
18010 SUMMER AV
ARTESIA CA 90701

374 460 09 00 7
CHAPPELL TEAM ADVANTAGE INC
332 GOLDEN SHORE DR
LAS VEGAS NV 89123

374 460 22 00 4
CHAVEZ WILLIAM & SHALLEN
PO BOX 1165
ROSAMOND CA 93560

359 100 20 00 2
CHAVEZ ZENAIDA DE JESUS
1415 CALLE LOZANO
CAMARILLO CA 93012-4104

374 150 05 00 5
CHULALUXSIRIBOON BIRAYUDH &
SIRIWONG
4334 RIO HONDO AV
ROSEMEAD CA 91770

359 100 05 00 9
COLEMAN RANIESHA
14154 W ROSAMOND BL
ROSAMOND CA 93560-7195

261 120 39 00 2
COLLINS BARBARA ALICE
P O BOX 96
LINCOLN AR 72744

374 460 11 00 2
COLMENARES JUAN JR
1268 W 100TH ST
ROSAMOND CA 93560-7266

359 100 03 00 3
COMMUNITY HOSP OF MONTEREY
PENINSULA
P O BOX HH
MONTEREY CA 93942

359 332 09 00 2
COOLEY FAMILY TRUST
790 JONIVE RD
SEBASTOPOL CA 95472-9298

261 120 51 00 6
CORADO VICTORIA LETICIA V
7772 BIRCHLEAF AV
PICO RIVERA CA 90660

374 313 08 00 1
CORN C & FRANCES TR & TRS ET AL
6537 OLYMPIC PL
LOS ANGELES CA 90035-2526

374 312 03 00 9
COSTA LARRY L
P O BOX 3144
SEAL BEACH CA 90740

374 240 09 00 3
COSTELLO MARY C TRUST
8 AZULADO DR
RMV CA 92694-2435

359 401 20 00 6
COTTRELL WILLIAM F & BRENDA J
2257 W AVENUE N8
PALMDALE CA 93551-2372

359 100 39 00 8
COYLE GEORGE D & BIRT JOHN W
81372 AVENIDA SOMBRA
INDIO CA 92203-7553

359 100 31 00 4
CUETO DANILO C & DELMA D
14638 4TH AV
SEATTLE WA 98168

261 120 01 00 1
CULLA VIRGINIA A
PO BOX 27295
LOS ANGELES CA 90027-0295

374 311 04 00 5
DAHMEN HANS & HANNELORE
LIVING TRUST
26501 AVENIDA VERONICA
MISSON VIEJO CA 92691

374 400 13 00 0
DAMON TRUST
10373 HAWTHORNE AV
HESPERIA CA 92345

358 330 19 00 0
DAVIES DONALD G
10353 FLORALITA AV
SUNLAND CA 91040

359 332 21 00 6 **DUP**
DAVIS JOHN K
ADDRESS UNKNOWN

261 120 56 00 1
DE GUZMAN MENANDRO G &
MARITES M
5604 TWILIGHT CHASE ST
LAS VEGAS NV 89130

261 120 52 00 9
DEL SOL PROPERTIES INC
12121 WILSHIRE BL STE 600
LOS ANGELES CA 90025

374 304 01 00 4
DILLOW GEORGE S JR
5815 ROBIN LN
TROY MO 63379-5013

359 100 21 00 5
DUGAN EUGENE ALLEN & PAULINE MARIE TR
1165 RHINE ST
SAN DIEGO CA 92154-3071

359 332 22 00 9
ELHATOUM MOHAMMED N
43714 E 16TH ST
LANCASTER CA 93535-4349

359 331 08 00 2
EMERY DURANT & LINDA
499 MINOA
PASADENA CA 91107

359 332 15 00 9
ENCARNACION VIRGINIA R
2621 DUHALLOW WY
S SAN FRANCISCO CA 94080

359 401 06 00 6
ENRIQUEZ VICTOR A
12715 BOBTAIL LN
ROSAMOND CA 93560-7059

374 400 22 00 6
EQUITY TR CO CUSTDN
PO BOX 56867
SHERMAN OAKS CA 91413

359 032 15 00 2
EQUITY TR CO CUSTDN FBO REITZELL JEANIE
PO BOX 187
PLEASANTON CA 94566

374 400 26 00 8
EQUITY TRUST CO FBO DIANE R NELSON ROTH IRA
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 403 06 00 0 **DUP**
EQUITY TRUST COMPANY
PO BOX 56867
SHERMAN OAKS CA 91413-6867

359 324 01 00 9 **DUP**
EQUITY TRUST COMPANY CUSTODIAN FBO
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 332 10 00 4
ESTRADA MICHAEL J & NANCY P
11762 AVENIDA DEL SOL
NORTHRIDGE CA 91326-1240

359 331 14 00 9
FALVO JAY
3755 SHADOW GROVE RD
PASADENA CA 91107-2238

374 321 08 00 0
FARNER BETTY L
245 CHAFFIN RD
ROSWELL GA 30075-2429

359 332 35 00 7
FELDER JENNIFER JO
5686 KNIGHT RD
BELLINGHAM WA 98226-7521

359 332 16 00 2
FLETCHER JOANNE
2550 CLARK ST
BAKER CITY OR 97814-2234

359 323 02 00 5
FRANG KE MEI
12882 GASKELL RD
ROSAMOND CA 93560

374 313 07 00 8
FRIESEN MARGARET A
1259 COLFAX CT
MOUNT PLEASANT SC 29466-7971

359 324 17 00 6
FRISCH JONATHAN M
PO BOX 50001
SAN DIEGO CA 92165-0001

374 301 08 00 4
FUJIMOTO FMLY TR
2439 W 229TH PL
TORRANCE CA 90501-5239

359 100 32 00 7
FULCHER KARI L
3701 CLAYSFORD CT
ARLINGTON TX 76015

261 120 63 00 1
FUNG CONNIE YUK YIN FAMILY TRUST
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 331 09 00 5
GARY BRUCE W
P O BOX 580
ROSAMOND CA 93560

374 311 08 00 7
GAUTHIER MICHAEL C FAM TR
1642 9TH ST
MANHATTAN BEACH CA 90266-6129

359 324 16 00 3
GENG XIUMEI
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 401 16 00 5
GILES THOMAS F
3765 S HIGHWAY 145
WAYNESBORO MS 39367

359 323 10 00 8
GLASBY FAMILY TR
15971 RANCH HOUSE RD
CHINO HILLS CA 91709-2375

374 302 04 00 9
GODDE GARY M TRUST
1793 BITTERBRUSH CT
GARDNERVILLE NV 89410-6655

359 332 13 00 3
GODDE JEFFREY & RUTH REV TR
13104 BUCKHORN AV
ROSAMOND CA 93560-7014

359 332 14 00 6 **DUP**
GODDE JEFFREY & RUTH REV TRUST
13104 BUCKHORN AV
ROSAMOND CA 93560-7014

374 450 02 00 3
GODDE MAX C
212 W SIERRA VIEW DR
JACKSON CA 95642-2232

359 332 36 00 0
GOLDEN FIELDS SOLAR III LLC
PO BOX 4900
SCOTTSDALE AZ 85261

359 332 12 00 0
GOLDEN FIELDS SOLAR IV
5780 FLEET ST STE 130
CARLSBAD CA 92008

359 331 06 00 6
GOLDEN FIELDS SOLAR IV L
100 CALIFORNIA ST STE 400
SAN FRANCISCO CA 94111-4509

359 331 23 00 5 **DUP**
GOLDEN FIELDS SOLAR IV L
100 CALIFORNIA AV STE 400
SAN FRANCISCO CA 94111-4509

261 120 05 00 3 **DUP**
GOLDEN FIELDS SOLAR IV LLC
100 CALIFORNIA ST # 400
SAN FRANCISCO CA 94111-4509

374 460 15 00 4
GOMEZ MARTIN GIL & ESTHER
1332 W 99TH ST
ROSAMOND CA 93560

359 332 02 00 1
GORBY FMLY TR
10566 GROVE OAK DR
SANTA ANA CA 92705-2588

374 312 05 00 5
H O E INVS INC
23905 CLINTON KEITH RD STE 114
WILDOMAR CA 92595-7899

358 040 04 00 2
HA NORTH ROSAMOND LLC
1906 TOWNE CENTRE BL STE 370
ANNAPOLIS MD 21401

359 020 07 00 2 **DUP**
HA ROSAMOND LLC
1906 TOWNE CENTRE BL U 370
ANNAPOLIS MD 21401-3685

359 323 13 00 7
HADDAD JOBE
41619 W 70TH ST
PALMDALE CA 93551

359 323 09 00 6
HALL DAVE N & LESLIE L TRUST
3690 CHERRYWOOD DR
REDDING CA 96002-4877

374 400 23 00 9
HALLIS SIDNEY N & FRANCIS G
1328 S CAMINO REAL
PALM SPRINGS CA 92264-8464

359 401 17 00 8
HAMMEL BECKY L
44248 W 10TH ST
LANCASTER CA 93534-4134

374 302 03 00 6
HANSON ETHEL M TR
4150 JEFFERSON ST
NAPA CA 94558

374 311 06 00 1
HERRON STEVEN R
1915 N MOUNTAIN VISTA LN
STAR ID 83669-5167

374 460 18 00 3
HOLLISTER JOHN R & COBB TERI L
1012 E AVENUE J # 127
LANCASTER CA 93535-3803

261 120 40 00 4
HOME EQUITY OPTIONS LLC
10401 VENICE BL # 283
LOS ANGELES CA 90034

374 301 02 00 6 **DUP**
HOME EQUITY OPTIONS LLC
10401 VENICE BL 283
LOS ANGELES CA 90034

374 311 10 00 2 **DUP**
HOME EQUITY OPTIONS LLC
10401 VENICE BL STE 283
LOS ANGELES CA 90034-6466

261 120 62 00 8
HUANG ALEXANDER ETHAN
PO BOX 56867
SHERMAN OAKS CA 91413-1867

374 301 05 00 5
HUBER STEVEN
1841 KNOLL DR
VENTURA CA 93003-7389

359 100 25 00 7
HUMANE SOCIETY OF U S
700 PROFESSIONAL DR
GAITHERSBURG MD 20879

374 312 02 00 6
HURST JAMES M & BONNIE J
2400 E RED CEDAR LN
BOISE ID 83716

374 460 26 00 6
HUSTON RYAN C
1401 W 99TH ST
ROSAMOND CA 93560

374 450 09 00 4
ILIC VICKY SLAVICA & DON SLAVICA
2010 W AVENUE K5
LANCASTER CA 93536-5236

359 401 08 00 2
IWASA YOSHIMI & LORETTA
1715 168TH ST. WEST
GARDENA CA 90247

374 302 05 00 2
JARVIS JENNIFER
313 E 14TH ST
EDMOND OK 73034-4719

359 323 47 00 6
JARVIS KATHERINE C
33902 DESERT RD
ACTON CA 93510-2819

359 401 11 01 9
JIBILIAN ALBERT
8117 W MANCHESTER AV
PLAYA DEL REY CA 90293

261 120 49 00 1
JONES NAN TR
3613 DESERT FOX DR
SPARKS NV 89436-8719

359 332 18 00 8
KAKUDA DOUGLAS & JEAN
P O BOX 173
WAIMEA HI 96796

359 324 19 00 2
KAM ANNETTE F
PO BOX 10808
OAKLAND CA 94610-0808

359 323 07 00 0
KAO SHEN YANG & ROSE DIEP REV TR
2616 GLADE DR
SANTA CLARA CA 95051-1149

374 020 41 00 1
KAONA RANOVAC TRUST
44816 RUTHRON ST
LANCASTER CA 93536-8413

358 330 11 00 6
KATHARY KYLE
14271 ROSAMOND BL
ROSAMOND CA 93560

359 100 23 00 1
KAY FAMILY TRUST
3859 VIA VERDE
THOUSAND OAKS CA 91360-6933

359 403 10 00 1
KEPKE WILLIAM F
1670 GREEN ASH RD
RENO NV 89511-2700

359 332 01 00 8
KIM KAZUMI TRUST
7534 WEST 88TH ST
LOS ANGELES CA 90045

359 323 14 00 0
KLECANSKY MILDRED FRANCES TR
14517 W HERITAGE DR
SUN CITY WEST AZ 85375-5969

374 312 04 00 2
KNAPP FMLY TR
4420 LONGWORTHE SQ
ALEXANDRIA VA 22309-1226

374 450 03 00 6
KOCHEL EMILY
50508 W 90TH ST
LANCASTER CA 93536-9405

374 450 04 00 9
KOEPSEL AUDRA L
9101 SPUR RANCH RD
ROSAMOND CA 93560-7017

359 323 01 00 2
KOIVISTO ROLAND B & GLADYCE E
4327 EDENBURY DR
SANTA MARIA CA 93455-3514

374 400 07 00 3
KUZNITSKY GERALD
3 HASTINGS ON OXFORD
ROLLING MEADOWS IL 60008-1914

374 321 03 00 5
LA VELLE JOHN D & DARLENE J
9 SOMBRERO BL APT 104
MARATHON FL 33050

374 313 05 00 2
LAMPL WILLIAM J & CLIFFORD KATHLEEN M TRUST
248 SYCAMORE AV
MILL VALLEY CA 94941-2848

359 332 04 00 7
LAND INVS NETWORK
3142 PACIFIC COAST HW STE 200
TORRANCE CA 90505-6750

359 324 05 00 1
LANE TR
340 OLD MILL RD # 15
SANTA BARBARA CA 93110

359 331 18 00 1
LEE FAMILY TR
317 ANDERSON RD
ALAMEDA CA 94502-7777

261 120 50 00 3
LEON GLORIA M
4710 TURF RD # 12
EL PASO TX 79938

359 332 07 00 6
LIAO JOANNA C
2518 S 3RD AV
ARCADIA CA 91006-5307

359 403 11 00 4
LIN PATRICIA GRACE
325 W 5TH ST
SAN DIMAS CA 91773-2013

359 175 05 00 5 **DUP**
LIU WILLIAM C
ADDRESS UNKNOWN

374 460 24 00 0
LORI AGUSTO & MICHELE LYNN
1461 W 99TH ST
ROSAMOND CA 93560-7090

374 311 02 00 9
LUCCI WILLIAM L JR
817-A EL REDONDO
REDONDO BEACH CA 90277

359 401 07 00 9
LUNOG DEBRA
12737 BOBTAIL LN
ROSAMOND CA 93560-7059

359 403 01 00 5
LY MINH T
PO BOX 56867
SHERMAN OAKS CA 91413-6867

374 304 05 00 6
MAGNUSON DENNIS L & SHARON A
22075 RICHFORD DR
EL TORO CA 92630-7302

359 401 19 00 4
MAHOOD NYLA A ET AL
12042 NE 51ST CI
OXFORD FL 34484-2401

261 120 31 00 8
MARCHBANKS KATHERINE NATALIE I R A
PO BOX 56867
SHERMAN OAKS CA 91413-1867

374 460 23 00 7
MARTINEAU JEFFREY L
1460 100TH ST W
ROSAMOND CA 93560

374 313 01 00 0
MASNADA DANTE ANGELO FAMILY TRUST
24672 BRIGHTON DR # A
VALENCIA CA 91355

374 301 03 00 9
MATTISON L & J & BROWN DENNIS
22666 RAVEN WY
GRAND TERRACE CA 92324

261 120 38 00 9
MATYI DANIEL JOHN IRA
6012 CLIFTON AV
JACKSONVILLE FL 32211

374 313 02 00 3
MAXWELL DAVID K & SUSAN A
9611 S 25TH LN
PHOENIX AZ 85041-9527

374 020 16 00 9
MAYER JOSEPHINE
230 PARK AV FLR 21
NEW YORK NY 10169-2403

359 401 11 02 8
MC CABE THOMAS JOHN
10815 OVERLAND AV
CULVER CITY CA 90230-5477

359 323 45 00 0
MC GEHEE BETTY J TRUST
8731 CALVA ST
LEONA VALLEY CA 93551-7231

374 020 02 00 8
MEYER HANS PETER TRUST
14116 SE 44TH ST
BELLEVUE WA 98006-2334

374 020 15 00 6
MEYER HANS PETER TRUST
3855 W 181ST ST
TORRANCE CA 90504-3813

374 301 01 00 3
MICKELSON KEVIN A
5079 GREGG WY
AUBURN CA 95602-9697

374 301 04 00 2
MILES RICHARD & SUSAN
9967 OWL AV
ROSAMOND CA 93560-7859

374 460 21 00 1
MITRANY IRA
9709 BUCKHORN AV
ROSAMOND CA 93560

359 332 19 00 1
MOHAMMED KHADER & SIDDIQUI SAIKA S
4 CORBIN DR
EXTON PA 19341

374 311 07 00 4
MORRIS CECILIA MARTINEZ REVOCABLE TRUST
3530 DAMIEN AV 242
LAVERNE CA 91750

374 321 02 00 2
MOYER THOMAS C
226 DORADO ST
GEORGETOWN TX 78628-2022

374 450 07 00 8
MULLINS VERNON & DEANA
PO BOX 1896
ROSAMOND CA 93560-1896

374 460 16 00 7
MUNOZ RAQUEL
1849 E LINGARD ST
LANCASTER CA 93535

374 321 01 00 9
NADWODNY LAWRENCE & MARY 2017 TRUST
6141 SAN RAFAEL DR
BUENA PARK CA 90620-2834

374 150 02 00 6
NEAL ROBERT H & MARY R
1166 NE EAST LAKE GENEVA RD
ALEXANDRIA MN 56308

374 250 09 00 6
NEARY DIANE S TRUST
43 BUCHANAN AV
VENTURA CA 93003

358 330 14 00 5
NG DICKSON
568 18TH AV
SAN FRANCISCO CA 94121

374 400 25 00 5
NISHIMURA ISAMU S & NAMIKO F
7142 LYRIC AV
LANCASTER CA 93536-7428

359 403 03 00 1
NOTARMUZI CARON
PO BOX 56867
SHERMAN OAKS CA 91413-6867

359 100 17 00 4
O LEARY DONNA M
7962 LA MIRADA CI
BUENA PARK CA 90620

359 331 22 00 2
OMWANGHE AUSTIN & JUSTINA
PO BOX 2151
UPLAND CA 91785-2151

359 331 20 00 6
OPULENT INV LLC II
3411 GLENMARK DR
HACIENDA HEIGHT CA 91745-6442

374 400 16 00 9
ORTEGA JOSE ANTONIO & PENA FRANCESCA
3820 SENECA AV
LOS ANGELES CA 90039

374 450 06 00 5
OSSIO RAFAEL & LAPA NIEVES
211 W 90TH ST
ROSAMOND CA 93560

359 402 13 00 3
PATEL GHANSHYAM D & JIGNASA G TRS
2112 N STOCKTON ST
STOCKTON CA 95204-6218

374 312 08 00 4
PAULING ADRIAN LEE
4821 NW ASHRAM LN
OLYMPIA WA 98502

359 402 19 00 1
PEDERSEN FAMILY TR
3640 CALLE ESTRADA
LANCASTER CA 93536-6618

359 403 04 00 4
PENA ELIZABETH
PO BOX 56867
SHERMAN OAKS CA 91413-6867

359 100 18 00 7
PENA HENRY A
P O BOX 687
LA MADERA NM 87539

359 401 04 00 0
PENDLEY DIANE J
12649 BOBTAIL LN
ROSAMOND CA 93560

359 100 26 00 0
PETERSON LIVING TRUST
1701 POSO FLAT RD
BAKERSFIELD CA 93308

261 120 44 00 6
PICCININI REV LIV TR
3149 LA MESA
SAN CARLOS CA 94070

261 120 55 00 8
PILIGIAN SHIRLEY I TRUST
6221 FAIRFAX WY
NORTH HIGHLANDS CA 95660

359 402 15 00 9
PINO LARRY P
5250 WEST AVENUE L-6
QUARTZ HILL CA 93534

374 311 05 00 8
PREGLER FAMILY TRUST
11809 SIERRA HW
SANTA CLARITA CA 91390-5015

374 180 03 00 8
QUAN ROBERT B
8745 MISSION DR
ROSEMEAD CA 91770-1139

374 250 06 00 7
RAMSAY SELWYN P
P O BOX 814
YORBA LINDA CA 92885

261 194 42 00 9
RE ASTORIA LANDCO LLC
3000 OAK RD STE 300
WALNUT CREEK CA 94597-7775

261 120 41 00 7
REDMAN INVESTMENT CO
12121 WILSHIRE BL STE 600
LOS ANGELES CA 90025

359 401 02 00 4
REEMTSMA PHILIP DAVID & EILEEN MARIE
1304 KAKNU WY
KENAI AK 99611

374 250 07 00 0
REID WILLIAM A
HC 68 BOX 315
CLAYTON ID 83227

261 120 57 00 4
REYNOLDS GEORGE E
45180 FERN AV APT B10
LANCASTER CA 93534

261 120 61 00 5
RICHARD MARIA G ROTH IRA
PO BOX 494
LARKSPUR CO 80118-0494

374 313 06 00 5
RISSE SAYOKO JEAN
1991 CABRILLO MESA CT
CAMARILLO CA 93010-9287

374 312 01 00 3
ROBINSON FAMILY TRUST
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 323 11 00 1
ROMANO FMLY TR
10445 WILSHIRE BL # 1401
LOS ANGELES CA 90024

374 400 35 00 4
RONQUILLO BARTOLOME L
3714 BRILLIANT PL
LOS ANGELES CA 90065-3514

359 020 05 00 6
ROSIE LAND HOLDINGS LLC
100 CALIFORNIA ST STE 400
SAN FRANCISCO CA 94111

359 100 14 00 5
ROULETTE JOHN A & MARY C TRUST
17442 MIRA LOMA CI
HUNTINGTN BCH CA 92647

374 304 02 00 7
RUNKLE DEWEY R TR
1344 EL MONTE DR
SIMI VALLEY CA 93065-4230

359 402 09 00 2
SABINO CESAR R IRA
12036 186TH ST
ARTESIA CA 90701-5778

374 400 05 00 7
SAIDI GHOLAM R & MEIMAN LAI
735 PLATEAU AV
MONTEREY PARK CA 91755

374 400 24 00 2
SALAZAR MOISES
1418 E 70TH ST
LOS ANGELES CA 90001

359 332 17 00 5
SALZ CHRISTINA KUUIPO
KUULEIKAHALEWEHIONALAN
85-755 KANAPAU PL
WAIANAE HI 96792

358 330 16 00 1
SANTANA JOSE ANTONIO
3210 INEZ ST
LOS ANGELES CA 90023-1633

359 100 34 00 3
SARAIYA JAYANT N & JAYASHREE J
FAMILY TRUST
2245 N GRANDVIEW RD
ORANGE CA 92867

359 323 03 00 8
SAUCY TR
3122 TERANIMAR DR
ANAHEIM CA 92804

374 150 06 00 8
SCHEFFING CHARLES REED ET AL
2001 GLADE RD
FARMINGTON NM 87401

374 312 07 00 1
SCHERMERHORN FAMILY TRUST
6740 NORTHRIM LN
COLORADO SPRING CO 80919-3401

359 403 02 00 8
SCHRADER GENE & NERISSA
FAMILY TRUST
5 TURTLE BAY DR
NEWPORT BEACH CA 92660

359 401 01 00 1
SCHRIEBER KRISTIAN KORY
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 100 22 00 8
SCHWARTZ FAMILY TR
4133 WEST WILSON SP 162
BANNING CA 92220-1315

374 460 19 00 6
SERMON SANJUANITA T & DAVID
1340 97TH STREET WEST
ROSAMOND CA 93560

359 403 13 00 0
SHIAO CHI LIN
3902 CAPRI AV
IRVINE CA 92606-1855

359 323 06 00 7
SLATES HERITAGE L P
523 W 6TH ST STE 502
LOS ANGELES CA 90014-1225

261 196 22 00 5
SOLAR STAR CALIFORNIA LLC
PO BOX 657 (DMR8)
DES MOINES IA 50306-0657

261 134 10 00 8
SOU CAL EDISON CO
14799 CHESTNUT ST
WESTMINSTER CA 92683-5240

261 350 12 00 0 **DUP**
SOU CAL EDISON CO
2244 WALNUT GROVE AV
ROSEMEAD CA 91770-3714

261 350 16 00 2
SOU CAL EDISON CO
2131 WALNUT GROVE AV
ROSEMEAD CA 91770-3769

261 350 33 00 1
SOUTHERN CALIF EDISON CO
2244 WALNUT GROVE AV
ROSEMEAD CA 91770-3714

359 402 11 00 7
SOUTHWEST CONSERVANCY III LLC
PO BOX 1413
BEND OR 97709-1413

374 321 10 00 5
SPEITEL WILLIAM A & PAMELA B
862 VICTORA AV
VENTURA CA 93003

359 100 33 00 0
STEPHENS JOHN & JARVIS
KATHERINE
33902 DESERT RD
ACTON CA 93510-2819

359 324 02 00 2
STONE DANIEL T
PO BOX 56867
SHERMAN OAKS CA 91413-1867

359 323 05 00 4
SU KUO CHANG
1410 CANDLEWOOD LN
HOFFMAN ESTATES IL 60169-2367

374 150 01 00 3
SUNDQUIST CATALINA LIVING
TRUST
81 PASEO DE TONER
BREA CA 92821-4962

374 150 04 00 2
SWENSON GARY S & JULIE A
300 S GLENWOOD AV
GLENDORA CA 91741-3543

374 150 03 00 9
TANEGA ARDON M & RUDY
2017 SPRUCE BROOK DR
HENDERSON NV 89014-1530

374 460 05 00 5
TAPIA CHARLES & CARMEN
REVOCABLE TRUST
8118 WEST AVENUE E
LANCASTER CA 93536

374 460 03 00 9
TAPIA FELIX A
6400 GOBI AV
ROSAMOND CA 93560

374 460 04 00 2
TAPIA PRIMO JR FAMILY TRUST
21722 GREENSLEEVES CT
SANTA CLARITA CA 91350-1770

359 100 29 00 9
TATE RICHARD WILLARD & JANICE
6538 CAMINO VENTUROSO
GOLETA CA 93117-1527

359 323 44 00 7
TAVELLA THOMAS R
5022 W AVENUE N 102150
PALMDALE CA 93551

359 402 08 00 9
TEG PROP INC
PO BOX 3366
GLENDALE CA 91221-0366

374 400 11 00 4
THOMAS JOHN W
920 TERI AV
TORRANCE CA 90503

374 290 01 00 4
TIVENS DONALD
21250 CALIFA ST STE 113
WOODLAND HILLS CA 91367-5025

374 301 06 00 8
TONG ABEL SOU-PING
32 SILVEROAK
IRVINE CA 92620-1296

359 323 08 00 3
TONG NHIEM & LY HUONG P
PO BOX 2411
LA HABRA CA 90632-2411

359 403 09 00 9
TOYOFUKU TOICHI & SACHIKO M
99210 HAILIMANU PL
AIEA HI 96701-2937

374 460 25 00 3
TRENOUTH FAMILY TRUST
8716 WEST AV D6
LANCASTER CA 93536

359 100 13 00 2
TREZZA FAMILY TRUST
16851 ALCROSS ST
COVINA CA 91722

359 403 08 00 6
TRIN MARVALLIE M
8801 GARFIELD ST
BETHESDA MD 20817-6707

359 402 10 00 4
TRUDREAM PROP L L C
6200 N ROCKSIDE WOODS BL STE 215
INDEPENDENCE OH 44131-2373

261 120 08 00 2
US SOLAR ASSETS LLC
135 MAIN ST FLR 6
SAN FRANCISCO CA 94105

374 450 05 00 2
VANNICE CORY
251 SPUR RANCH RD
ROSAMOND CA 93560-7247

359 403 05 00 7
VELASCO MARCUS C FERNANDEZ &
ALETH DE GUZMAN
PO BOX 56867
SHERMAN OAKS CA 91413-6867

374 020 47 00 9
VINAM WORLD INV & DEV
16631 MT ERIN CI
FOUNTAIN VALLEY CA 92708

374 301 07 00 1
VINCENT RICHARD M & ETHEL C
959 W ROSEWOOD CT
ONTARIO CA 91762

359 100 35 00 6
WALLER EMILY JANE LIVING TRUST
6308 NE COLLEEN AV
ALBUQUERQUE NM 87109

261 120 45 00 9
WEISSMAN RICHARD RECEIVER
12121 WILSHIRE BL STE 600
LOS ANGELES CA 90025

374 313 04 00 9
WHITE PAUL T & MARIE H
240 E HUNTER LN
CENTRAL UT 84722-3221

261 120 21 00 9
WILBURN KIMBERLY K
12309 SW 1ST ST
CORAL SPRINGS FL 33071-8056

374 302 06 00 5
WILEY DOROTHY E
147 PINEBROOK RD
COLCHESTER CT 06415-2412

374 311 09 00 0
WILEY R SCOTT
8262 NORTON AV APT 208
WEST HOLLYWOOD CA 90046-5951

374 450 13 00 5
WILLIAMS JEFFREY R & MC ARDLE
SEANEEN T
9241 WEST AVENUE A
ROSAMOND CA 93560-7083

261 260 23 00 6
WILLOW SPRINGS INVESTMENTS
701 N PARKCENTER DR
SANTA ANA CA 92705

359 031 06 00 9
WILLOW SPRINGS SOLAR 3 LLC
135 MAIN ST FLR 6
SAN FRANCISCO CA 94105-8113

359 401 14 00 9
WILSON PAUL L JR
14752 CRENSHAW BL U 259
GARDENA CA 90249-3694

359 100 36 00 9
WONG LIVING TR
705 IRVING ST
ALAMBRA CA 91801

374 180 01 00 2
WONG TSE CHING
1528 S CANFIELD AV
LOS ANGELES CA 90035-3218

359 332 03 00 4
YANG CHENGHUA
1855 SE TROSSACHS BL U 2505
SAMMAMISH WA 98075-5929

359 100 16 00 1
YANG YANYANG & ZHANG BO
PO BOX 56867
SHERMAN OAKS CA 91413

261 120 32 00 1
YEN JIN FU & LIEN PI HSIEN
PO BOX 56867
SHERMAN OAKS CA 91413-6867

374 460 17 00 0
YOST RAE DEAN
PO BOX 987
ROSAMOND CA 93560

374 450 10 00 6
YOUNG LAUREN A TRUST
PO BOX 10078
LANCASTER CA 93584-0078

374 460 27 00 9 **DUP**
YU JUAN G & GRACE C
ADDRESS UNKNOWN

359 332 05 00 0
ZANDERS NORMA L
5859 MUIR ST
SIMI VALLEY CA 93063-3676

374 250 08 00 3
ZEISMER REVOCABLE LIVING TRUST
15147 HALINOR ST
HESPERIA CA 92345

359 403 12 00 7
ZHANG XICHEN & WANG SHARON X
2317 GILLINGHAM CI
THOUSAND OAKS CA 91362-1608

261 120 54 00 5
ZIANI ANGELA TRUST
447 W AVENUE 44
LOS ANGELES CA 90065-3916

261 350 21 00 6
ABDELHAK MAHMOUD
P O BOX 12424
MARINA DEL REY CA 90295

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: Rosamond South Solar Project by Golden Fields Solar IV, 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: Boron, Desert Lake Community

Cross Streets: Straddling State Route 58 between Gephart Road on the west and the San Bernardino County line on the east. Zip Code: 93501

Lat. / Long.: 34° 50' 16.84" N, 118° 21' 31.39" W — Total Acres: 1,292

Assessor's Parcel No.: Multiple — Section: Multiple — Twp.: Multiple — Range: Multiple — Base: SBB&M

Within 2 Miles: State Hwy #: SR 58 — Waterways: N/A

Airports: N/A — Railways: N/A — Schools: West Boron Elementary 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 _____

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 154
☐ Waste Treatment: Type _____ MGD _____
☐ Hazardous Waste: Type _____
☒ Other: Battery Energy Storage up to 600 MW

Project Issues Discussed in Document:

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

Present Land Use/Zoning/General Plan Designation:

Undeveloped Land**.** *Zoning:* A (Exclusive Agriculture), E (Estate) *Kern County General Plan:* 5.6 (Residential Minimum 2.5 Gross Acres per Unit); 5.7(Residential Minimum 5 Gross Acres per Unit); 7.1 (Light Industrial); 7.2 (Service Industrial); 8.1 = Intensive Agriculture (Min. 20 Acre Parcel Size)

Project Description:

The Rosamond South Solar Project, as proposed by Golden Fields Solar IV, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 154 megawatt-alternating current (MW-AC) of renewable energy, including up to 200 megawatts of energy storage, on approximately 1,292 acres of privately-owned land. The project site consists of 4 sites (Sites 1 through 4) located on 64 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 would require:
SPA 40, Map #231; SPA 33, Map #232; ZCC 157, Map #231; ZCC 43, Map #232; ZCC 18, Map #233; CUP 120, Map #231; CUP 40, Map #232; CUP 46, Map #232; CUP 44, Map #232; CUP 16, Map #233; and SPA 31, Map #232.

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**".

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

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

Starting Date June 3, 2021 Ending Date July 3, 2021

Lead Agency (Complete if applicable):

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

Applicant: _____
Address: _____
City/State/Zip: _____
Phone _____

Signature of Lead Agency Representative: /s/ **Date:** 06/03/2021

Terrance Smalls, Supervising Planner

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

NOTICE OF PREPARATION/INITIAL STUDY CHECKLIST

Rosamond South Solar Project
by Golden Fields Solar IV, LLC, a subsidiary of Clearway Energy Group LLC

Specific Plan Amendment No. 40, Map No. 231
Specific Plan Amendment No. 33, Map No. 232
Zone Change Case No.157, Map No. 231
Zone Change Case No. 43, Map No. 232
Zone Change Case No. 18, Map No. 233
Conditional Use Permit No. 120, Map No. 231
Conditional Use Permit No. 40, Map No. 232
Conditional Use Permit No. 44, Map No. 232
Conditional Use Permit No. 46, Map No. 232
Conditional Use Permit No. 16, Map No. 233
Specific Plan Amendment No. 31, Map No. 232

PLN #19-01741
(PP19151)

LEAD AGENCY:

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

June 2021

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INTRODUCTION

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

BACKGROUND INFORMATION

The project proponent, Golden Fields Solar IV, LLC, a subsidiary of Clearway Energy Group LLC, submitted an application for the Rosamond South Solar Project to the County that was deemed complete on October 16, 2020.

1. Project Description

1.1. Project Location

The proposed Rosamond South Solar Project (proposed project or project) is a proposal by Golden Fields Solar IV, LLC, a subsidiary of Clearway Energy Group, LLC (Clearway) (project proponent) to construct and operate a photovoltaic (PV) solar facility and associated infrastructure to generate up to 154 megawatts (MW) of renewable electrical energy and up to 200 MW of energy storage on approximately 1,292 acres of privately-owned land. The proposed project site is located in the Mojave Desert within unincorporated Kern County, bounded by Rosamond Boulevard to the north, 90th Street West to the east, West Avenue A to the south and 170th Street West to the west. (*Figure 1, Regional Vicinity Map*). Access to the site would be from Rosamond Boulevard, Avenue A, Avenue D, Astoria Avenue, Gaskell Road, Holiday Avenue, Willow Avenue, Kingbird Avenue,100th Street West, 140th Street West, 130th Street West and 170th Street West.

The site is located within Section 24 Township 9 North, Range 15 West and Sections 20, 21, 27, and 28, Township 9 North, Range 14 West, and Sections 30 and 31 Township 9 N Range 13W, San Bernardino Base and Meridian. The project site is located approximately 11 miles west of the community of Rosamond in the western Antelope Valley, in the far western Mojave Desert and approximately 50 miles southeast of the city of Bakersfield within the jurisdiction of the Willow Springs Specific Plan. The closest airport is Rosamond Skypark, which is located approximately nine miles east of the project site. The closest military base is Edwards Air Force Base, approximately 30 miles to the east of the project site.

The project boundaries are shown on *Figure 2, Local Vicinity Map*, which also shows the proposed transmission line alignments being considered. Electricity produced by the proposed project would be collected and routed to the existing Teddy Substation, where it would be stepped up in voltage. From the substation, power would be transmitted to the Southern California Edison (SCE) Whirlwind substation via existing 230 kV transmission line.

As shown on *Figure 3, Aerial Photograph With Site Boundaries* the project area is divided into three Conditional Use Permit (CUP) areas (Areas 1 through 3) and is comprised of 64 privately owned parcels. *Table 1, Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage*, below identifies the 64 individual parcels by site, their respective Assessor's Parcel Number (APN), acreages, and existing and proposed zoning designations. *Figures 4-6,* identify the existing General

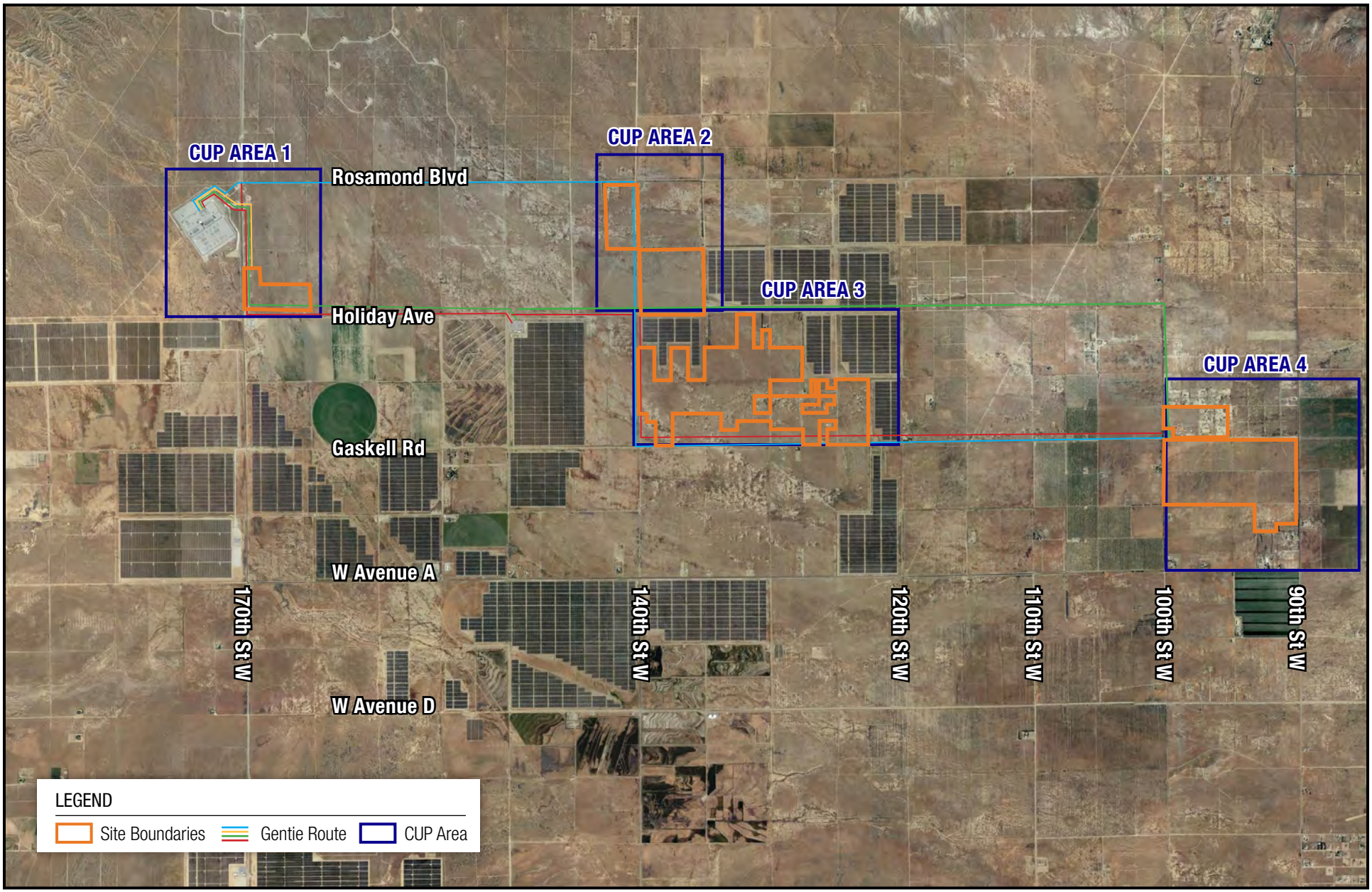
Plan designations for each of the project areas and *Figures 6-9, identify the existing zone classification*, identifies the boundaries of each of the proposed CUPs.

Table 1. Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage

CUP Area	APN	Acres	Existing Zone District*	Proposed Zone District	Zone Map	General Plan Map Code
1	261-120-05	20.63	E(2 ½) RS FPS	A FPS	233	5.6; 5.6/2.6
	261-120-06	20.68	E(2 ½) RS FPS	A FPS	233	5.6; 5.6/2.6
	261-120-07	20.08	E(2 ½) RS FPS	A FPS	233	5.6; 5.6/2.6
	261-120-09	9.60	E(2 ½) RS FPS	A FPS	233	5.6; 5.6/2.6
Area 1 total acres: 70.99						
2	359-020-49	160.71	A	A	232	5.3/4.4; 5.3/4.4/2.6
	359-100-05	79.87	E (5)	A	232	5.7
Area 2 total acres: 240.58						
3	359-175-05	78.60	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-331-06	5	E (2 ½) RS FPS	A FPS	232	5.7/2.6/2.85
	359-331-07	5	E (2 ½) RS FPS	A FPS	232	5.7/2.85
	359-331-12	5	E (2 ½) RS FPS	A FPS	232	5.7/2.85
	359-331-13	5	E (2 ½) RS FPS	A FPS	232	5.7/2.85
	359-331-15	5	E (2 ½) RS FPS	A FPS	232	5.7/2.85
	359-331-16	20.21	A FPS	A FPS	232	8.1/2.85; 8.1/2.6/2.85
	359-331-18	20.29	A FPS	A FPS	232	8.1/2.85; 8.1/2.6/2.85
	359-331-20	19.93	E(5) RS FPS	A FPS	232	5.7/2.85
	359-331-21	19.97	E(5) RS FPS	A FPS	232	5.7/2.85
	359-331-22	20.01	E(5) RS FPS	A FPS	232	5.7/2.85
	359-331-23	20.0	E(5) RS FPS	A FPS	232	5.7/2.85
	359-332-01	10.43	E(5) RS FPS	A FPS	232	5.7/2.6/2.85
	359-332-02	10.39	E(5) RS FPS	A FPS	232	5.7/2.6/2.85
	359-332-03	10.36	E(5) RS FPS	A FPS	232	5.7/2.85; 5.7/2.6/2.85
	359-332-04	10.32	E(5) RS FPS	A FPS	232	5.7/2.85; 5.7/2.6/2.85
	359-332-05	10.36	E(5) RS FPS	A FPS	232	5.7/2.6/2.85

CUP Area	APN	Acres	Existing Zone District*	Proposed Zone District	Zone Map	General Plan Map Code
	359-332-06	10.35	E(5) RS FPS	A FPS	232	5.7/2.6/2.85
	359-332-07	20.67	E(5) RS FPS	A FPS	232	5.7/2.85; 5.7/2.6/2.85
	359-332-09	40.34	E(5) RS FPS	A FPS	232	5.7/2.85
	359-332-10	20.11	E(5) RS FPS	A FPS	232	5.7/2.85
	359-332-11	5.03	E (5) RS FPS	A FPS	232	5.7/2.85
	359-332-12	5.03	E (5) RS FPS	A FPS	232	5.7/2.85
	359-332-16	2.57	E (5) RS FPS	A FPS	232	5.7/2.85
	359-332-24	19.68	E (5) RS FPS	A FPS	232	5.7/2.85
	359-332-30	5.04	E (5) RS FPS	A FPS	232	5.7/2.85
	359-332-31	5	E(5) RS FPS	A FPS	232	5.7/2.85
	359-332-35	10.05	E(5) RS FPS	A FPS	232	5.7/2.85
	359-401-02	4.99	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-03	2.5	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-05	2.5	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-12	2.5	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-15	2.5	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-09	2.49	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-16	5.00	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-19	4.64	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-20	4.26	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-21	5.00	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-22	5.00	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-401-23	5.01	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-11	10.0	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-13	5.0	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-14	5.0	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-15	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-16	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-17	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85

CUP Area	APN	Acres	Existing Zone District*	Proposed Zone District	Zone Map	General Plan Map Code
	359-402-18	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-19	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-20	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-21	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-402-22	2.50	E(2 ½) RS FPS	A FPS	232	5.6/2.85
	359-403-08	20.01	E (2 ½) RS FPS	A FPS	232	5.6/2.85
	359-403-09	20.02	E (2 ½) RS FPS	A FPS	232	5.6/2.85
Area 3 total acres: 541.16						
4	374-020-02	164.93	E(2 ½) RS FPS	A FPS	231	7.1/4.4; 7.2/4.4
	374-020-15	82.08	E(2 ½) RS FPS	A FPS	231	7.1/4.4
	374-020-16	81.01	E(2 ½) RS FPS	A FPS	231	7.1/4.4
	374-450-01	37.28	E(2 ½) RS FPS	A FPS	231	7.2/4.4
	374-460-12	73.96	E(2 ½) RS FPS	A FPS	231	7.2/4.4
Area 4 total acres: 439.26						
	General Plan Map Code: 2.6 = Erosion Hazard Overlay; 2.85= Noise Management Area; 4.4 = Comprehensive Planning Area; 5.6 = Residential Minimum 2.5 Gross Acres per Unit; 5.7 = Residential Minimum 5 Gross Acres per Unit 7.1 = Light Industrial; 7.2 = Service Industrial; 8.1 = Intensive Agriculture (Min. 20 Acre Parcel Size); The project site is located entirely within the Willow Springs Specific Plan area. Zone District: A FPS= Exclusive Agriculture, E = Estate Districts, FPS= Floodplain Secondary Combining District, RS= Residential Suburban District					



Source: Google Earth, REVAMP Engineering, 2021

N.T.S.

FIGURE 3: Aerial Map with Site Boundaries

Rosamond South Solar Project

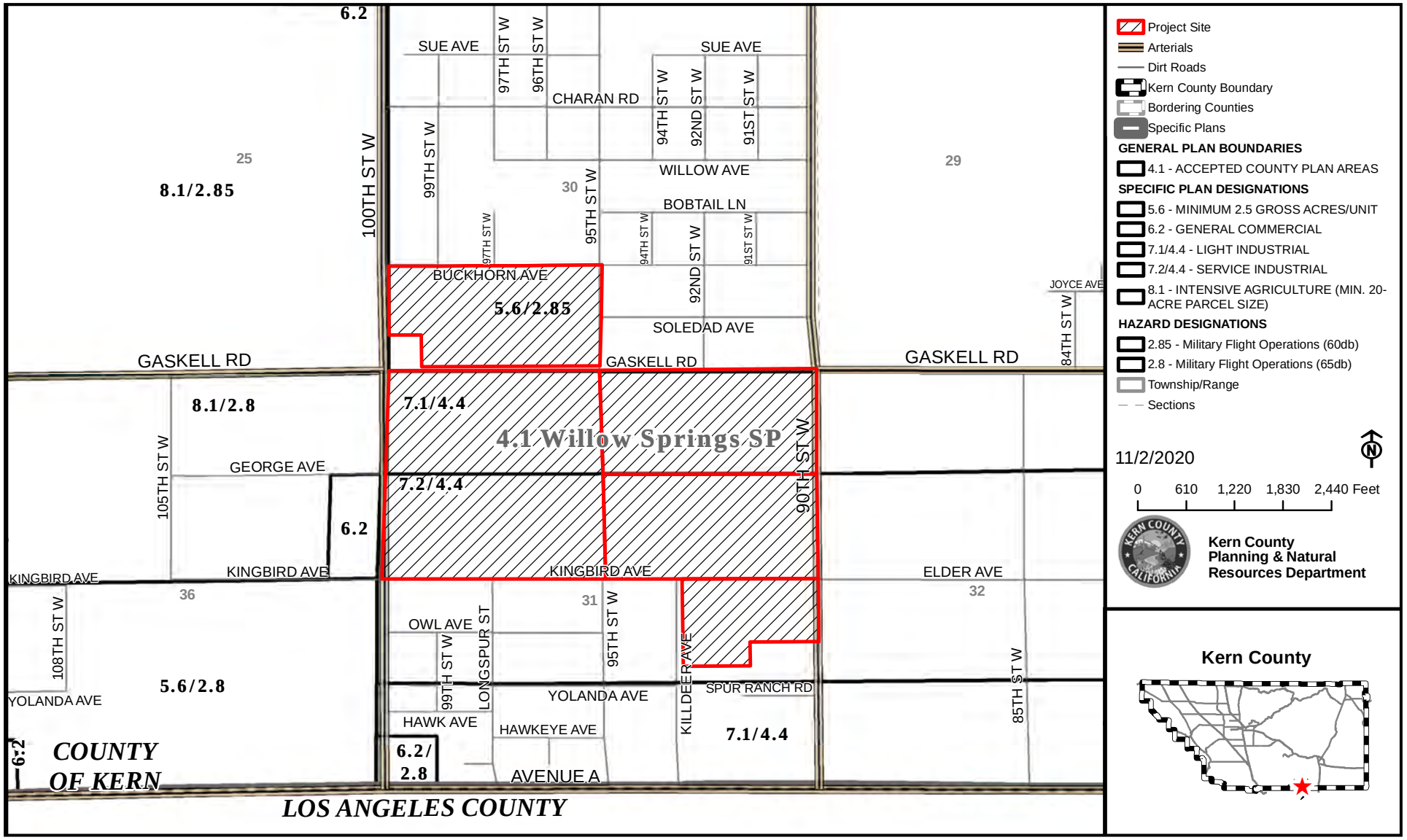


FIGURE 4: Existing General Plan Designations – Zoning Map 231

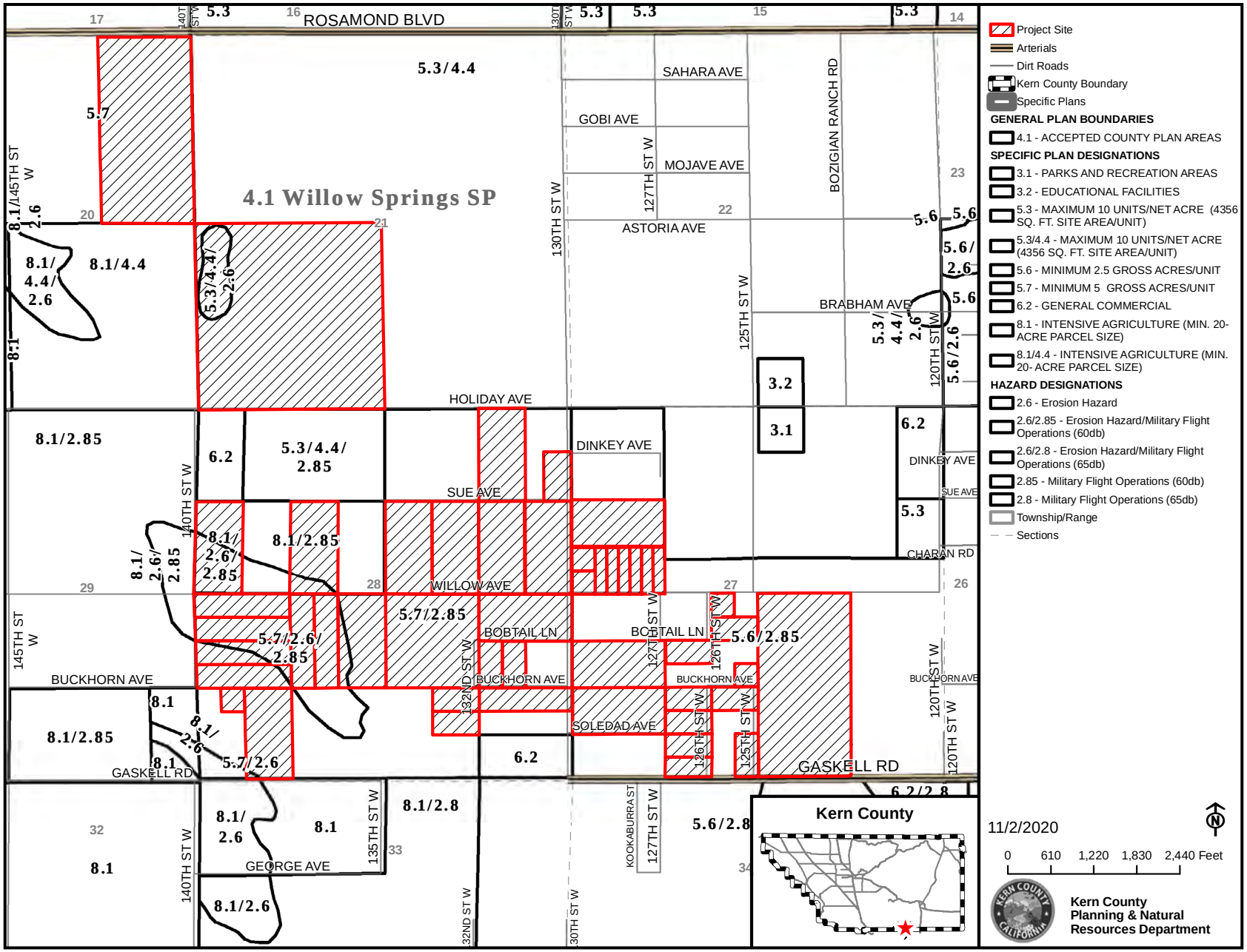


FIGURE 5: Existing General Plan Designations – Zoning Map 232

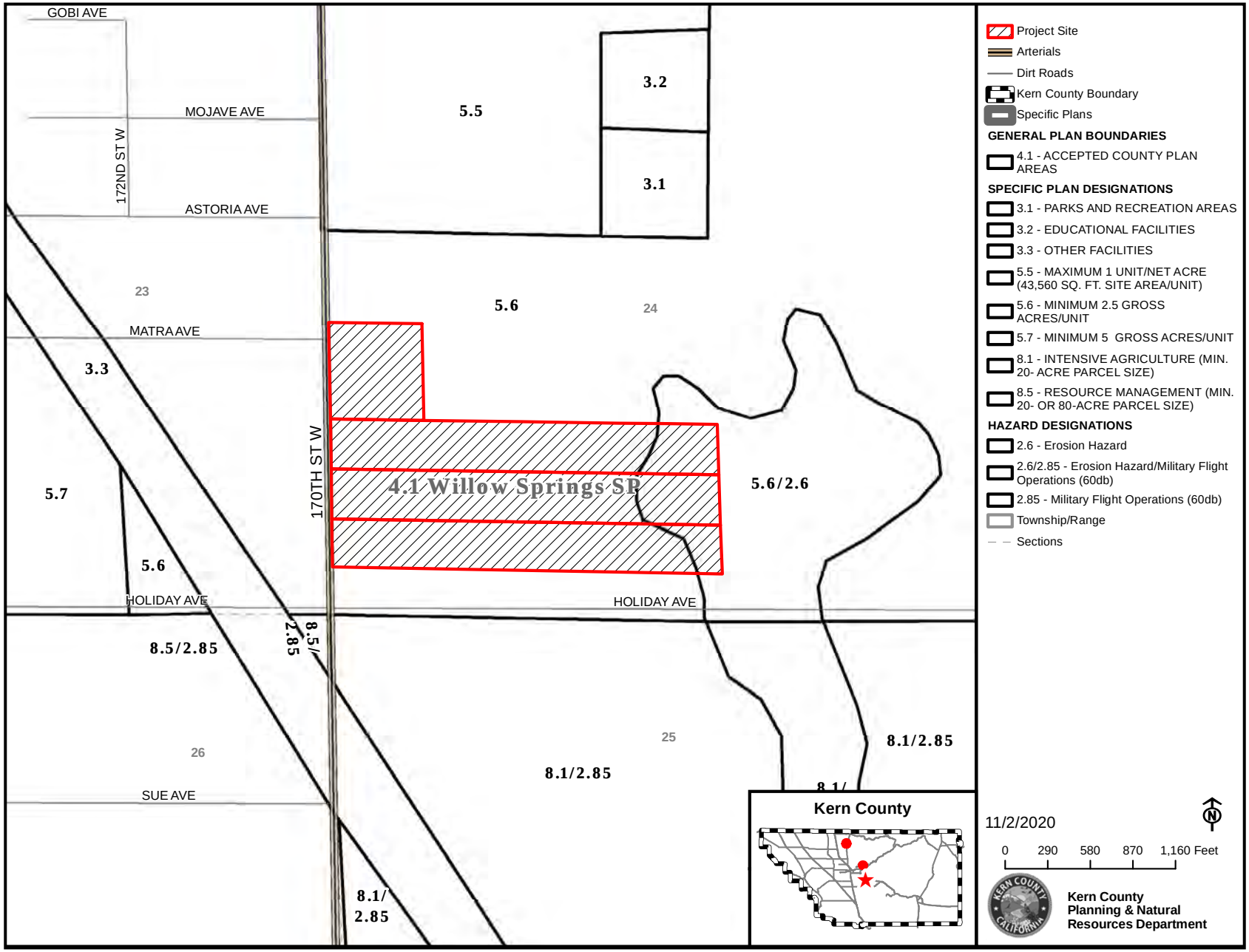


FIGURE 6: Existing General Plan Designations – Zoning Map 233

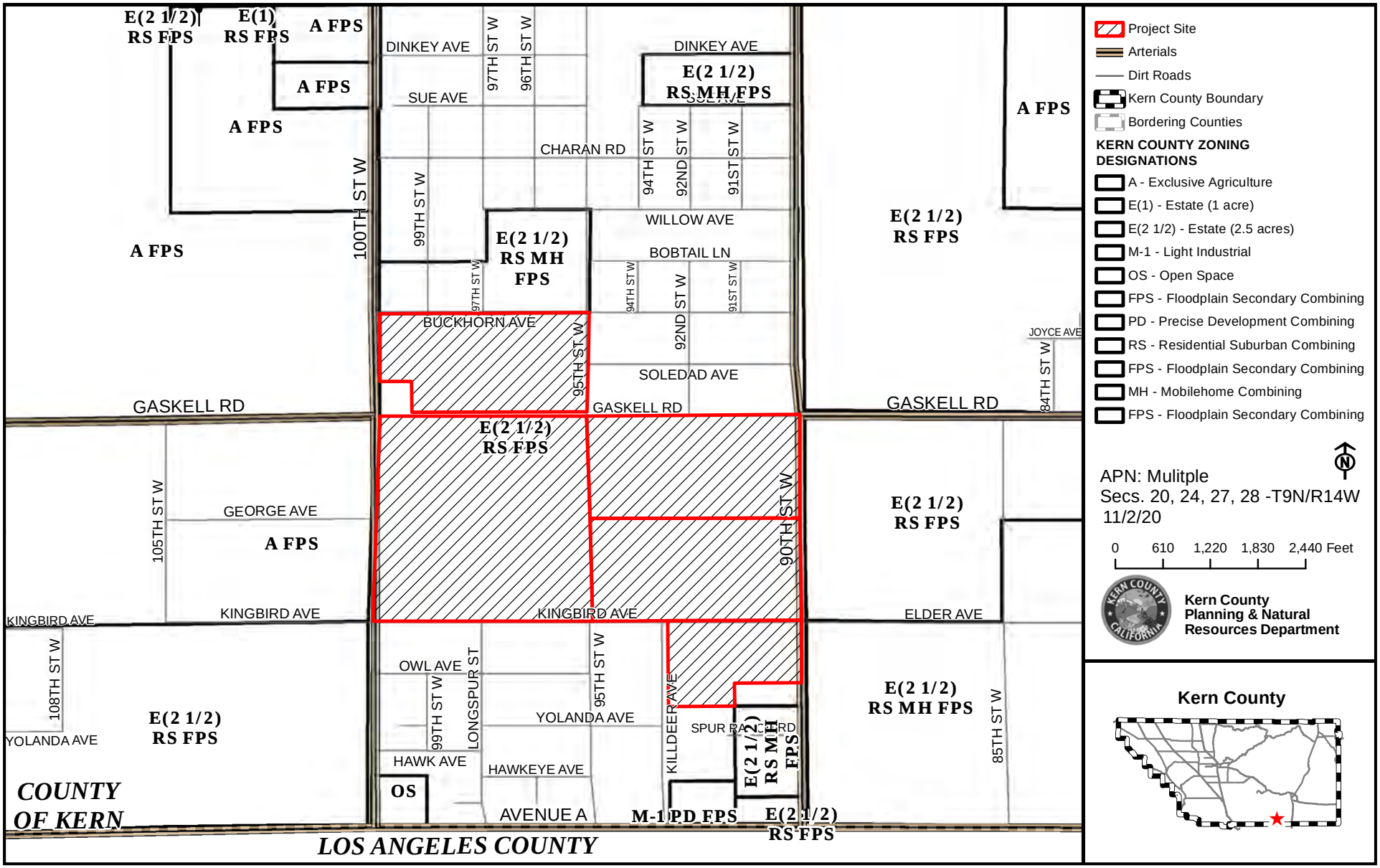


FIGURE 7: Existing Zone Classifications – Zoning Map 231

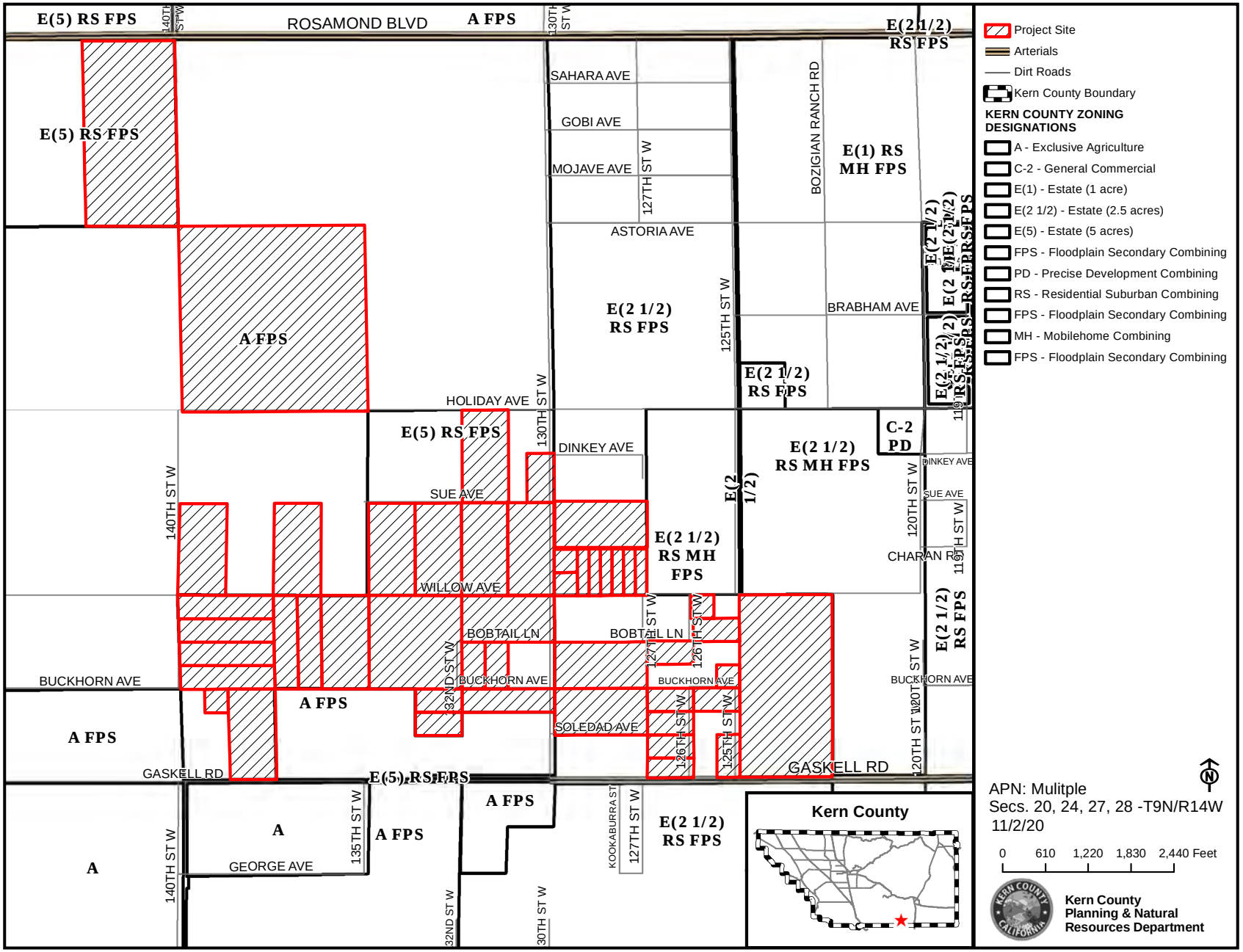


FIGURE 8: Existing Zone Classifications – Zoning Map 232

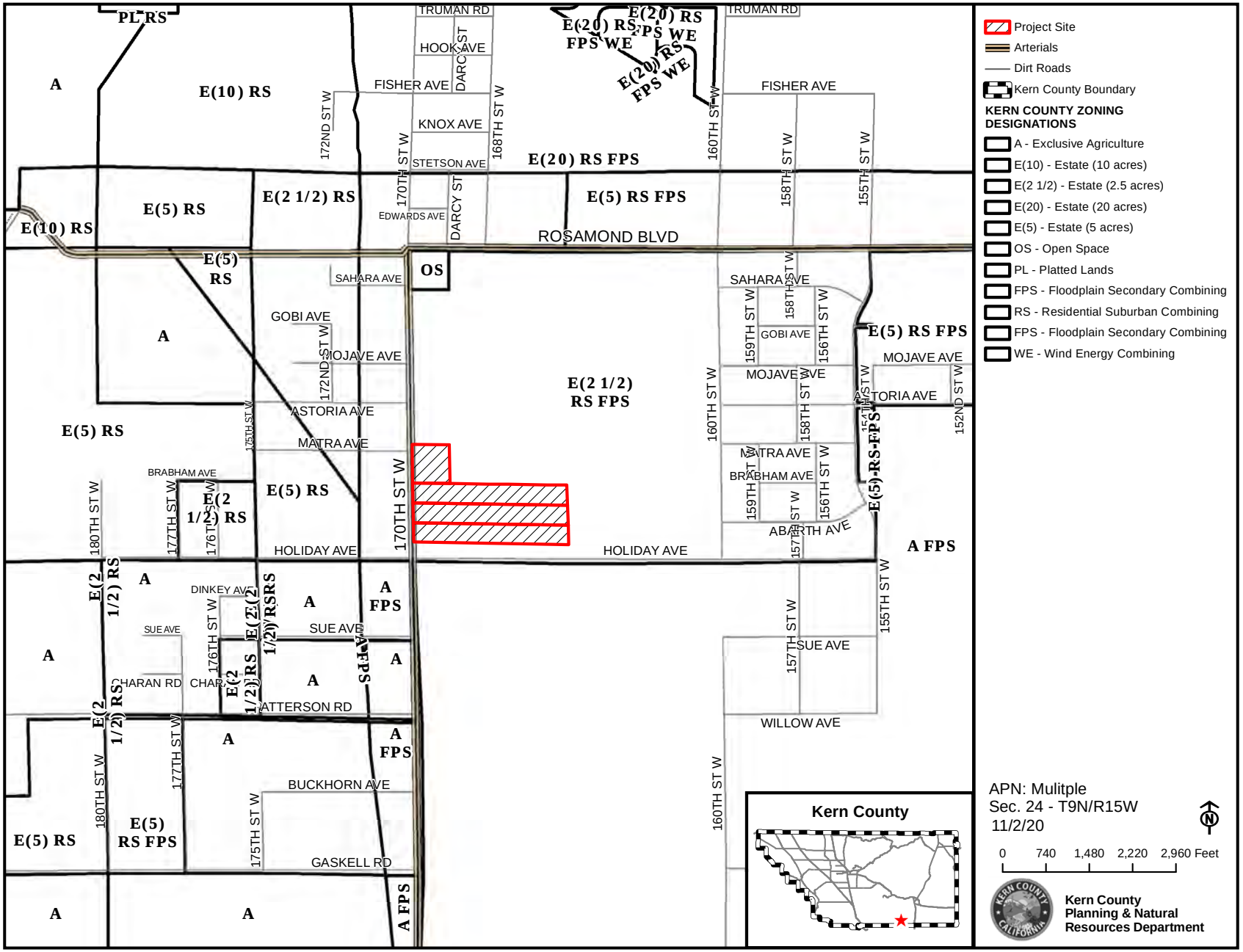
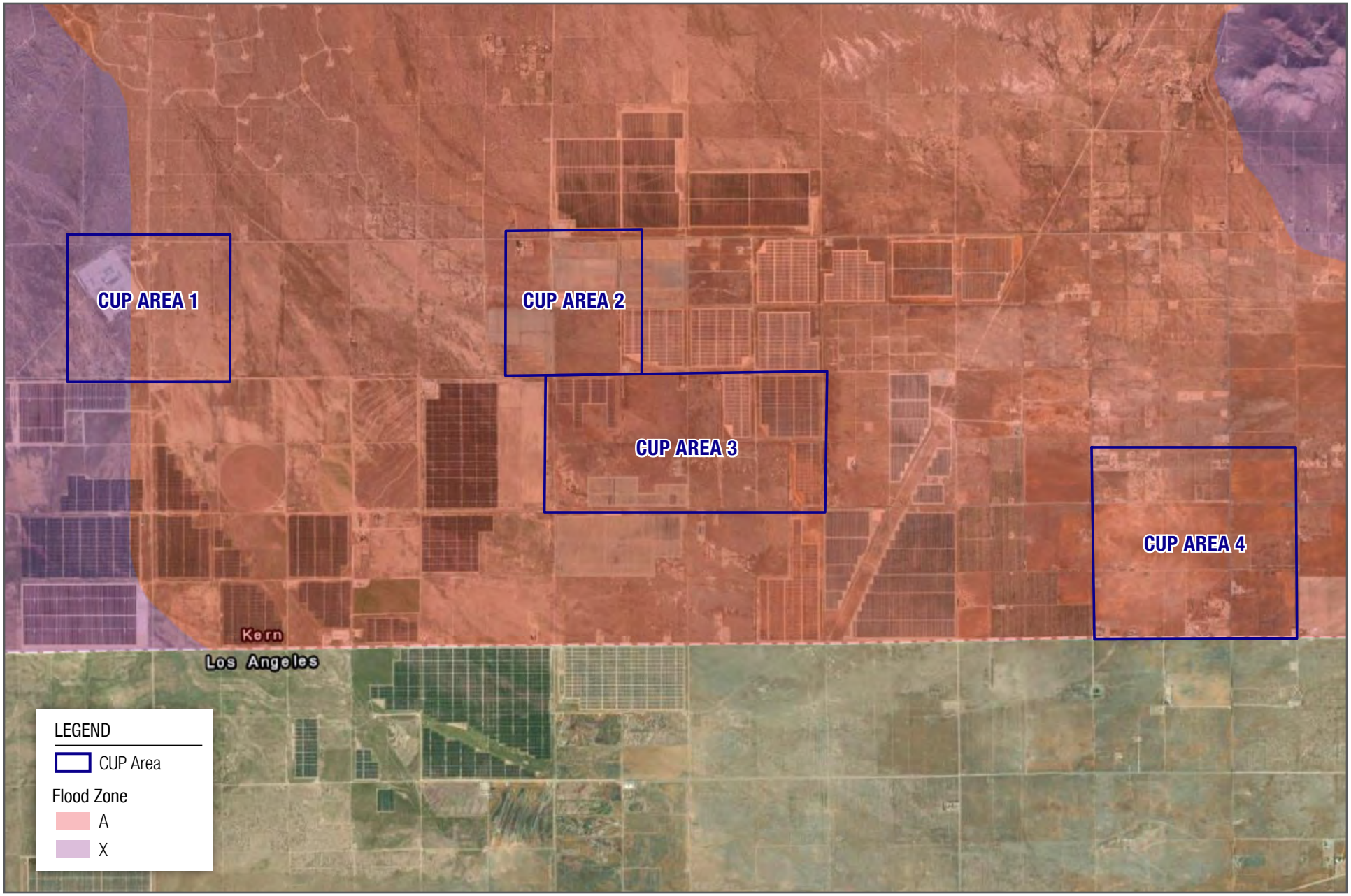


FIGURE 9: Existing Zone Classifications – Zoning Map 233



Source: FEMA, 2021

N.T.S.

FIGURE 10: FEMA Floodplain Map

Rosamond South Solar Project

1.2. Environmental Setting

The project site is located approximately 11 miles west of the community of Rosamond in the western Antelope Valley, in the far western Mojave Desert. The project site is located on the Fairmont Butte and Little Butte 7.5-minute USGS Quadrangles. CUP Areas 1, 2, and part of 3 are located within the Fairmont Butte USGS Quadrangle; the balance of CUP area 3 and CUP area 4 are located within the Little Butte USGS Quadrangle (USGS 2018a; USGS 2018b). The major north-south route in the region is State Route (SR) 14, a four-lane highway located east of the project site. The major east-west route near the Project site is SR 138, which is a two-lane road intersecting with SR 14 approximately 11.5 miles east of the project site. Refer to *Figure 2, Project Site Boundaries*.

The proposed project would be served by the Kern County Sheriff's Office (KCSO) for law enforcement and public safety services. The closest sheriff station is the Rosamond Substation, located approximately 6 miles north of the project site. The Kern County Fire Department (KCFD) provides fire protection and emergency medical and rescue services for the project area. Rosamond Station is located approximately 6 miles to the east of the project site.

The Kern County Airport Land Use Compatibility Plan (ALUCP) covers operations at the Edwards Air Force Base, located approximately 30 miles to the east of the project site. The project site is not within the area covered by the ALCUP. The nearest airports to the project site are the privately owned Rosamond Skypark approximately 9 miles to the north east, the Mojave Air and Space Port approximately 25 miles to the northeast, and the Mountain Valley Airport approximately 25 miles to the north. The nearest public airport to the project site is Palmdale Regional Airport located approximately 18 miles southeast of the project site. The project site is not located within any safety or noise zones for the Palmdale Regional Airport (Las Angeles County, 2003).

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the FIRMs for the project site, the project site is located in a 100-year flood area (Zone A Without Base Flood Elevation,; refer to *Figure 10, FEMA Floodplain Map* (FEMA, 2008a and 2008b).

The project site is not designated by the California Department of Conservation (DOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. CUP Areas 1, 2 and 3 are designated as Nonagricultural and Natural Vegetation and CUP Area 4 is designated Grazing Land, Nonagricultural or Natural Vegetation and Semi-agricultural and Rural Commercial Land on the Farmland Mapping and Monitoring Program (FMMP) 2016 Important Farmland map (DOC 2016). There are no lands designated as important farmland located within the project site. Additionally, no lands affected by the project are subject to a Williamson Act Land Use contract. Portions of the project site are located within Kern County Agricultural Preserve No. 24 (County of Kern Planning Department, 2006).

The project site is not within a mineral recovery area or within a designated mineral and petroleum resource site designated by the Willow Springs Specific Plan, nor is it identified as a mineral resource zone by the Department of Conservation's State Mining and Geology Board, nor designated by the California Geologic Energy Management Division (formerly known as the Department of Oil, Gas and Geothermal Resources (DOGGR)) as a recognized oil field.

The proposed project would be located within unincorporated Kern County and within the jurisdiction of the Willow Springs Specific Plan. The existing designations are listed in *Table 1, Project Assessor Parcel*

Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage, above, and depicted in *Figures 4-6*. The proposed project would be subject to the provisions of the Kern County Zoning Ordinance and is zoned as specified in Table 1, above, and depicted in *Figures 6-9.*

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 four CUP Areas. Additionally, such conditions are described for adjacent lands to the north, east, south, and west of each of the sites.

Existing land use in the project area generally includes undeveloped desert lands, scattered rural residential uses, access roadways, transmission corridors and other wind and solar energy projects that are currently in various stages of planning, construction, or operation. Other development in the area includes Willow Springs International Raceway. Rural residential uses are found in the unincorporated community of Rosamond to the east of the project site, located along Rosamond Boulevard.

The sensitive receptors closest to the project site are single family residences located adjacent to the south of CUP Area 4 along Spur Ranch Road. Additional single-family residences are located approximately 1 mile east of the east side of CUP Area 4 along 80th Street W and adjacent to CUP Areas 2 and 3. Rosamond Park, a local park, is located approximately 7.2 miles northeast of the easternmost portion of the project site. The closest school to the project site is Tropico Middle School, located approximately 4 miles northeast of the project site.

There are several existing, planned, and permitted solar energy and transmission projects adjacent to the project site. These projects include AVEP, Antelope Valley Solar, Big Beau Solar Project, Kingbird Photovoltaic Project, RE Astoria Solar Project, Raceway Solar Project, Rosamond Solar Array, Antelope Valley Phases 1 & 2, Willow Springs Solar Array, and Clearway's Rosamond Central Solar Project.

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 Zone District
CUP Area 1	**Undeveloped**	**5.6 (Residential Minimum 2.5 Gross Acres per Unit); 5.6/2.6 (Residential Minimum 2.5 Gross Acres per Unit/Erosion Hazard)**	**E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)**
North	Undeveloped	5.6 (Residential Minimum 2.5 Gross Acres per Unit)	E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
East	Undeveloped, Single family residences	5.6/2.6 (Residential Minimum 2.5 Gross Acres per Unit/Erosion Hazard)	E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
South	Undeveloped, Substation, Solar array.	8.1/2.85 (Intensive Agriculture/ Noise Management Area)	A FPS (Exclusive Agriculture, Floodplain Secondary Combining)
West	Undeveloped, Substation	5.6 (Residential Minimum 2.5 Gross Acres per Unit)	E (2 ½) RS FPS (Estate 2.5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining))
CUP Area 2	**Single family residence, Out buildings, Undeveloped**	**5.3/4.4(Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area); 5.3/4.4/2.6 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area/Erosion Hazard); 5.7 (Residential Minimum 5 Gross Acres per Unit)**	**A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E(5) RS FPS (Estate 5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)**
North	Undeveloped, Single family residences	5.3 (Residential Maximum 10 Units per Net Acre); 5.3/4.4(Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area);	A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E(5) (Estate 5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
East	Undeveloped, Single family residences, Solar array	5.3/4.4 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area);	A FPS (Exclusive Agriculture, Floodplain Secondary Combining);

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zone District
South	Undeveloped, Solar array, CUP Area 3	5.3/4.4/2.85 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area/Noise Management Area);	A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E(5) RS FPS (Estate 5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
West	Undeveloped	8.1/2.6 (Intensive Agriculture, Minimum 20 Acre Parcel Size/Erosion Hazard); 8.1/4.4 (Intensive Agriculture/Comprehensive Planning Area)	A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E(5) RS FPS (Estate 5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
CUP Area 3	**Undeveloped**	**5.6/2.85 (Residential Minimum 2.5 Gross Acres per Unit/Noise Management Area); 5.7/2.6 (Residential Minimum 5 Gross Acres per Unit/Erosion Hazard); 5.7/2.6/2.85 (Residential Minimum 5 Gross Acres per Unit/Erosion Hazard/Noise Management Area); 8.1/2.85 (Intensive Agriculture, Minimum 20 Acre Parcel Size/Noise Management Area(606db)); 8.1/2.6/2.85 (Intensive Agriculture, Minimum 20 Acre Parcel Size/Erosion Hazard/Noise Management Area)**	**A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E(5) RS FPS (Estate 5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)**
North	Undeveloped, CUP Area 2, Solar array	5.3/4.4/2.85 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area/Noise Management Area); 6.2 (General Commercial)	E(2 ½) RS MH FPS((Estate 2.5 acre minimum, Residential Suburban Combining, Mobilehome Combining, Floodplain Secondary Combining); E(5) RS FPS (Estate 5 acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
East	Undeveloped, Mortuary and cemetery, Single family residence	5.6/2.85 (Residential Minimum 2.5 Gross Acres per Unit/Noise Management Area)	E(2 ½) RS MH FPS((Estate 2.5 acre minimum, Residential Suburban Combining, Mobilehome Combining, Floodplain Secondary Combining)

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zone District
South	Undeveloped, Single family residences, Solar array	6.2 (General Commercial); 8.1 (Intensive Agriculture, Minimum 20 Acre Parcel Size); 8.1/2.6 (Intensive Agriculture, Minimum 20 Acre Parcel Size/Erosion Hazard)	A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining);
West	Undeveloped, Solar array	8.1/2.6/2.85 (Intensive Agriculture, Minimum 20 Acre Parcel Size/Erosion Hazard/Noise Management Area)	A FPS (Exclusive Agriculture, Floodplain Secondary Combining)
CUP Area 4	**Outbuildings, Undeveloped**	**7.2/4.4 (Service Industrial/Comprehensive Planning Area)**	**E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)**
North	Undeveloped, Single family residences,	7.2/4.4 (Service Industrial/Comprehensive Planning Area)	E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
East	Undeveloped, Single family residences	7.2/4.4 (Service Industrial/Comprehensive Planning Area)	E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)
South	Undeveloped, Single family residences	7.2/4.4 (Service Industrial/Comprehensive Planning Area)	A FPS (Exclusive Agriculture, Floodplain Secondary Combining)
West	Undeveloped, Single family residences	7.2/4.4 (Service Industrial/Comprehensive Planning Area)	A FPS (Exclusive Agriculture, Floodplain Secondary Combining); E (2 ½) RS FPS (Estate 2.5-acre minimum, Residential Suburban Combining, Floodplain Secondary Combining)

1.3. Project Description

Project Overview

The Rosamond South Solar Project by Golden Fields Solar IV, LLC, a subsidiary of Clearway is a proposed photovoltaic (PV) solar facility with associated infrastructure on approximately 1,292 acres of privately-

owned land in southeastern Kern County (*Figure 1, Regional Vicinity Map)*. As stated above, the facility would consist of 4 areas (CUP Areas 1 to 4) to generate a combined (up to) 154 MW of renewable electrical energy. The project also includes the installation of (up to) 200 MW energy storage (battery) facilities. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, combiners, inverter stations, transformer systems, overhead and buried conductors, transmission lines, generation tie (gen-tie) lines, electrical switchyards, substations, energy (battery) storage system, telecommunications tower, security fencing, and operations and maintenance facilities.

The proposed project would include two Specific Plan Amendments to the Willow Springs Specific Plan as follows:

- Specific Plan Amendment No. 40, Map No. 231 from map code designation 7.1/4.4 (Light Industrial, Comprehensive Planning Area) to 7.1 (Light Industrial) on approximately 247 acres and from map code designation 7.2/4.4 (Service Industrial, Comprehensive Planning Area) to 7.2 (Service Industrial) on approximately 118 acres

- Specific Plan Amendment No. 33, Map No. 232 from map code designation 5.3/4.4 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area) to 5.3 (Residential, Maximum 10 Units per Net Acre) on approximately 80 acres and from map code designation 5.3/4.4/2.6 (Residential Maximum 10 Units per Net Acre/Comprehensive Planning Area/Erosion Hazard) to 5.3/2.6 (Residential Maximum 10 units per Net Acre/Erosion Hazard) on approximately 80 acres

The proposed project would also include three Changes in zone classifications as follows:

- Zone Change Case No. 157, Map No. 231 from the existing zone district E(2 ½) RS FPS to A FPS on approximately 440 acres

- Zone Change Case No. 43, Map No. 232 from the existing zone district E(5) RS FPS to A FPS on approximately 330 acres and from existing zone district E(2 ½) RS FPS to A FPS on approximately 96

- Zone Change Case No. 18, Map No. 233 from the existing zone district (E5) RS FPS to A FPS on approximately 71 acres

Four Conditional Use Permits to allow for the construction and operation of four solar facilities with a total generating capacity of approximately 154 MW of renewable energy, including up to 200 MW of energy storage (for all sites)and one CUP for a communication tower, within the A (Exclusive Agriculture) zone district (in Zone Maps 231, 232, and 233) pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance would be required for the proposed project as follows:

- CUP Area 1 (solar and energy storage)
    - Conditional Use Permit No. 120, Map No. 231 for 70.99 acres
- CUP Area 2 (solar and energy storage)
    - Conditional Use Permit No. 40, Map No. 232 for 240.58 acres
- CUP Area 3 (solar and energy storage)
    - Conditional Use Permit No. 46, Map No. 232 for 541.16 acres

- CUP Area 4 (solar and energy storage)
    - Conditional Use Permit No. 16, Map No. 233 for 439.26 acres
- Telecommunication Tower
    - Conditional Use Permit No. 44, Map No. 232

The project proposes to remove future road reservations shown in the Willow Springs Specific Plan Circulation Element along a portion of the East/West and North/South midsection line of Section 21, T9N R14W within the project boundaries. The proposed Circulation Element future road reservations to be removed are shown in *Figure 11: Proposed Future Road Reservations to be Removed from the Willow Springs Specific Plan Circulation Element.* The project includes a Specific Plan Amendment to the Circulation Element of the Willow Springs Specific Plan as follows:

- Specific Plan Amendment No. 31, Map No. 232

Figure 2, Project Site Boundaries, shows the boundaries of the proposed project. With the requested zone change, the project would be zoned A FPS (Exclusive Agriculture, Flood Plain Secondary) within Zone Maps 231, 232, and 233. Therefore, pursuant to Chapter 19.12.030.G, CUPs are required to allow for the construction and operation of the PV solar facility under this zoning.

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 proposed project has an anticipated operational life of over 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 they would seek an extension of the project's CUPs. 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 combined project facilities would include the following components, which are described in greater detail thereafter:

- Solar PV panels;
- Inverters, combiners, and transformers;
- Battery Energy Storage System (BESS) facility;
- Up to 4 substations;
- Overhead and buried conductors;
- Onsite medium-voltage collection lines;

- Generation tie (gen-tie) line;
- Permanent, onsite, unpaved access roads;
- Telecommunications system and tower;
- Operations and Maintenance (O&M) Building facility;
- Security fencing;
- Stormwater retention basins;
- Temporary construction laydown areas, equipment, and structures.

Solar Array

The proposed project would utilize PV solar panels on mounting frameworks to convert sunlight directly into electricity. Individual panels would be installed on either fixed-tilt or tracker mount systems. If the panels are configured for fixed-tilt, the panels would be oriented toward the south. For tracking configurations, the panels would rotate to follow the sun over the course of the day. Maximum panel height is anticipated to be up to 14 feet high, depending on the mounting system selected and on County building codes.

The solar array fields would be arranged in groups called "blocks" with inverter stations generally located centrally within the blocks. Blocks would produce direct electrical current (DC), which is converted to alternating electrical current (AC) at the inverter stations.

Each PV module would be placed on a fixed-tilt or tracker mounting structure. The foundations for the mounting structures can 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. *Figures 12 to 15, Site Plans,* show the proposed layout of the solar panels within the respective CUP Areas.

Collection, Inverter, and Transformer Systems

Photovoltaic energy is delivered via cable to inverter stations, generally located near the center of each block. Inverter stations are typically comprised of one or more inverter modules with a rated power of up to 5 MW each, a unit transformer, and voltage switch gear. The unit transformer and voltage switch gear are housed in steel enclosures, while the inverter module(s) are housed in cabinets. Depending on the vendor selected, the inverter stations may lie within an enclosed or canopied metal structure, typically on a skid or concrete mounted pad.

Energy Storage System

The proposed project would include a Battery Energy Storage system (BESS) component. The approximately 200 MW BESS would consist of a series of batteries housed within the inverter pads or in separate storage containers. If the BESS is centrally located, it would be contained within an outdoor-rated steel enclosure. If distributed throughout the solar array, the BESS would be contained within metal housings at each of the equipment pads and electrically connected to the inverters. The containers would

be set on a concrete or steel pile foundation and would be approximately 8 feet wide by 10 feet long by 10 feet high. Collectively, the battery storage component would have a total footprint of a maximum 20 acres. The BESS and associated infrastructure would be located on one of the parcels within the project site.

The BESS would use one of several commercially available lithium ion (Li-ion) technologies, though alternatives may be considered (such as flow batteries) due to the rapidly changing technology in the battery industry. In general, a Li-ion battery is a rechargeable type of battery consisting of three major functional components: a positive electrode made from metal oxide, a negative electrode made from carbon, and an electrolyte made from lithium salt. Lithium ions move from negative to positive electrodes during discharging and in the opposite direction when charging. There are five major Li-ion battery sub chemistries that are commercially available, including: lithium nickel cobalt aluminum, lithium nickel manganese cobalt, lithium manganese oxide, lithium titanate oxide, and lithium-iron phosphate. Selection of the Li-ion subchemistry for the Project would take into consideration various technical factors, including safety, life span, energy performance, and cost.

The proposed BESS would be designed, constructed, operated, and maintained in accordance with applicable industry best practices and regulatory requirements, including compliance with the latest National Fire Protection Association (NFPA) fire safety codes and fire rating in conformance with Kern county standards.

Substation(s)

Up to four substations across the CUP Areas could be constructed to support the 154MW project. The substations (which contain high-voltage equipment) would be unenclosed, occupy an area of approximately 250 feet by 250 feet each, and be protected with security fences. The electrical equipment inside the substation fence would have a maximum height of approximately 100 feet. A small one-story, rectangular control building, housing the communication and supervisory control and data acquisition (SCADA) equipment, would also be located in the substation footprint. For substations located in CUP Areas 2, 3, and 4, an underground or overhead gen-tie line would be constructed to connect each solar area to the existing central Teddy substation. For the substation located in CUP Area 1, a dedicated overhead gen-tie line connecting the substation to the Whirlwind substation would be constructed. The final location(s) of the substations within the CUP Areas would be determined before issuance of building permits.

Generation Tie Line

From the proposed project's substation(s), power could be transmitted to the existing privately-owned Teddy substation and/or the SCE Whirlwind Substation via up to 230 kV overhead and/or underground line(s); refer to *Figure 2, Project Site Boundaries,* which shows the possible gen-tie line alignments. If aboveground, the overhead lines would be mounted on either tubular steel monopoles or lattice structures up to 140 feet in height. Alternatively, the proposed project could transmit its power to the Teddy or SCE Whirlwind Substation via an existing 230-kV line as a result of a shared facilities agreement the project proponent is exploring. A franchise and/or encroachment agreement with Kern County along affected County roadways may ultimately be required for portions of the transmission line.

Operations and Maintenance Facilities

The proposed project would include an O&M building measuring approximately 100 feet by 50 feet, a communications building measuring approximately 20 feet x 30 feet, and a parking area. The O&M

building would include office and storage space for spare parts and materials for the day-to-day operations and maintenance of the facility.

Onsite Meteorological Station

The project would include an on-site solar meteorological station located near the O&M building, which would consist of solar energy (irradiance) meters, as well as an air temperature sensor and wind anemometer. Wind anemometer towers may be located within the array at strategic locations or near the fence line. The wind anemometer would have an estimated height of approximately 30 feet, the maximum proposed equipment height.

Site Access and Security

The project site would be accessed from various existing area roadways. Construction traffic would access the project site from Avenue A. Other roads used during construction include Rosamond Boulevard, Avenue D, Astoria Avenue, Gaskell Road, Holiday Avenue, Willow Avenue, Kingbird Avenue,100th Street West, 130th Street West, 140th Street West, and 170th Street West. Improvements to off-site access roads would be completed as required by County standards.

Chain link fencing with three-strand barbed wire strung one foot from the top of the fence would be installed along the perimeter of the project site. Access gates would be installed at each project site entry point and may be motorized. Additional security may be provided through remote controlled cameras. For each of the sites, interior roadway alignments would be finalized once placement of the solar panels is determined and would be influenced by topographical, biological, or cultural resource determinations, or other site conditions. Where on-site access roads may cross streambed areas under the jurisdiction of the California Department of Fish and Wildlife, crossings would be designed to minimize or avoid any impacts to such jurisdictional resources and in compliance with California Fish and Game Code requirements, including authorization through a Streambed Alteration Agreement as appropriate.

Stormwater Management

To control surface runoff, a series of retention and or infiltration basins, berms or channels may be constructed. These retention features would be designed to retain storm water on site to infiltrate into the soil within a reasonable amount of time. The design of the retention basins would meet all Kern County codes.

Project Site Lighting

Manual, timed, and/or motion sensor lights would be installed at equipment pads for maintenance and security purposes. Nighttime lighting would provide O&M personnel with illumination for both normal and emergency operating conditions. The minimum illumination needed to ensure worker safety and security on-site would be provided. All nighttime lighting installed would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties as required by Kern County Ordinance (Chapter 19.81) - Outdoor Lighting-Dark Skies requirements.

Construction Activities

The construction period for the proposed project is anticipated to commence in the 3rd quarter of 2022 and last for approximately 12 months.

Construction of the proposed project would include the following activities:

- Site preparation
- 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 Avenue A. Other roads used during construction include Rosamond Boulevard, Avenue D, Astoria Avenue, Gaskell Road, Holiday Avenue, Willow Avenue, Kingbird Avenue,100th Street West, 130th Street West, 140th Street West and 170th Street West. An average of 120 workers per day is anticipated to be required during construction of the proposed project. During the peak construction period up to approximately 630 workers may be on the project site. Peak construction is anticipated to last for approximately 3 months.

Construction is generally anticipated to occur between during daylight hours, roughly between 6:00 am and 5:00 pm, Monday through Friday. Additional hours, as permitted by the County, may be necessary to make up schedule deficiencies or to complete critical construction activities.

Construction materials and supplies would be delivered to the project site by truck. Truck deliveries would normally occur during daylight hours. It is anticipated that all materials and supplies will be stored on-site within the fenced project site boundaries. Storage containers may be used to house tools and other construction equipment. In addition, a temporary construction trailer would be located onsite during the course of construction.

Site Preparation, Earthwork and Construction Control Measures

Project construction for each CUP Area is expected to consist of two major stages: site preparation and array construction. The first stage would include light grading and establishing staging areas and on site access routes. The project site would be cleared and graded as needed to allow for the installation of the solar arrays, energy storage facilities, related infrastructure, access driveways, and temporary construction staging areas. Sediment and erosion controls would be installed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). Site preparation would also be consistent with Kern County Best Management Practices (BMPs) and Eastern Kern Air Pollution Control District rules for dust control.

Earthmoving activities are expected to be limited to the construction of the internal access roads, solar panel arrays, the O&M building(s), substations, energy storage systems, gen-tie lines, and for storm water protection or storage (detention) facilities. Final grading may include revegetation with low lying grass or applying earth-binding materials to disturbed areas. However, as the project site is relatively flat, minimal if any grading is anticipated.

Dust-minimizing techniques, such as maintaining natural vegetation where possible, use of mow-and-roll vegetation clearing, placement of wind control fencing, application of water, and/or application of dust suppressants would be implemented as needed. Project grading would be minimized to the extent feasible to reduce unnecessary soil movement that may result in dust generation. Water trucks, bulldozers, front end loaders, graders, roller compactors, backhoes, and excavators may all be used in site preparation. On site roads would be constructed with a scarified and compacted subgrade. Roads may be additionally compacted to 90 percent or greater, as required, to support construction and emergency vehicles. Certain access roads may also require the use of aggregate to meet emergency access requirements. No importing or exporting of materials would be necessary. Grading includes approximately 273,600 CY of cut / 267,600 CY fill. Additionally, on-site trenching for the placement of underground electrical and communication lines would occur.

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 Stormwater Pollution and Prevention Plan (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.

Additionally, site preparation would occur in conformance with County BMPs and Eastern Kern Air Pollution Control District rules for dust control.

Construction Water Use

Water would be required during the construction phase for such activities as dust suppression, soil compaction, and grading. Smaller quantities would be required for preparation of the concrete required for foundations and other minor uses. Water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 450 acre-feet over the 12 month construction phase. Bottled water would be provided to the construction workers. 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 required for project construction, and therefore, water for such purposes is not required.

It is anticipated that water would be delivered via truck from an off-site source within the project vicinity. RMR Water has provided a will-serve letter indicating their ability to provide sufficient water during the construction of the project.

Electrical Supply

The method of temporary power for construction is expected to be provided by mobile diesel-driven generator sets, batteries, by temporary electrical service from a local provider, or a combination of all three methods.

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 proposed project would employ up to two full-time equivalent (FTE) personnel (or personnel hours totaling two FTE positions) who would commute to the site.

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.

Water Usage

Water demand for panel washing and O&M domestic use (sinks, lavatories, landscape irrigation, drinking) is not expected to exceed 18 acre-feet per year. It is estimated that the panels could be washed on average up to four times per year. Water is anticipated to delivered via truck or pipeline from an off-site source within the project vicinity. A Will Serve letter has been obtained from a private local water purveyor, indicating his capacity and willingness to provide water for construction and operation of the proposed project.

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 plant 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.

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. The following materials are expected to be used during the construction, operation, and long-term maintenance of the proposed project:

- Diesel fuel, gasoline and motor oil – used for vehicles
- 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.

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.

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.

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 will 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 expected.

Health and Safety

Safety precautions and emergency systems will be implemented as part of the design and construction of the proposed project to ensure safe and reliable operation. Administrative controls will include classroom and hands-on training in operating and maintenance procedures, general safety items, and a planned maintenance program. These will work with the system design and monitoring features to enhance safety and reliability.

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.

Decommissioning

Solar equipment typically has a 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. Above-ground equipment that may be removed would include module posts and support structures, on-site transmission poles that are not shared with third parties and the overhead collection system within the project site, inverters, transformers, electrical wiring, equipment on the inverter pads, and related equipment and concrete pads.

Project roads would be restored to their pre-construction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The project site would be thoroughly cleaned and all debris removed. Most materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. A collection and recycling program would be executed to promote recycling of project components and minimize disposal of project components in landfills. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, State, and County regulations. The project proponent expects a secondary market for PV modules to develop over time. Although energy output may diminish, PV modules are expected to continue to have a productive life and can be decommissioned from a prime location or re-commissioned in another location.

1.5. Project Objectives

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

- Assist the State of California in achieving or exceeding its Renewable Portfolio Standard (RPS), Senate Bill 350, Senate Bill 100, and the California Global Warming Solutions Act (Assembly Bill 32) and greenhouse gas emissions reduction objectives by developing and constructing new California RPS-qualified, solar power generation facilities producing approximately 154 MW.

- Develop a commercially viable solar power generation and battery storage facility that would support the economy by investing in the local community, creating local construction jobs, and increase tax and fee revenue to the County.
- Assist California in reducing its greenhouse gas (GHG) emissions as required by the California Global Warming Solutions Act.
- Provide a new source of energy storage that assists the state in achieving or exceeding its energy storage mandate (Assembly Bill 2514).
- Produce and transmit electricity at a competitive cost.
- Assist the County in achieving the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.

1.6. Proposed Discretionary Actions/Required Approvals

The anticipated approvals needed for the project include changes in zone classification, adoption of conditional use permits, and a specific plan amendment to the Circulation Element of the Willow Springs Specific Plan. Construction and operation of the proposed solar energy facility may require additional local, State, and Federal entitlements; as well as discretionary and ministerial actions and approvals including, but not limited to, below:

County of Kern

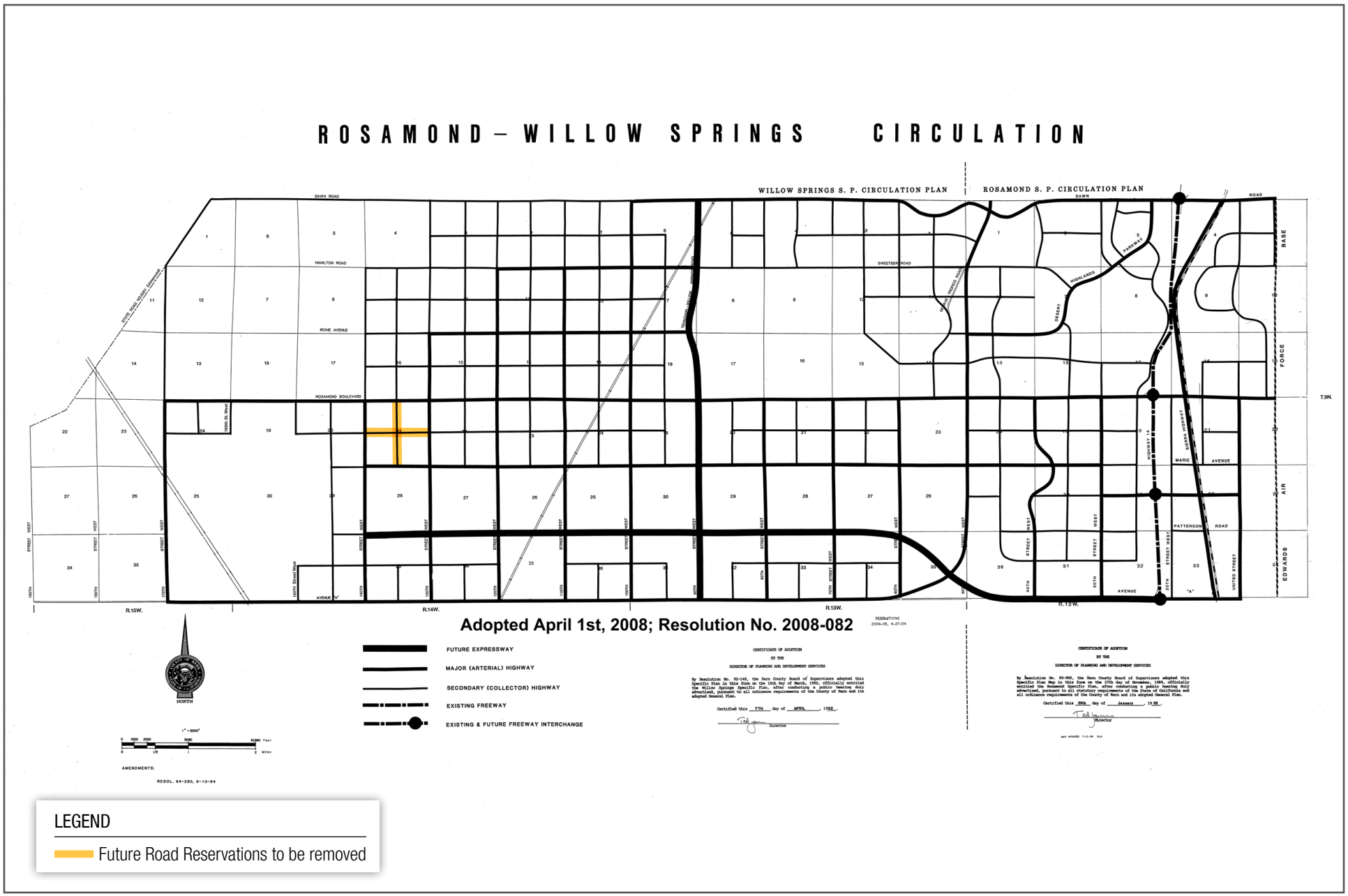
- Consideration and certification of Final EIR
- Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
- Adoption of proposed Mitigation Measure Monitoring Program
- Approval by the Kern County Board of Supervisors for proposed changes in zone classification
- Approval by the Kern County Board of Supervisors for proposed conditional use permits for the project site
- Approval by the Kern County Board of Supervisors for proposed Specific Plan Amendments to the Circulation Element
- Kern County grading and building permits
- Kern County encroachment permits
- Kern County Franchise Agreements
- Kern County public road(s) and easement(s) vacation(s) (if required)
- Kern County Fire Safety Plan

Other Responsible Agency Approvals

- U.S. Fish and Wildlife Service Habitat Conservation Plan (if required)

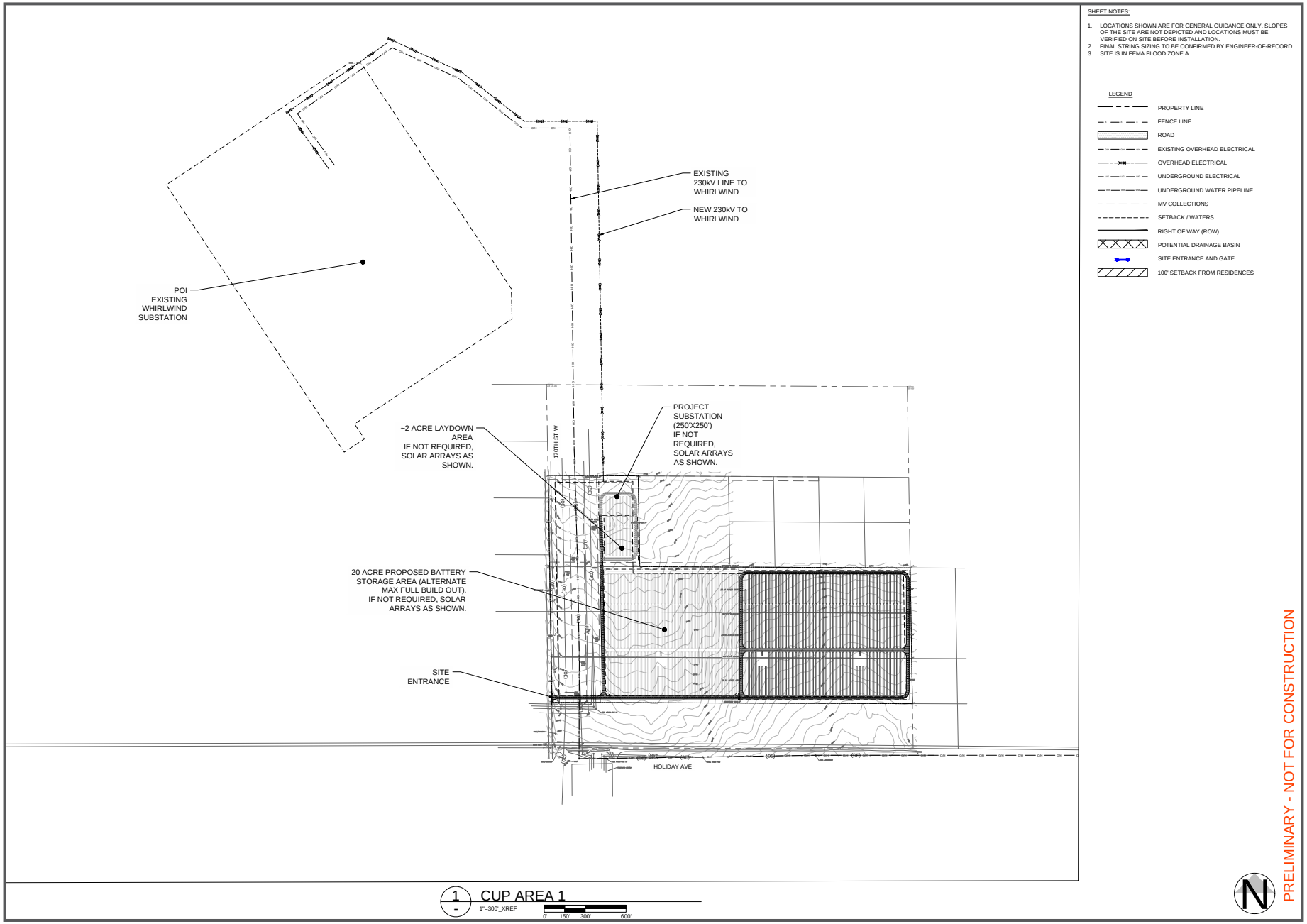
- California Department of Fish and Wildlife (CDFW), Lake and Streambed Alteration Agreement or Incidental Take Permit or Habitat Conservation Plan (if required)
- State Water Resources Control Board – National Pollutant Discharge Elimination System Construction General Permit
- California Department of Transportation Right-of-Way Encroachment Permit, and Permit for Transport of Oversized Loads
- Eastern Kern County Air Pollution Control District Authority to Construct/Permit to Operate/Fugitive Dust Control Plan

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: Willow Springs Specific Plan, 2008

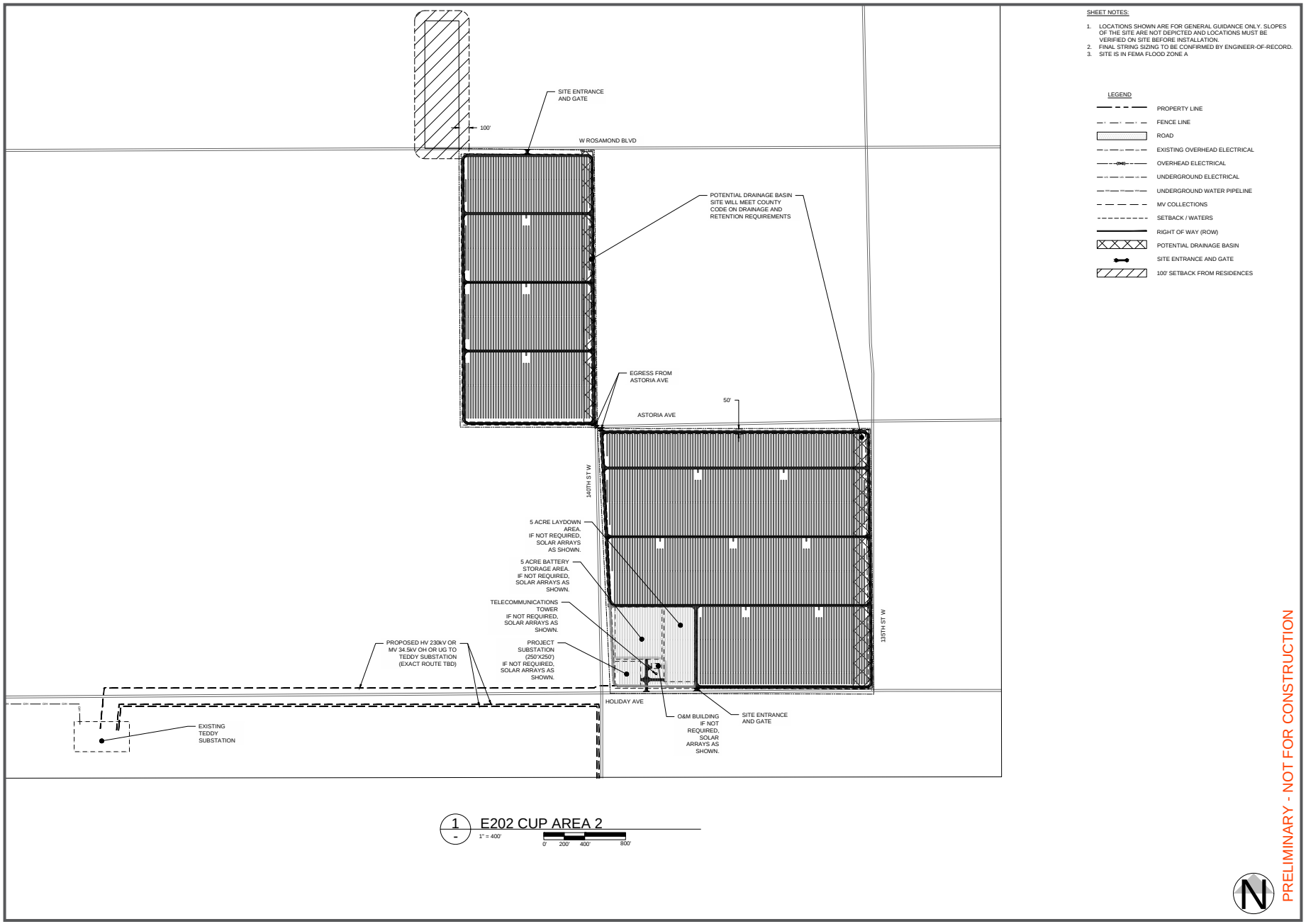
FIGURE 11: Proposed Future Road Reservations to be Removed from the Willow Springs Specific Plan Circulation Element



Source: REVAMP Engineering, 2021

FIGURE 12: CUP 1 Site Plan

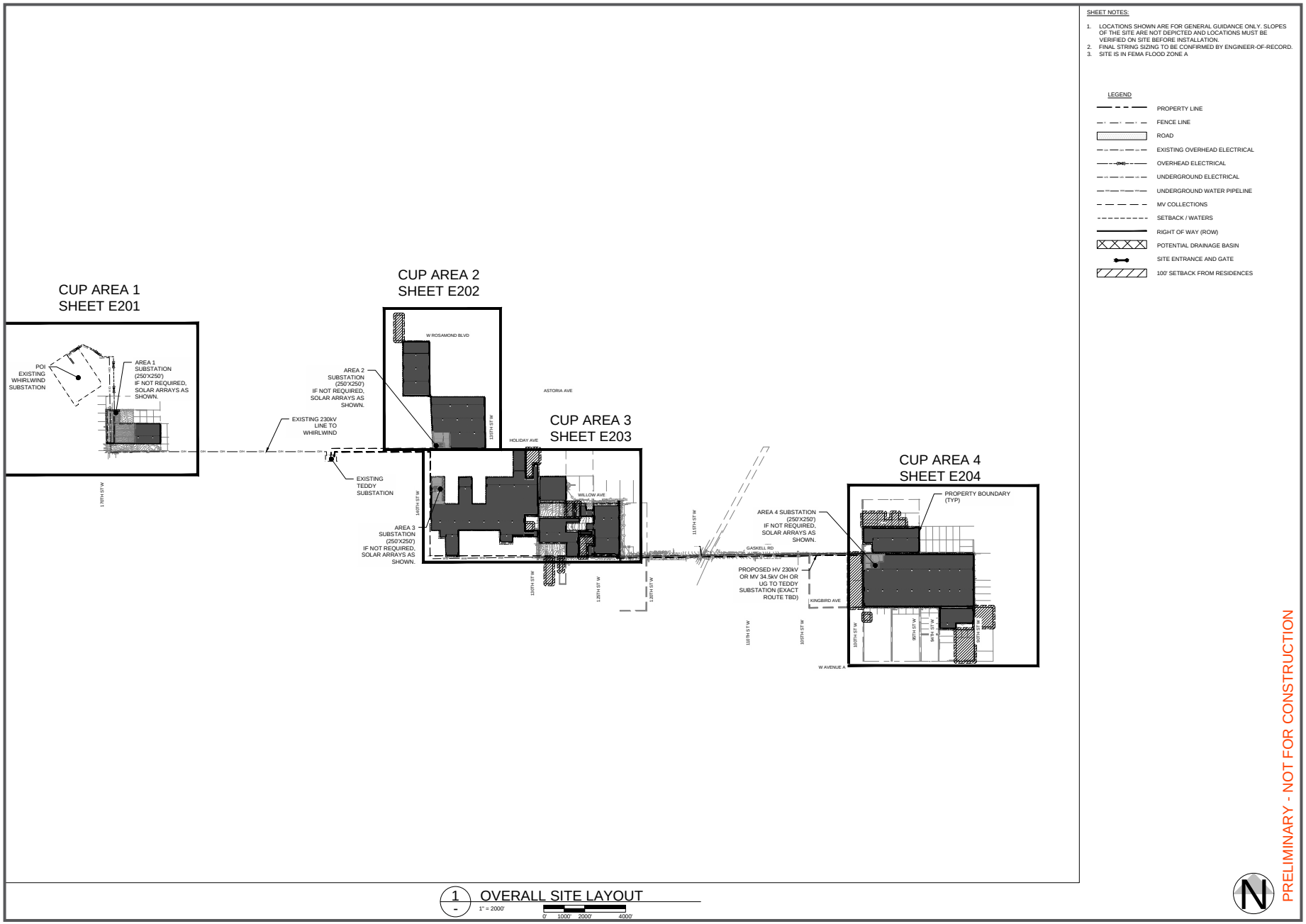
Rosamond South Solar Project



Source: REVAMP Engineering, 2021

FIGURE 13: CUP 2 Site Plan

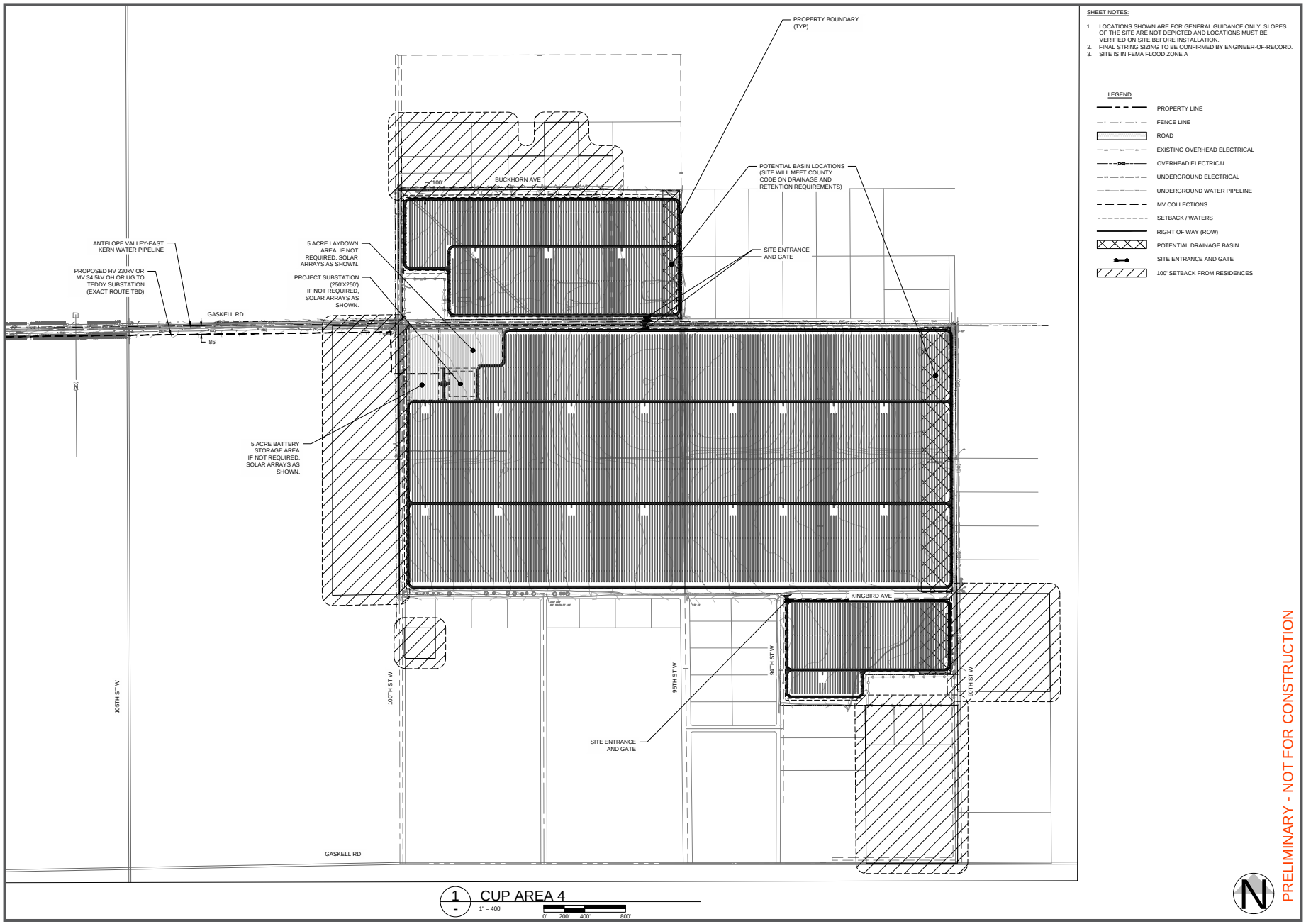
Rosamond South Solar Project



Source: REVAMP Engineering, 2021

FIGURE 14: CUP Site Plan

Rosamond South Solar Project



Source: REVAMP Engineering, 2021

FIGURE 15: CUP Site Plan

Rosamond South Solar Project

2. Kern County Environmental Checklist Form

2.1. Environmental Factors Potentially Affected

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

☒	Aesthetics	☒	Agricultural and Forestry Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Energy
☒	Geology and Soils	☒	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials
☒	Hydrology and Water Quality	☒	Land Use and Planning	☐	Mineral Resources
☒	Noise	☐	Population and Housing	☒	Public Services
☐	Recreation	☒	Transportation and Traffic	☒	Tribal Cultural Resources
☒	Utilities/Service Systems	☒	Wildfire	☒	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: _____ Date: _____

Printed Name: _____ Title: _____

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 where 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?	☒	☐	☐	☐
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
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?	☒	☐	☐	☐
d.	Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

RESPONSES:

(a) The project is located in a sparsely developed, rural area of Kern County. Land uses in the project area included a mix of undeveloped land, solar and wind energy production facilities, transmission facilities, and rural residential development. The project site is not located within an area designated for or identified as having a scenic vista or scenic views. According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible State scenic highway is State Route (SR) 14 located near the community of Mojave approximately 18 miles northeast of the project site. Although the project site is not located within an area identified as having a scenic vista or scenic views or within view of a designated or eligible State scenic highway, the project would substantially change views from public roads and impacts may occur and will be further analyzed in the EIR.

(b) As described in (a), above, the closest eligible State scenic highway is SR 14 near the community of Mojave located approximately 18 miles northeast of the project site. Because of this distance, the project would not be visible from SR 14. Therefore, there are no anticipated project impacts to scenic resources within a state scenic highway. No further analysis in the EIR is required

(c) The aesthetic features of the existing visual environment within the project site are relatively uniform, with natural desert vegetation and active and fallowed agricultural land. The project area is composed of a mix of undeveloped land, agricultural land, rural residential development, as well as existing solar and wind electrical generation facilities and transmission infrastructure. Desert vegetation and agricultural fields dominate the project site, project area, and the region. Due to the relatively flat

topography of the project area and low height of the PV solar arrays proposed, visual impacts as a result of the project would be limited to the small number of persons traveling along nearby roads such as Rosamond Boulevard. Views of the proposed project would also be experienced from the scattered residences located in the project area. Placement of the PV solar panels and associated structures on the project site would alter the existing character of the area. Residents and travelers on adjacent roads would observe alterations to the existing landscape. Changes to the visual quality and character of the project site may be significant and impacts will, therefore, be further evaluated in the EIR.

(d) The project site is generally undeveloped desert or agricultural land and does not generate a source of light or glare. The project area contains scattered rural residential development as well as existing permitted solar and wind electrical generation facilities and transmission infrastructure. The existing residences in the project vicinity generate a minimal to moderate amount of light, primarily from building or outdoor lighting. The PV modules of the surrounding arrays and those proposed by the project are designed to absorb sunlight to maximize electrical output; therefore, they are not expected to create significant reflective surfaces or the potential for glint/glare during the day. The lighting of the proposed project would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be directed downward and shielded to focus any illumination on the desired areas only to minimize light trespass. All lighting at the proposed solar facility would be designed to meet Kern County Zoning Ordinance Chapter 19.81 - Outdoor Lighting - Dark Skies requirements. However, further analysis of the specific lighting proposed and the potential effects of light and glare from the proposed project will be provided 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?	☐	☐	☐	☒
b.	Conflict with existing zoning for agricultural use or a Williamson Act Contract?	☐	☐	☒	☐
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 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.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☒	☐	☐	☐
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)?	☐	☐	☐	☒

RESPONSES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and the forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board.

(a) According to the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) 2018 Important Farmland map for east Kern County, there are no agricultural lands designated as Prime Farmland, Unique Farmland, Unique Farmland, or Farmland of Statewide Importance located within the project site. CUP Areas 1, 2, and 3 are designated as Nonagricultural and Natural Vegetation and CUP Area 4 is designated as Grazing Land, Nonagricultural or Natural Vegetation, and Semi-Agricultural and Rural Commercial Land (DOC 2018). There are no lands designated as important farmland located within the project site (DOC, 2018). Therefore, construction and operation of the proposed project would not result in the conversion of designated farmland to a nonagricultural use and there would be no impact. No further analysis in the EIR is required.

(b) Zone changes are proposed to apply the AFPS zone district to parcels within the project site located on Zone Maps 231, 232, and 233, as detailed in *Table 1, Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage*. According to the Kern County Zoning Ordinance, a commercial solar facility is a compatible use within the A zone district with a CUP. The construction and operation of a solar energy generating facility on the site would require the approval of multiple CUPs. Portions of the project site are located within Kern County Agricultural Preserve No. 24, however, these properties are currently classified as being in the E (Estate) zone district. The project site does not contain lands that are subject to Williamson Act contracts, either in active on in nonrenewal status. There are no lands under Williamson Act contracts adjacent to the project site or in the project area. As such, there would be no impacts to Williamson Act lands. Nevertheless, this issue will be further evaluated in the EIR.

(c) No lands that would be affected by the proposed project are zoned as forest land or timberland, or are used for timberland production. Therefore, the project would not conflict with the 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 not situated on forest or timberland and is not located adjacent to 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 noted in response (a) above, the project site does not include lands that are in agricultural production. As discussed in responses (c) and (d) above, the project site does not contain any forest land nor is any forest land or timberland located within the project area. However, though commercial solar facilities are permitted in the A zone district with approval of a CUP, the project would install approximately 201 acres of solar arrays, thereby converting the use of the land to a non-agricultural use, on land zoned for agricultural use. Therefore, this issue will be further analyzed 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. As stated in response (a) above, the project site is not under a Williamson Act 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.

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:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than Significant Impact	No Impact
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is 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:				
	Operational and Area Sources				
	Reactive organic gases (ROG): 10 tons per year.	☐	☐	☒	☐
	Oxides of nitrogen (NO_X): 10 tons per year.	☐	☐	☒	☐
	Particulate matter (PM_{10}): 15 tons per year.	☐	☐	☒	☐
	Stationary Sources - as Determined by District Rules				
	Severe nonattainment: 25 tons per year.	☐	☐	☒	☐
	Extreme nonattainment: 10 tons per year.	☐	☐	☒	☐
	ii. Eastern Kern Air Pollution Control District.				
	Operational and Area Sources				
	Reactive organic gases (ROG): 25 tons per year.	☒	☐	☐	☐
	Oxides of nitrogen (NO_X): 25 tons per year.	☒	☐	☐	☐
	Particulate matter (PM_{10}): 15 tons per year.	☒	☐	☐	☐
	Stationary Sources – as Determined by District Rules				
	25 tons per year.	☒	☐	☐	☐
c.	Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

RESPONSES:

(a) The project site is located entirely within the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD), in the Mojave Desert Air Basin (MDAB). The MDAB is designated as a nonattainment area for both the State and federal ozone standards and the state particulate matter (PM_{10}) 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 PM_{10} that could result in significant impacts to air quality in the area.

EKAPCD's most recently adopted air quality management plan is its Ozone Air Quality Attainment Plan (AQAP). As the proposed project would generate emissions of ozone precursors (along with PM_{10}) during construction, the project could potentially conflict with EKAPCD's Ozone AQAP. Thus, further analysis of the project's air quality impacts is warranted to determine whether the project would conflict with or obstruct implementation of EKAPCD's applicable air quality plan for attainment and, if so, to determine the reasonable and feasible mitigation measures that could be imposed. These issues will be evaluated in the EIR.

(b) The proposed project is not located within the San Joaquin Valley Unified Air Pollution Control District and, therefore, its adopted thresholds do not apply. However, as noted in response (a) above, the project is located within the EKAPCD in the MDAB, which is designated as a nonattainment area for the State and federal ozone standards and the State PM_{10} standard. As such, the emissions of ozone precursors (ROG and NOx) and PM_{10} during construction and operation of the project could result in a cumulatively considerable net increase of these criteria pollutants in the MDAB. Thus, the project's contribution to cumulative air quality impacts in the MDAB could be potentially significant. The project's contribution of construction and operational emissions to the MDAB will be analyzed in the EIR.

(c) Sensitive receptors located in the project area are rural residential dwellings located at varying distances from the project site. The nearest sensitive receptors to the project site are single family residences located adjacent to the south of CUP Area 4 along Spur Ranch Road. Additional single-family residences are located approximately 1 mile east of the east side of CUP Area 4 along 80th Street W and adjacent to CUP Areas 2 and 3. Rosamond Park, a local park, is located approximately 7.2 miles northeast of the easternmost portion of the project site. The closest school to the project site is Tropico Middle School, located approximately 4 miles northeast of the project site. Nearby sensitive receptors 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 PM_{10}) that could adversely affect air quality for the nearest sensitive receptors.

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

(d) 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. Therefore, project impacts are expected to be less than significant; however, this issue 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?	☒	☐	☐	☐
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?	☒	☐	☐	☐
c.	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

RESPONSES:

(a) The project site is located in the eastern high desert region of unincorporated Kern County in the Mojave Desert. The project site contains large areas of undeveloped but disturbed land. The dominant habitat types present within the project area are Annual Grassland, Desert Scrub, Alkali Desert Scrub, Barren, Urban, and Deciduous Orchard. There is a potential for candidate, sensitive, or special-status plant and wildlife species to be present on-site or in the project area. 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. Impacts to

biological resources and sensitive plant communities are considered potentially significant and will be analyzed in the EIR.

(b) The project site is undeveloped and comprised of desert scrub vegetation communities and active and fallow agricultural land. The USFWS does not identify any critical habitats within or adjacent to the project site. The nearest critical habitat is located approximately 14 miles west of the project site in the Tehachapi Mountains. This habitat is for the California condor (*Gymnogyps californianus*). Field surveys for riparian and other sensitive natural communities, including a biological assessment and jurisdictional delineation, will be completed for the proposed project and the results will be incorporated into the EIR. Additionally, protocol surveys, soils characterization, and hydrologic analysis will be prepared for the project. Impacts to riparian or other sensitive natural communities as a result of the proposed project are considered potentially significant and will be further analyzed in the EIR.

(c) The project site is highly unlikely to contain any federally protected wetlands, marshes or vernal pools, or other protected waterways because the project site is located in the Mojave Desert Basin in the Great Basin within which local waters do not drain to a traditionally navigable water of the United States. Therefore, project implementation is unlikely to result in impacts to wetlands. However, the project does have several drainages and identified other water features that may be considered jurisdictional waters of the State. Further analysis to identify potentially jurisdictional waters and any impacts to such waters will be included in the EIR.

(d) While the project site is located outside of known habitat linkages in the region, the site may be used for more local wildlife movement and likely provides stopover and wintering habitat for birds. Project construction and operation could also remove both foraging and nesting/denning habitat for wildlife species. No known established wildlife corridors or native wildlife nursery sites are located within the project site; however, impacts to wildlife habitat and movement are potentially significant and will be evaluated in the EIR.

(e) The CDFW has considered Joshua tree (*Yucca brevifolia*) to be a candidate species protected under California Endangered Species Act (CESA) since October 9, 2020. As a candidate species, Joshua tree now has full protection under CESA and any take of the species would require authorization under CESA. For projects where "take" is incidental to carrying out an otherwise lawful activity, an Incidental Take Permit (ITP) may be obtained from the CDFW. Additionally, sensitive natural plant community and compliance with the California Desert Native Plants Act of the California Food and Agricultural Code, Division 23, is required for the removal of Joshua trees. Scattered, widely spaced Joshua trees occur throughout portions of the proposed project site; however, they do not occur at a density high enough to consider them a distinct woodland community. Potential impacts to Joshua tree will be analyzed in the EIR.

(f) The project site is located within the U.S. Bureau of Land Management's (BLM) West Mojave Plan (WMP) planning areas. However, the WMP applies only to federal public lands managed by the BLM and is not an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). The project site is also located within a BLM-designated Development Focus Area pursuant to BLM's Desert Renewable Energy Conservation Plan (DRECP). Development Focus Areas have been identified because of their potential for energy generation and minimal conflict with sensitive biological resources and are therefore more likely to be appropriate for renewable energy development. However, at this time the DRECP applies only to federal public lands managed by the

BLM and is not an adopted HCP or NCCP. There are no anticipated impacts to these designated areas or plans because the project would not conflict with the provisions of an adopted HCP or NCCP.

	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?	☒	☐	☐	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☒	☐	☐	☐
c.	Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☒	☐

RESPONSES:

(a) - (b) The project site consists of undeveloped but previously disturbed land. Development of the proposed project would require ground disturbance for installation of the solar arrays and placement of aboveground and underground electrical and communication lines, which could impact historical or archaeological resources, including resources that are undiscovered. A cultural resources survey will be conducted for the project and its finding incorporated into the EIR. Therefore, further evaluation in the EIR is warranted to evaluate potentially significant impacts to historical, and archaeological resources, and to formulate avoidance or mitigation measures, if applicable.

(c) 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. Nonetheless, 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?	☒	☐	☐	☐
b.	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

RESPONSES:

(a) 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. Energy use associated with operation of the proposed project would be typical of a solar facility. Operation and maintenance facilities associated with the project would require electricity for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, appliances, security systems, etc. Maintenance activities during operations, such as landscape maintenance, could involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with employee vehicle trips generated by the proposed project. Further analysis in the EIR is warranted.

(b) Due to the increased on-site consumption of energy during construction, the proposed project has the potential to conflict with or obstruct a state or local plan for energy efficiency. However, following implementation of the proposed project, site energy demand would switch to energy 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. Impacts are considered to be less than significant; however, further analysis is warranted in the EIR.

VII. Geology and Soils

Would the project:

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

RESPONSES:

(a)(i) The project site is not located within any earthquake fault zone or seismic hazard zone as established pursuant to the Alquist-Priolo Earthquake Fault Zoning Act. The nearest fault to the project site is the Garlock-South Branch fault, located approximately 10 miles northwest of the project site. In addition, although the project does not include any habitable structures, construction of the project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08), including standards related to seismic hazards. Kern County has adopted the California Building Standards Code (CBC) 2019 Edition (CCR Title 24) effective January 1, 2020, which imposes substantially the same requirements as the International Building Code (IBC), 2020 Edition, with some modifications and amendments. Adherence to applicable building code standards would mitigate any potential impacts associated with the project. Impacts would be less than significant; however, further analysis in the EIR is warranted.

(a)(ii) 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. Should strong seismic ground shaking occur at the project site, damage to the PV modules and other ancillary facilities (e.g., O&M buildings) could result. However, construction of the proposed project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08) and IBC and CBC earthquake construction standards, including those relating to soil characteristics. Adherence to applicable regulations would minimize the potential impacts associated with ground shaking at the project site. Although potential impacts are anticipated to be less than significant, further analysis in the EIR is warranted.

(a)(iii) Seismically induced liquefaction occurs when loose, water-saturated sediments of relatively low density are subjected to cyclic shaking that causes soils to lose strength or stiffness because of increased pore water pressure. Liquefaction generally occurs when the depth to groundwater is less than 50 feet. Based on review of available groundwater data in the project area, groundwater is expected to be more than 50 feet below ground surface. Thus, the potential for liquefaction at the surface is low. Furthermore, the project site is not located within a current, mapped California Liquefaction Hazard Zone. Structures constructed as part of the project would be required by State law to be constructed in accordance with all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Nonetheless, the potential for substantial adverse effects to the project due to seismic-related ground failure, including liquefaction, will be examined in the EIR.

(a)(iv) The project site is located in a relatively flat-lying plain that does not contain in steep slopes; landslides are not likely. Therefore, impacts related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area. However, the potential for substantial adverse effects to the project due to landslides will be examined in the EIR.

(b) The project would employ a combination of mowing, “disk-and-roll” techniques and, where necessary, conventional grading. Disk-and-roll site preparation uses tractors pulling disking equipment to till under vegetation. As a result, project construction would have the potential to result in erosion, sedimentation, and discharge of construction debris from the site. Vegetation clearing and grading activities, for example, could lead to exposed or stockpiled soils susceptible to peak stormwater runoff flows and wind forces. The compaction of soils by heavy equipment may minimally reduce the infiltration capacity of soils (exposed during construction) and increase runoff

or erosion potential. An erosion and sediment control plan would be prepared that specifies best management practices (BMPs) to prevent construction pollutants, including eroded soils (such as topsoil), from moving off the site. Additionally, the project proponent would be required to obtain coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) because the proposed project would disturb greater than one acre of land. In order to conform to the requirements of the CGP, a storm water pollution prevention plan (SWPPP) would need to be prepared that outlines specific best management practices (BMPs) to prevent construction pollutants, including eroded soils, from moving off-site. Impacts are anticipated to be less than significant with implementation of the above requirements; however, this issue will be further evaluated in the EIR.

(c) The project lies in a relatively flat-lying plain where landslides, lateral spreading, subsidence, liquefaction, and collapse are not expected to occur. Based on review of available groundwater data in the project area, groundwater is expected to be more than 50 feet below ground surface. Therefore, liquefaction is unlikely because the ground water levels are relatively deep. Seismic settlement, lateral spreading, and collapse are not expected to result in significant impacts. Nevertheless, the potential for substantial adverse effects to the project due to geologic instability and liquefaction will be examined in the EIR.

(d) Expansive soils are fine-grained soils (generally high plasticity clays) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of a highly expansive soil can result in severe distress to structures constructed on or against the soil. The expansion potential of on-site soils may be classified as very low to low, and special design is not necessary. The project would be designed to comply with applicable building codes and structural improvement requirements to withstand the effects of expansive soils. The implementation of Kern County Building Code requirements, as applicable, would minimize the potential impact of expansive soils. The EIR will confirm the presence or absence of expansive soils within the project area. Therefore, this issue will be further evaluated in the EIR.

(e) A sanitary water supply would not be required during construction as restroom facilities would be provided by portable units to be serviced by licensed providers. The project would include the construction of one O&M building measuring approximately 100 feet x 50 feet and a communications building measuring approximately 20 feet x 30 feet that would support one to two full-time employees. The employee use of on-site restrooms would generate wastewater that would require disposal. Impacts from facilities that support the full-time employees during project operation warrants further evaluation in the EIR.

(f) Kern County is rich in paleontological resources. If sensitive paleontological formations are located underground on the project site, ground disturbance could result in impacts to paleontological resources. A paleontological study will be conducted to determine the underlying formations and potential for fossil discoveries throughout the project site. This analysis will be provided in the EIR to identify potential impacts and to formulate avoidance or mitigation measures, if applicable. Therefore, further evaluation in the EIR is warranted

		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?	☒	☐	☐	☐
b.	Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

RESPONSES:

(a) Greenhouse gas (GHG) emissions emitted by human activity are implicated in global climate change or global warming. The principal GHGs are CO_2, methane (CH_4), 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 electricity production that involves combustion energy sources (e.g., burning coal, fuel oil, or natural gas). As such, the provision of solar energy by the proposed project would produce GHG-free electricity that is anticipated to offset GHGs that would otherwise be generated by traditional fuel combustion electricity production. The potential impacts associated with GHG emissions generated during construction of the proposed project and the potential GHG offsets resulting from operation of the proposed project will be further evaluated in the EIR.

(b) California has passed several bills and the governor has signed at least three executive orders regarding GHGs. Assembly Bill (AB) 32 (the Global Warming Solutions Act) was passed by the California legislature on August 31, 2006 and requires preparing a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (HSC Section 38561(h)). As a result, the California Air Resources Board (CARB) developed a Climate Change Scoping Plan that contains strategies to achieve the 2020 emissions cap.

In 2002, California established its Renewable Portfolio Standards (RPS) Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent renewable energy by 2017. In 2006, under SB 107, the RPS Program codified the 20 percent goal. The RPS Program requires electric utilities and providers to increase procurement from eligible renewable energy resources by at least one percent of their retail sales annually until they reach 20 percent by 2017. On November 17, 2008, the governor signed Executive Order S-14-08, requiring California utilities to reach the 33 percent renewable goal by 2020. In 2015, SB 350 was enacted to increase the RPS to 50 percent and reduce greenhouse gas emissions by 40 percent below 1990 levels by the year 2030 and to 80 percent below 1990 levels by 2050.

The proposed project is intended to: (1) reduce importation of power from fossil fuel power plants and (2) contribute to a reduction in GHGs. Heavy equipment operation, truck deliveries, and construction worker commute trips associated with construction of the proposed project would temporarily generate GHGs; however, operation of the project would offset GHGs generated by traditional fuel combustion sources of electricity. 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?	☒	☐	☐	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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?	☒	☐	☐	☐
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?	☐	☐	☐	☒
f.	Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g.	Expose people or structures, directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐
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	☐	☐	☐	☒
ii. Are associated with design, layout, and management of project operations; and	☐	☐	☐	☒
iii. Disseminate widely from the property; and	☐	☐	☐	☒
iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.	☐	☐	☐	☒

RESPONSES:

(a) The project would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act and is not expected to create a significant hazard to the public or the environment. During construction, the project would include the transport of general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as materials necessary to construct the proposed PV arrays. Project-related infrastructure would not emit hazardous materials or be constructed of acutely hazardous materials or substances that could adversely impact the public or on-site workers. Wastes generated during construction of the project would also be non-hazardous, and would consist of 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 and would be used in accordance with the manufacturers' specifications and all applicable regulations.

The project would be subject to all local, State, and federal laws pertaining to the use of hazardous materials on the site and would be subject to review by the Kern County Public Health Services Department/Environmental Health Services Division. The PV panels include semiconductor materials, such as cadmium telluride or crystalline or amorphous silicon, which are encapsulated within the PV panels. The chemical properties of the semiconductor materials and the construction of the PV panels minimize risk of exposure to human health or the environment. Broken PV panels would be replaced and disposed of off-site in compliance with local, State, and federal laws, and would therefore not be a source of pollution or threat to human health or the environment. 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.

(b) The proposed project would be subject to all local, State, and federal laws pertaining to the use, storage, and disposal of hazardous and non-hazardous materials on the project site and would be subject to review by the Kern County Environmental Health Services Division. However, 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.

Electrical transformer equipment that would be installed as part of the proposed project may include various hazardous substances, including polychlorinated biphenyls. The toxicity and potential release of these materials would depend on the quantity, type of storage container, safety protocols used on the site, location and/or proximity to schools and residences, frequency and duration of spills or storage leaks, and the reactivity of hazardous substances with other materials.

In addition, the proposed project would also include a BESS on each of the facilities. Each BESS would consist of self-contained battery storage modules placed in racks, converters, switchboards, inverters, transformers, controls, and integrated heating, ventilation, and air conditioning (HVAC) units, all enclosed in one or more buildings or in prefabricated metal containers. If the BESSs use prefabricated metal containers, each container will be a 40-foot-long by 8-foot-wide battery container. Potential hazards associated with BESS include increased potential for electrical shock and chemical release associated with the batteries used. The BESS would have a fire rating in conformance with County standards and specialized fire suppression systems would be installed. Also, implementation of established construction controls and safety procedures would reduce the risk of hazardous materials spills and releases.

The proposed project would be subject to all local, state, and federal laws pertaining to the use of hazardous materials on-site and would be subject to review by the Kern County Environmental Health Services Division. Through the review process, the project proponent would be required to submit a complete list of all materials used on-site, how the materials would be transported and stored, and in what form they would be used. This would be recorded to maintain safety and prevent possible environmental contamination or worker exposure and would include submission of MSDS for all applicable materials present at the site. Additionally, implementation of BMPs would ensure that hazardous materials used on site during operation would neither be released into the environment nor expose operational personnel to hazardous materials. It is anticipated that adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would avoid significant impacts; nonetheless, potential impacts will be evaluated in the EIR.

(c) The closest school to the project site is Tropico Middle School, located approximately 4 miles northeast of the project site. The proposed project is a solar energy generation facility that involves using photovoltaic solar panels to generate electricity. Project-related infrastructure would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. However, this impact will be further evaluated in the EIR.

(d) No known hazardous materials/facilities are located within the project site. However, a Phase I Environmental Site Assessment (ESA) will be prepared pursuant to Government Code Section 65962.5. The Phase I ESA will include a search of the subject parcels in the California Environmental Protection Agency (CalEPA) Cortese List, the California Department of Toxic Substances and Control (DTSC) Envirostor database of hazardous substances release sites, and the California Water Boards' Geotracker database. Although no significant impacts are anticipated, there is the potential for the discovery of unknown hazardous materials. Therefore, the impacts from hazardous material sites are considered potentially significant and will be further analyzed in the EIR.

(e) The project site is not located within an area covered by the Kern County Airport Land Use Compatibility Plan (ALUCP). The nearest airports to the project site are the privately owned Rosamond Skypark located approximately 9 miles to the northeast, the Mojave Air and Space Port

located approximately 25 miles to the northeast, and the Mountain Valley Airport located approximately 25 miles to the north. Safety hazards are not anticipated for people working in the project site with respect to the project's proximity to an airport. Therefore, there would be no anticipated impacts related to proximity to an airport and no further analysis in the EIR is warranted.

(f) The project would not interfere with any existing emergency response plans, emergency vehicle access, or personnel access to the project site. The project site is located in a remote area with several alternative access roads allowing access to the project site in the event of an emergency. 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 are anticipated and no further analysis in the EIR is warranted.

(g) Construction and operation of the proposed project would not result in increased risk of wildfires in the project area. The California Department of Forestry and Fire Protection (CalFire) publishes Fire Hazards Severity Zone Maps for the State Responsibility Areas (SRA), however the project site is not located within a State Responsibility Area. The project site is located in a local responsibility area (LRA) for which the County of Kern is responsible for providing fire protection. The CalFire LRA maps show the project within two LRA Fire Severity Zones: (a) LRA moderate and (b) LRA unzoned. The project would comply with all applicable wildland fire management plans and policies established by CalFire and the Kern County Fire Department (KCFD). Accordingly, the project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Although impacts are anticipated to be less than significant, further analysis of this issue will be discussed in the EIR.

(h) 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. Therefore, impacts are considered to be negligible and further analysis is not required.

		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?	☒	☐	☐	☐
b.	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
	i. result in substantial erosion or siltation on- or off-site;	☒	☐	☐	☐
	ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☒	☐	☐	☐
	iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☒	☐	☐	☐
	iv. impede or redirect flood flows?	☒	☐	☐	☐
d.	In flood hazard, tsunami, seiche zones, risk release of pollutants due to project inundation?	☒	☐	☐	☐
e.	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

RESPONSES:

(a) Construction of the project would be subject to County, State, and federal water quality regulations. The project site is within the Lahontan Regional Water Quality Control Board (RWQCB) jurisdiction. 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. If not properly managed, this wastewater could violate the water quality standards or

waste discharge requirements of the RWQCB, or otherwise degrade surface or ground water quality. To reduce sediment production and storm water pollution, the project proponent would prepare and implement a project-specific drainage control plan, if necessary, which would include applicable BMPs to reduce the potential for erosion and sedimentation that could result from construction of the project. It is anticipated that appropriate best management practices (BMPs) and compliance with applicable regulations, including the NPDES Construction General Permit, would reduce potential water quality impacts to a less than significant level. Additionally, the proposed project contractor(s) would apply for coverage under the state's General Construction Permit for stormwater discharges from construction activities and would prepare a SWPPP that would include implementation of BMP erosion-control measures to control stormwater runoff. Site-specific BMPs would be designed by the contractor in compliance with regulations and permit conditions. Finally, further review is required to determine the post-construction water quality measures that would be implemented in compliance with RWQCB standards. Although significant impacts related to water quality are not anticipated during construction, a comprehensive hydrology and water quality impact analysis will be prepared, and the findings will be further analyzed in the EIR.

(b) During the construction, operational, and decommissioning phases of the proposed project, water would be obtained from an offsite source. During construction of the proposed project, non-potable water would be initially required for site preparation and grading activities. During earthwork for grading of access road foundations, equipment pads and project components, the main use of water (non-potable) would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for foundations and other minor uses. The overall construction water usage for dust control and site preparation is anticipated during construction is approximately 450 AF per year during the 12-month construction period.

An estimated 18 acre feet per year of water would be necessary for use in the O&M building and routine panel washing. It is anticipated that panels would be washed up to four times a year, using small water trucks. A Will Serve letter has been obtained from a private local water purveyor, indicating his capacity and willingness to provide water for construction and operation of the project. A water supply assessment will be completed for the project to analyze potential impacts to groundwater. These impacts will be addressed further in the EIR. (c)(i) Construction of the proposed project, including but not limited to, construction of concrete pads for the switchyard, inverters, transformers, and O&M buildings as well as foundational supports for panel installation, soil compaction, and any grading may alter the existing drainage pattern of the project site. A hydrologic study would be prepared for the project in accordance with Kern County requirements, and potentially significant impacts to existing drainage patterns and flooding conditions on the project site will be analyzed in the EIR.

(c)(ii) 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, and potentially significant impacts will be analyzed in the EIR.

(c)(iii) During construction and following installation of the solar arrays, the majority of the site would remain pervious. The design of the solar arrays is such that storm water infiltration would occur similar to 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. With adherence to site-specific BMPs, potential pollutants would be minimized to the extent practicable; nonetheless, this impact will be further discussed in the EIR.

(c)(iv) 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, the entire project site is located in a 100-year flood area (Zone A, 1% annual chance of flooding; see *Figure 10, FEMA Floodplain Map*. The proposed project would be reviewed by the Kern County Public Works Department-Floodplain for adherence to all floodplain management standards. Further analysis is required to identify appropriate mitigation/design measures to reduce potentially significant impacts from potential flooding and this analysis will be provided 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 and surrounding area, the potential to be inundated by mudflow is considered remote.

As discussed above, the entire project site is located in a 100-year flood area (Zone A, 1% annual chance of flooding); refer to *Figure 10, FEMA Floodplain Map*. 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 Antelope Valley Groundwater Basin, which is an adjudicated basin, with all water rights having been previously prescribed. Ongoing management of this basin is governed by the Integrated Regional Water Management Plan (IRWMP). As such, all water usage for the project will conform to existing adjudication plans. 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?	☐	☐	☒	☐
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?	☒	☐	☐	☐

RESPONSES:

(a) The project site is located on undeveloped but previously disturbed land. The project area is predominantly developed with permitted solar facilities and there are scattered rural residences located near or adjacent to the project site. The project site is located approximately 18 miles southwest of the unincorporated community of Mojave and approximately 11 miles west of the unincorporated community of Rosamond. The proposed project would not physically encroach into or divide or restrict access to the communities of Mojave or Rosamond. Therefore, impacts are considered to be less than significant and no further analysis in the EIR is warranted.

(b) The project site is located within the Willow Springs Specific Plan area. The project site currently has land use designations of 5.3/4.4 (Residential, Maximum 10 units/net acre/Comprehensive Planning Area); 5.3/2.6/4.4 (Residential, Maximum 10 units per net acre/Erosion Hazard/Comprehensive Planning Area); 5.6 (Residential, Maximum 10 units per net acre); 5.6/2.85 (Residential, Maximum 2.5 gross acres/unit/Noise Management Area); 5.7 (Residential, Minimum 5 Gross acres/unit); 5/7/2.6/2.85 (Residential, Minimum 5 Gross acres per unit/Erosion Hazard/Noise Management Area); 5.7/2.85 (Residential, Minimum 5 Gross acres per unit/Noise Management Area); 7.1 (Light Industrial); 7.1/4.4 (Light Industrial/Comprehensive Planning Area), 7.2/4.4 (Service Industrial/Comprehensive Planning Area); 8.1/2.85 (Intensive Agriculture/Noise Management Area); and 8.1/2.6/2.85 (Intensive Agriculture/Erosion Control/Noise Management) Area as shown in *Figures 4-6.*

Solar development is a conditionally permitted use in the A zone district per Chapters 19.12 and 19.14 of the Kern County Zoning Ordinance. Solar development is not a permitted use in residential zone districts like the E zone district per Chapter 19.16 of the Zoning Ordinance. Therefore, approval of a zone change would be required to rezone project parcels classified within the E zone district to the A zone district for the construction and operation of the proposed project in addition to CUPs; see *Figure 8, Existing Zoning* and *Figure 9, Proposed Zoning.* The proposed A zoning classification of the project site is consistent with the proposed Willow Springs Specific Plan map code designations. An amendment to the Willow Springs Specific Plan Circulation Element is also requested to eliminate the future road reservation along a portion of the East/West and North/South midsection line of Section 21, T9N R14W within the project site. This would allow solar panels to be placed throughout the site with no setbacks from the midsection line of future road reservations.

However, the proposed project would not affect property owner access to any other surrounding properties.

The project proponent is requesting four CUPs to allow for the construction and operation of the proposed project (refer to *Figure 3, Aerial Map with Site Boundaries*). With approval of the zone change classification and CUPs, the proposed project would be an allowable use within the A zone district. 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 CUPs. 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.

With approval of the requested CUPs and zone change classifications, the proposed project is not anticipated to have the potential 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

RESPONSES:

(a) The project site is not: (a) designated as a mineral recovery area by the Willow Springs Specific Plan, (b) identified as a mineral resource zone by the Department of Conservation's State Mining and Geology Board, or (c) designated by the California Geologic Energy Management Division (formerly known as the Department of Oil, Gas and Geothermal Resources (DOGGR)) as a recognized oil field. Construction and operation of the proposed project would not interfere with mineral extraction and processing and would not have significant impacts on future mineral development. Therefore, there would be no impact and no further analysis is warranted in the EIR.

(b) As mentioned previously, the project site is not located within a mineral recovery site designated by the Willow Springs Specific Plan or 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?	☒	☐	☐	☐
b.	Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project	☒	☐	☐	☐
d.	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?	☐	☐	☐	☒

RESPONSES:

(a) Land uses determined to be "sensitive" to noise as defined by the Kern County General Plan include residential areas, schools, convalescent and acute care hospitals, parks, and recreational areas, and churches. The Kern County General Plan Noise Element sets a 65 dBA (A-weighted decibels) Day Night noise level (Ldn) limit on exterior noise levels for stationary sources (i.e., non-transportation) at sensitive receptors. The nearest sensitive receptors to the project site are single family residences located adjacent to the south of CUP Area 4 along Spur Ranch Road. Additional single-family residences are located approximately 1 mile east of the east side of CUP Area 4 along 80th Street W and adjacent to CUP Areas 2 and 3. Rosamond Park, a local park, is located approximately 7.2 miles northeast of the easternmost portion of the project site. The closest school to the project site is Tropico Middle School, located approximately 4 miles northeast of the project site. Noise associated with construction and project operations has the potential to affect these nearby sensitive receptors.

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, since. no substantial noise-generating equipment would be located at the project site during operations and there would be minor traffic generating by on-site employees, who would work mainly indoors, within the O & M buildings. The project proponent would be required to adhere to the provisions set forth in the Kern County Ordinance Code Section 8.36.020 with respect to permitted days and hours of construction. A noise analysis will be included in the EIR to determine the project's consistency with the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36), the

Willow Springs Specific Plan, and any other applicable regulations. Potential noise impacts during project construction or operations will be further analyzed in the EIR.

(b) 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. Erection of the solar arrays would include support structures that may potentially need to be driven into the soil. The project would utilize impact/vibrating post drivers for panel racking construction, which could generate groundborne noise audible to sensitive receptors in the area. Operation of the proposed project is anticipated to emit minimal groundborne noise or vibration because the operational project would not involve any activities or machinery that would induce ground vibrations or noise. Additionally, the project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the project would not expose persons or structures to excessive groundborne vibration. Nonetheless, further analysis of groundborne vibration and groundborne noise during project operations will be included in the EIR.

(c) Heavy equipment use during construction would cause a temporary or periodic increase in ambient noise levels. Temporary or periodic increases in ambient noise levels caused by construction activities could be reduced with the incorporation of mitigation measures. Due to the relatively quiet nature of solar facilities, operation of the project would generate very little noise. Traffic during the operational phase of the project would be for routine access and maintenance activities and would primarily consist of personal vehicles for a small maintenance crew. Nonetheless, a noise analysis will be included in the EIR to determine the project's consistency with the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36), the Willow Springs Specific Plan, and any other applicable regulations. Project-related construction noise levels will be quantified and evaluated in the EIR.

(d) The project site is not located within the Kern County ALUCP. The nearest airports to the project sites are the privately owned Rosamond Skypark approximately 9 miles to the north east, the Mojave Air and Space Port approximately 25 miles to the northeast, and the Mountain Valley Airport approximately 25 miles to the north. The nearest public airport to the project site is Palmdale Regional Airport located approximately 18 miles southeast of the project site. Implementation of the proposed project is not anticipated to expose people residing or working in the area to excessive noise levels. Therefore, further analysis of this impact in the EIR is not warranted.

	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)?	☐	☐	☐	☒
b.	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

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 project would include the construction of O&M buildings, in which one to two permanent on-site employees are proposed or required to operate, maintain, or monitor the facilities.

It is estimated that up to 630 workers per day would be required during peak construction periods for the proposed project. The project construction would require an average of 122 daily on-site construction workers throughout construction. The construction process is anticipated to take up to 12 months, and therefore, project-generated workers would only be in the local area on a temporary 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 would be available in the nearby communities of Mojave, Rosamond, Lancaster, or other local communities and cities. 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, one to two full-time staff would be employed by the proposed project, who would commute to the site. Existing housing stock would accommodate operations personnel should they relocate to the area. The project would not directly or indirectly induce substantial unplanned population growth and further analysis in the EIR is not warranted.

(b) The proposed project would 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?	☒	☐	☐	☐
ii.	Police protection?	☒	☐	☐	☐
iii.	Schools?	☐	☐	☐	☒
iv.	Parks?	☐	☐	☐	☒
v.	Other public facilities?	☒	☐	☐	☐

RESPONSES:

(a)(i) The Kern County Fire Department (KCFD) provides fire suppression and emergency medical services to the project area. The project site would be served by Fire Station #15, located at 3219 35th West Street in Rosamond. 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) Law enforcement and public safety services in the project area are provided by the Kern County Sheriff's Office (KCSO). The project site would be served by the Rosamond Substation at 3179 35th Street West. Although the potential is low, the proposed project may attract vandals or other security risks, and construction activities would result in increases in traffic volumes along surrounding roads, which could increase demand on law enforcement services. On-site security measures (i.e., on-site monitoring equipment, gated access, motion sensor lighting) would be provided and access to the project site during construction and operation would be restricted, thereby minimizing the need for police services. Nonetheless, project impacts on local sheriff services could be potentially significant. This issue will be evaluated in the EIR.

(a)(iii) During project construction, a relatively small number of construction workers would be required. It is expected that most of these workers would live in the broader region and commute to the project site from surrounding communities where their children are already enrolled in school and where

their contribution to local taxes, including funds for schools, is assessed locally. 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 two full-time positions) and not expected to generate a permanent increase in population that would impact school populations. Therefore, no significant impacts to schools are anticipated to occur and further analysis is not warranted in the EIR.

(a)(iv) 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 two full-time equivalent (FTE) employees would not result in construction of numerous new housing units that could significantly increase the local population and related demand for public parkland. Therefore, no significant impacts to parks are anticipated to occur, and further analysis of this issue is not warranted in the EIR.

(a)(v) Implementation of the proposed project may have impacts on the ability of the County to provide adequate county-wide comprehensive public facility services. Unlike other businesses in California, large scale solar has an exclusion from property taxes on their equipment. This property tax exclusion results in the project not providing the revenue needed to provide services and facilities for both the project and the communities that prevent decline of the physical neighborhoods in unincorporated Kern County. This is a direct impact from the project structure and the land if built with another type of land use would produce property tax revenue to provide necessary services and facilities and prevent physical decline of homes and businesses due to vacancy and inability for response for all services, including code enforcement to law enforcement, fire, roads and health and safety issues such as elderly care and child protection services. The cumulative impacts of this active solar tax exclusion over the life of the over 36,000 acres of projects has resulted in a loss to the General Fund over the last 10 years of over $103 million and deepened the on-going fiscal emergency of the County. Public policies in the Kern County General Plan and Mojave Specific 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?	☐	☐	☐	☒
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

RESPONSES:

(a) It is estimated that up to 630 workers per day during peak construction periods (approximately three months) would be required on-site during construction of the proposed project. These workers would not 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 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 during those times. 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 with 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?	☒	☐	☐	☐
b.	Conflict or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b)?	☒	☐	☐	☐
c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d.	Result in inadequate emergency access?	☐	☐	☒	☐

RESPONSES:

(a) The project proponent is requesting an amendment to the Willow Springs Specific Plan Circulation Element to eliminate the future road reservation along a portion of the East/West and North/South midsection line of Section 21, T9N R14W within the project site. Given the extensive development of solar facilities in the project area, it is highly unlikely that these roadways would ever be developed in the future. Elimination of the road reservations would not impede access to any other parcel outside the project boundaries.

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 the roadways likely to be used during construction and operation. The project would not house residents or employees, and therefore, would not have characteristics that would influence alternative means of transportation.

Construction activities associated with the project would temporarily contribute to traffic volumes on these nearby roadways. It is estimated that up to 630 workers per day during peak construction periods would be required for construction of the proposed project. Worker commute vehicles would account for the majority of traffic trips to the project site. It is estimated there would be an average of approximately 120 passenger vehicle trips per day, and a peak of approximately 630 passenger vehicle trips per day for workers commuting to and from the project site. Pickup trucks are estimated to be used approximately 20 hours per week for delivery of construction equipment and materials. 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.

Operation of the project would require up to 2 FTE employees, who would commute to the project site. Trip generation during the operational phase, which also includes occasional truck deliveries during maintenance activities, would not likely result in a substantial increase in traffic in relation to the existing roadway capacity nor congestion at intersections. The potential impacts on the local roadway system from construction related vehicle trips and the 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 shifts 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 two FTE 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 project proposes access from existing roads including Rosamond Boulevard, Avenue A, Avenue D, Astoria Avenue, Gaskell Road, Holiday Avenue, 100th Street West, 130th Street West, 140th Street West and 170th Street West. 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. All new driveways connecting to existing adjacent streets 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 adjacent access 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) The project site and project area are accessible via a number of existing roads, with alternative access roads allowing easy access in the event of an emergency. Emergency vehicle access must be maintained at all times throughout construction activities, in accordance with the County's routine/standard construction specifications. County building inspectors would conduct periodic site inspections to confirm there are adequate provisions in place to maintain emergency access for fire, emergency medical and Sheriff response units. 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.

Operations of the project would not affect emergency access as the number of daily trips would have a minimal effect on traffic volumes and overrides of project site access gates for emergency access to the facility would be installed. 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	☒	☐	☐	☐
	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.	☒	☐	☐	☐

RESPONSES:

(ai,aii) As there are known archaeological resources associated with Native American tribes in the project area, there is the potential for tribal cultural resources to also 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?	☐	☐	☒	☐
b.	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c.	Result in a determination by the wastewater treatment provider 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?	☐	☐	☒	☐
d.	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e.	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

RESPONSES:

(a) The project would generate a minimal volume of wastewater during construction. During construction activities, wastewater would be contained within portable toilet facilities and disposed of off-site at an approved facility. During operations, wastewater generated by the project would be disposed of on-site by septic system(s). Soil suitability for a septic tank leach field and any related environmental impacts will be addressed in the response to the topic of Geology and Soils, threshold (e). 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 does 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. Water from solar panel washing and from dust

suppression activities would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious. These activities would not substantially increase the amount of storm water runoff from the site. Impacts are considered to be less than significant; however, further analysis in the EIR will be provided.

The proposed project is not anticipated to result in a significant increase in water demand/use; however, water will be needed for solar panel washing and dust suppression. Water is anticipated to be delivered via truck from an off-site source(s). Potential impacts to groundwater resources will be addressed in the response to the topic of Hydrology and Water Quality, threshold (b). Impacts are not anticipated to be potentially significant, however, further analysis in the EIR is warranted.

The proposed project would involve construction of a PV solar facility that would generate electrical energy that would be transmitted to the regional electrical energy supply grid. Analyses of various environmental effects associated with construction and operation of these facilities will be provided throughout the EIR, with respect to numerous topics. The project would include on-site telecommunications facilities to facilitate collection and transmission of meteorological data and data regarding performance of the solar arrays. Impacts associated with construction of the telecommunications and transmission line facilities will be evaluated in the EIR. The proposed project would not use natural gas. The proposed project would not otherwise generate the demand for or require or result in the relocation or construction of new or expanded off-site electric power, natural gas, or telecommunications facilities that would in turn, result in a significant impact to the environment. Impacts are considered to be less than significant; however, further analysis in the EIR will be provided.

(b) Water demand for O&M domestic use is not expected to exceed 18 acre-feet per year. Water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 450 acre-feet over the 12-month construction phase. Water is anticipated to be delivered via truck from an off-site source(s). A Will Serve letter has been obtained from a private local water purveyor, indicating their capacity and willingness to provide water for construction and operation of the project. The project is not anticipated to impact water supplies and new or expanded entitlements would not be required. However, this impact will be addressed further in the EIR.

(c) As stated above, portable toilets would provide for wastewater disposal during project construction and no connection to a public system for wastewater treatment would be required. Due to the limited number of employees for project operations, the project would not generate a substantial amount of wastewater. = Therefore, the project would not adversely affect any existing wastewater treatment facilities. Impacts would be less than significant 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. Materials brought to the project site would be used to construct facilities, and few residual waste materials are expected. Non-hazardous construction refuse and solid waste would be either collected and recycled per the Construction Waste Management Plan or disposed of at a local Class III landfill, while any hazardous waste generated during construction would be disposed of at an approved off-site location. The closest Class III municipal landfill is the Ridgecrest Recycling and Sanitary Landfill (RSLF) which is located approximately 5.5 miles southeast of the project site. Solid waste from the site would therefore be transported to this landfill for disposal. The RSLF has a

remining capacity of 5,037,428 cubic yards, with an anticipated closure date of 2045 (CalRecycle, 2021). Therefore, the landfill has capacity to accommodate solid waste generated by project construction and operation. 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. The 1989 California Integrated Waste Management Act (AB 939) requires Kern County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. The proposed project would be required to comply with the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991. Though impacts are anticipated to be less than significant, 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?	☐	☐	☒	☐
b.	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c.	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☒	☐	☐	☐
d.	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

RESPONSES:

(a) According to the Fire Hazard Severity Zones map published by the California Department of Forestry and Fire Protection (CalFire), the project site is not located within or near State Responsibility Areas (SRAs) or lands classified as very high fire hazard severity zones. The project site is classified as Local Responsibility Area (LRA) Moderate; thus, the potential for wildfire on the project site exists, but is not considered high (CalFire, 2007). 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. There are multiple existing local roadways adjacent to the project sites that lead to primary emergency evacuation routes. In compliance with applicable Fire Code and Building Code requirements, construction and maintenance/operations managers and personnel would be trained in fire prevention and emergency response. Fire suppression equipment specific to construction would be maintained on the project site. Additionally, project construction and maintenance/operations would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Therefore, the project would not conflict with the implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant. Nevertheless, further analysis will be conducted in the EIR.

(b) Slope and wind can influence the rate at which wildfire spreads. Given the project site's generally flat topography, the proposed project is not anticipated to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to sloping topography. Adherence to applicable regulations would reduce wildfire ignitions and prevent the spread of wildfires. The project proponent/operator would be required to develop and implement a Fire Safety Plan that contains notification procedures and emergency fire precautions consistent with the 2019 California Fire Code and Kern County Fire Code for use during construction, operation and decommissioning. However, as the project would have the potential to expose occupants (i.e., at the O&M facilities) to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to prevailing winds or other factors, further analysis will be conducted in the EIR.

(c) The project would construct infrastructure that requires fire protection and, as a result, will include fire prevention and suppression measures and equipment. 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. Due to the presence of electrical equipment on site, the proposed project has the potential to exacerbate wildfire risk and will be further evaluated in the EIR.

(d) The project site is not considered to be a high risk area for landslides as it is relatively flat; therefore, there would be no impacts involving landslides or other slope failures, or other drainage changes that would expose people or structures to significant risks in a post-wildfire burned landscape condition. No further analysis is warranted in the EIR relative to this issue.

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

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, and traffic. 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 proposed project 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 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.

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USGS (United States Geological Survey).Little Buttes, California Quadrangle. 2018b

Appendix B
Air Quality Impact Analysis

AIR QUALITY IMPACT ANALYSIS

Rosamond South Solar Project
Rosamond, CA

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March 2021
(Revised August 2021)

Project 200505.0194

Trinity Consultants

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1. EXECUTIVE SUMMARY

Trinity Consultants, Inc. Company has completed an Air Quality Impact Analysis (AQIA) for the Rosamond South Solar Project (Project). The Project site is located in the southeast portion of unincorporated Kern County, in the Antelope Valley region, within Section 24 Township 9 North, Range 15 West and Sections 21, 27, and 28, Township 9 North, Range 14 West, San Bernardino Base and Meridian. The Project site is bounded by Rosamond Boulevard to the north, 125th Street West to the east, West Avenue A to the south and 170th Street West to the west. The proposed 1,292-acre 154-megawatt (MW) ac Project with 200 MW of battery storage proposes 2 potential gen-tie routes along existing road rights of way (ROW); there is approximately 29 miles of gen-tie routes being considered.

The proposed Project's construction and operations would include the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Project operations would generate air pollutant emissions from mobile sources (automobile activity from employees and water trucks). Project construction and operational activities would also generate greenhouse gas (GHG) emissions. Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 (California Air Pollution Control Officers Association (CAPCOA) 2016), the California EPA's EMFAC2017 Web database (California Air Resources Board (CARB) 2018) and the California Climate Action Registry General Reporting Protocol (Climate Action Registry 2009).

Table 4-3 presents the Project's construction emissions and provides substantial evidence to support a less than significant air quality impact on the Mojave Desert Air Basin (MDAB).

Table 4-4 presents the Project's operations emissions and provides substantial evidence to support a less than significant air quality impact on the MDAB.

The Kern County Planning Department provided a list identifying other projects within a six-mile radius of the proposed Project. A six-mile radius is established in practice as the geographical requirement for cumulative analyses in Kern County. Cumulative emissions were not quantified because the details provided for these projects do not provide enough information to accurately estimate their potential emissions. Owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is simply whether the project would exceed project-level thresholds. As such, a qualitative evaluation of the cumulative projects supports a finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions would be less than significant.

2. INTRODUCTION

2.1 Purpose

This AQIA was prepared pursuant to the EKAPCD's Rule 210.1 New and Modified Stationary Source Review (NSR) (EKACPD 2000), EKAPCD's Guidelines for Implementation of the California Environmental Quality Act of 1970, EKAPCD Policy, "Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency" (EKAPCD 2012), the Kern County Planning Department's Air Quality Preparation Guidelines (2006), the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21177) and CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387).

2.2 General Project Description

The Project site is located in the southeast portion of unincorporated Kern County, in the Antelope Valley region, within Section 24 Township 9 North, Range 15 West and Sections 21, 27, and 28, Township 9 North, Range 14 West, San Bernardino Base and Meridian. The Project site is bounded by Rosamond Boulevard to the north, 125th Street West to the east, West Avenue A to the south and 170th Street West to the west. The proposed 1,292-acre 154-megawatt (MW) Project with 200 MW of battery storage proposes 2 potential gen-tie routes along existing road rights of way (ROW); there is approximately 29 miles of gen-tie routes being considered.

Solar panels would be mounted on a tracking system that would be supported by driven piers (piles) directly embedded into the ground. 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). A fixed-tilt system, which does not track the sun, may also be used and would be arrayed in a similar fashion as a single-axis system that does track the sun. Panels are proposed to be a maximum of 14 feet in height. It is anticipated that up to 400,000 panels will be used. Site grading and earthwork is anticipated to begin during the third quarter of 2022 and would include 12 months of construction, with operations beginning in the third quarter of 2023.

Figure 2-1 depicts the regional location; **Figure 2-2** depicts an aerial view of the Project location and F**igure 2-3** depicts the proposed facility layout.

Figure 2-1. Regional Location

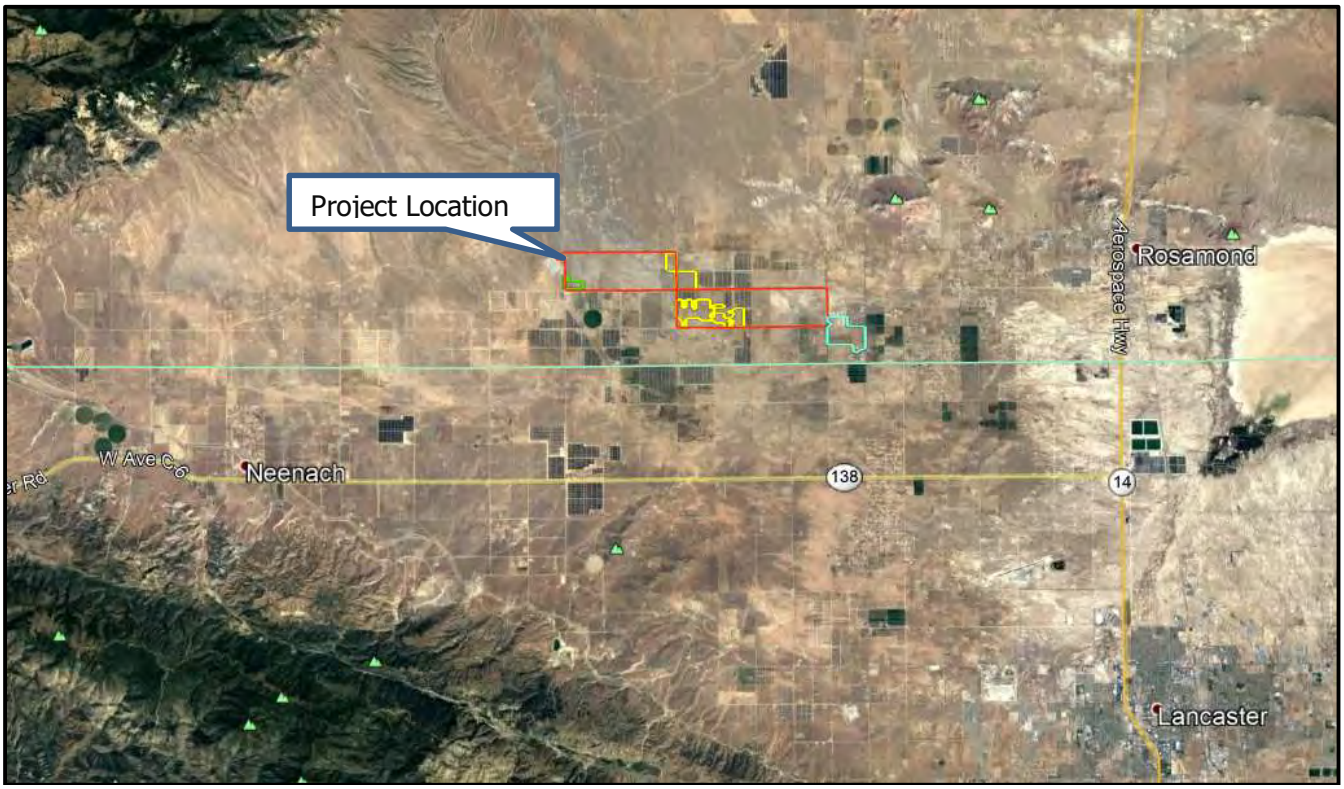


Figure 2-2. Project Location

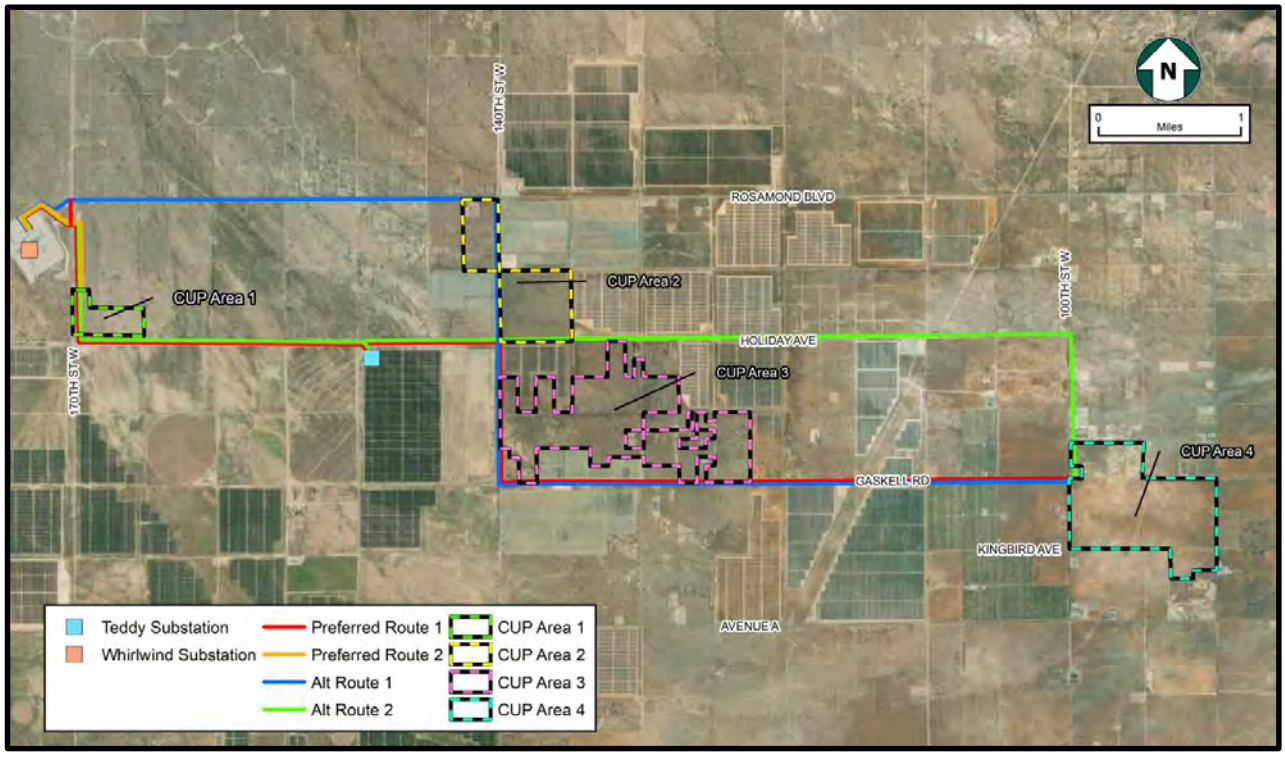


Figure 2-3. Facility Site Plan

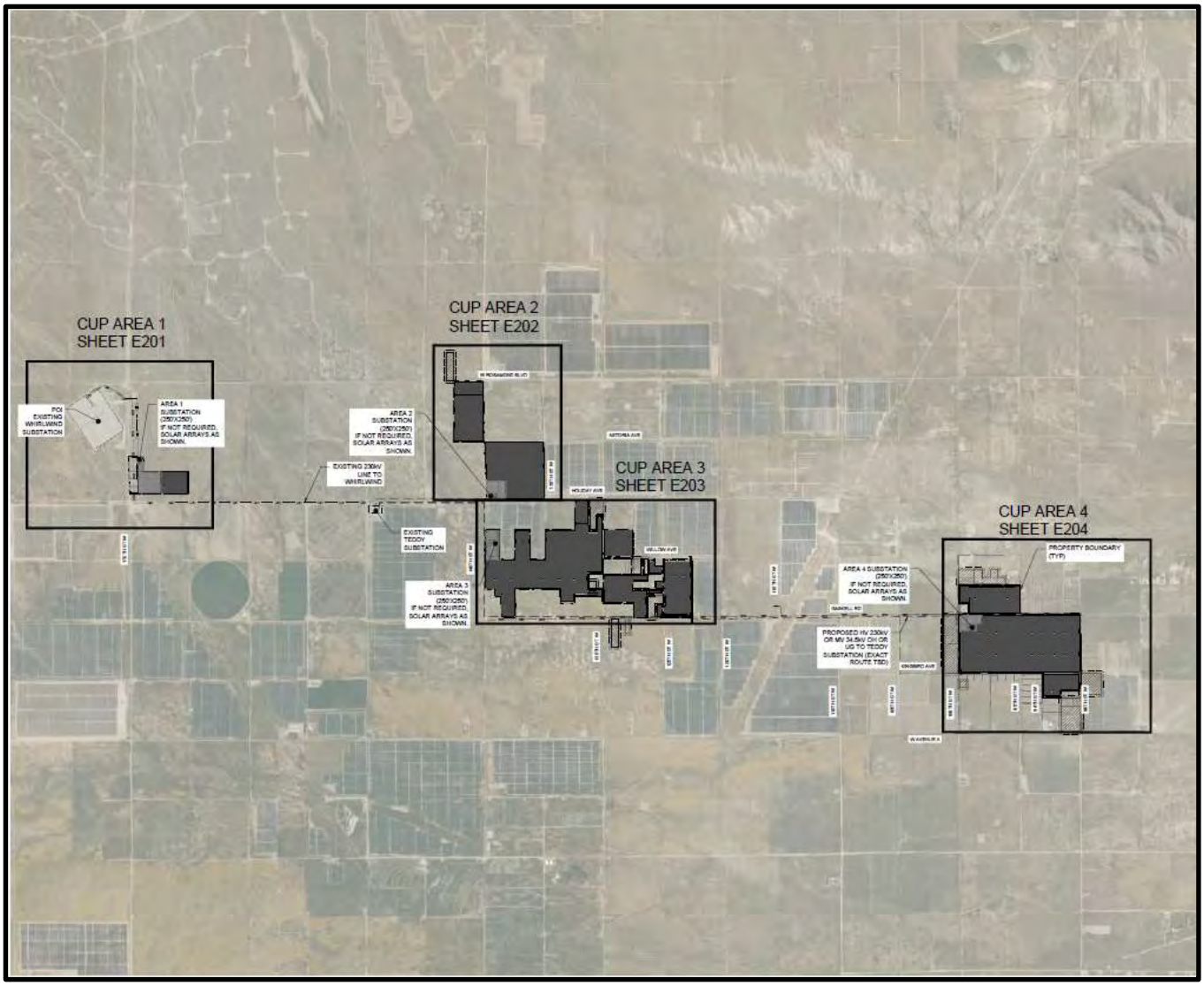
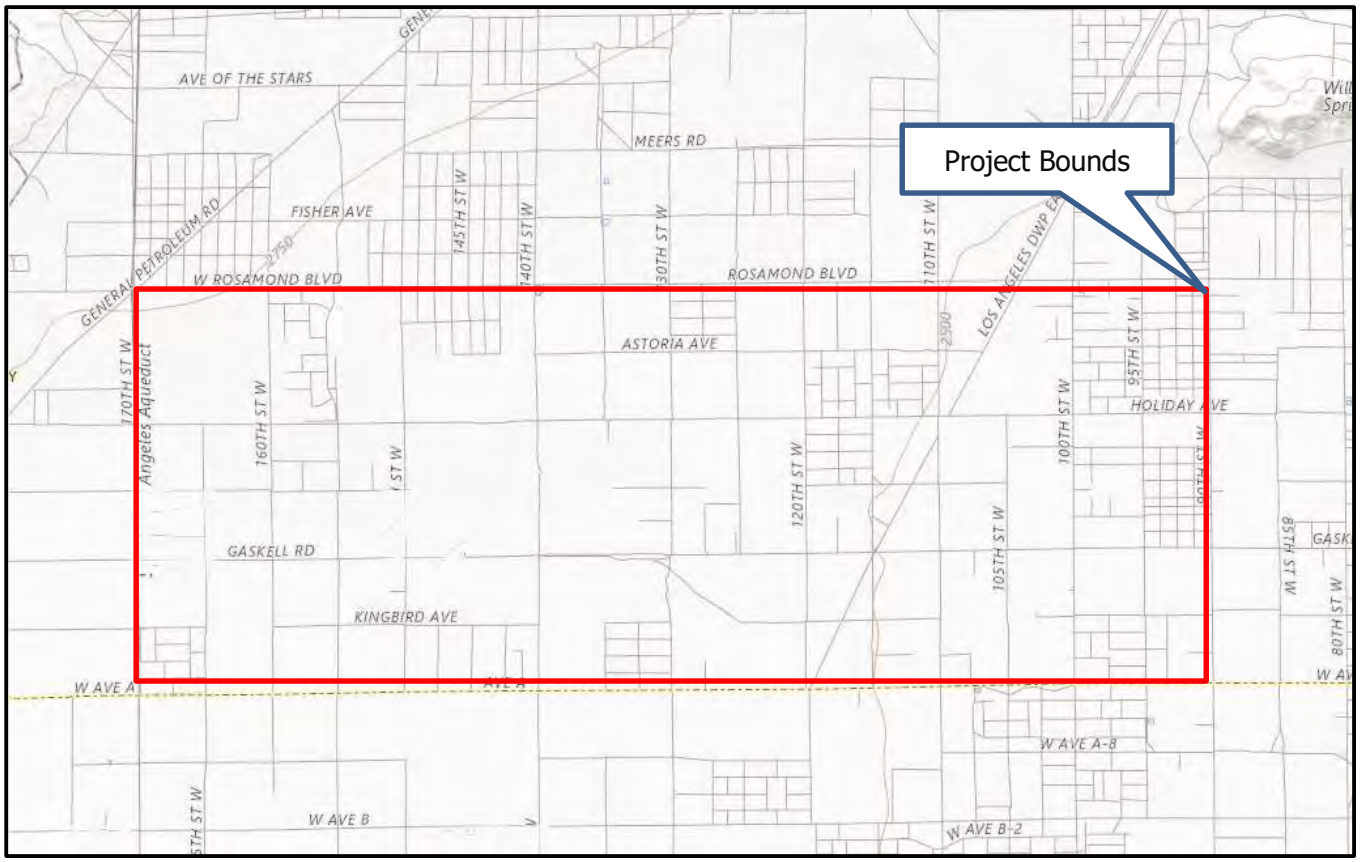


Figure 2-4 depicts the Project site's topography based on United States Geological Survey's (USGS) National Map (USGS 2019). The Project site is located at an elevation of approximately 2,500 feet above mean sea level and is surrounded by other solar arrays and agricultural land uses.

Figure 2-4. Project Site Topography



3. SETTING

Protection of the public health is maintained through the attainment and maintenance of ambient air quality standards for various atmospheric compounds and the enforcement of emissions limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone (O_3), CO, NO_2 , SO_2, PM_{10} and $PM_{2.5}$, and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants. CAAQS are more stringent than the corresponding NAAQS and include standards for hydrogen sulfide (H2S), vinyl chloride (chloroethene) and visibility reducing particles. The U.S. Clean Air Act Amendments of 1977 required each state to identify areas that were in non-attainment of the NAAQS and to develop State Implementation Plans (SIP's) containing strategies to bring these non-attainment areas into compliance. NAAQS and CAAQS designation/classification for Kern County are presented in Section 3.1 below.

Responsibility for regulation of air quality in California lies with the California Air Resources Board (CARB) and the 35 local air districts with oversight responsibility held by the EPA. CARB is responsible for regulating mobile source emissions, establishing CAAQS, conducting research, managing regulation development, and providing oversight and coordination of the activities of the 35 air districts. The air districts are primarily responsible for regulating stationary source emissions and monitoring ambient pollutant concentrations. CARB also determines whether air basins, or portions thereof, are "unclassified," in "attainment" or in "non-attainment" for the NAAQS and CAAQS relying on statewide air quality monitoring data.

3.1 Air Quality Standards

The Project area is located in the northwestern portion of the MDAB for which the EKAPCD has jurisdiction to regulate air pollutant emissions. **Table 3-1** provides the NAAQS and CAAQS.

Table 3-1. Federal & California Standards

Pollutant	Averaging Time	NAAQS	CAAQS
		Concentration	
O_3	8-hour	0.070 ppm (137 µg/m^3)[a]	0.070 ppm (137 µg/m^3)
	1-hour		0.09 ppm (180 µg/m^3)
CO	8-hour	9 ppm (10 µg/m^3)	9 ppm (10 µg/m^3)
	1-hour	35 ppm (40 µg/m^3)	20 ppm (23 µg/m^3)
NO_2	Annual Average	53 ppb (100 µg/m^3)	0.030 ppm (57 µg/m^3)
	1-Hour	100 ppb (188.68 µg/m^3)	0.18 ppm (339 µg/m^3)
SO_2	3-Hour	0.5 ppm (1,300 µg/m^3)	
	24 Hour	0.14 ppm (365 µg/m^3)	0.04 ppm (105 µg/m^3)
	1-Hour	75 ppb (196 µg/m^3)	0.25 ppm (655 µg/m^3)
Particulate Matter (PM_{10})	Annual Arithmetic Mean		20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	
Sulfates	24-Hour		25 µg/m^3
Pb[d]	Rolling Three-Month Average	0.15 µg/m^3	
	30 Day Average		1.5 µg/m^3
H_2S	1-Hour		0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m^3)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		[b]

ppm = parts per million
ppb = parts per billion
mg/m^3 = milligrams per cubic meter
µg/m^3 = micrograms per cubic meter

Source: CARB 2016

a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm

b. In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Under the provisions of the U.S. Clean Air Act, the Kern County portion of the MDAB has been classified as non-attainment, attainment, unclassified/attainment or unclassified under the established NAAQS and CAAQS for various criteria pollutants. Table 3-2 provides the EKAPCD's designation and classification based on the various criteria pollutants under both NAAQS and CAAQS.

Table 3-2. MDAB Attainment Status

Pollutant	Designation/Classification			
	National Ambient Air Quality Standards (NAAQS)			State Ambient Air Quality Standards
	EKAPCD	Kern River / Cummings Valley[1,2]	Indian Wells Valley[3,4,5]	
Ozone – 1 Hour	Attainment[6,7]	Part of EKAPCD Area	Part of EKAPCD Area	Nonattainment
Ozone – 8 Hour[8]	Serious Nonattainment	Part of EKAPCD Area	Unclassifiable/ Attainment	Nonattainment
PM_{10}	Unclassifiable/ Attainment	Serious Nonattainment	Attainment Maintenance	Nonattainment
$PM_{2.5}$	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Unclassified
Carbon Monoxide	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Unclassified
Nitrogen Dioxide	Unclassified	Part of EKAPCD Area	Part of EKAPCD Area	Attainment
Sulfur Dioxide	Unclassified	Part of EKAPCD Area	Part of EKAPCD Area	Attainment
Lead Particulates	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Attainment

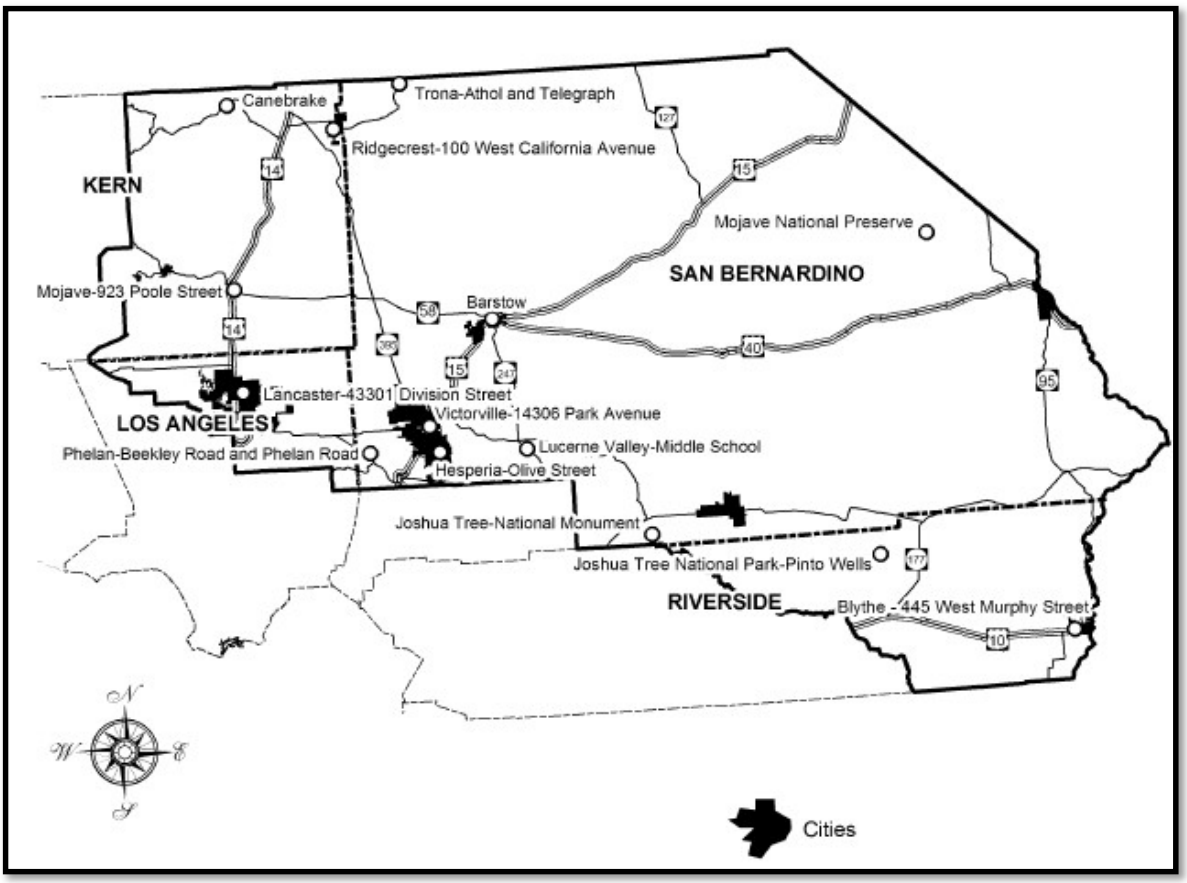
Source: EKAPCD 2018
Notes:
[1] Kern River Valley, Bear Valley, and Cummings Valley were previously included in the federally designated San Joaquin Valley PM10 Serious Nonattainment Area but were made a separate Nonattainment area in 2008.
[2] Kern River Valley, Bear Valley, and Cummings Valley are included in EKAPCD for all NAAQS other than PM10.
[3] Indian Wells Valley is a separate planning area from the rest of EKAPCD for PM10 NAAQS.
[4] Indian Wells Valley is a separate area for the 1997 and 2008 8-hour ozone NAAQS (0.08 & 0.075 ppm).
[5] Indian Wells Valley is included in EKAPCD for all NAAQS other than PM10 and 8-hour ozone.
[6] 1-hour ozone NAAQS was revoked effective June 15, 2004.
[7] EKAPCD was in attainment for 1-hour ozone NAAQS at time of revocation; the proposed Attainment Maintenance designation's effective date was June 21, 20004, therefore it did not become effective
[8] Attainment for 1997 8-hour Ozone NAAQS (0.08 ppm), Serious Nonattainment for 2008 NAAQS (0.075 ppm), and Nonattainment State 8-hour standard (0.070 ppm)

As noted above in **Table 3-2**, the EKAPCD has been designated as unclassifiable/attainment for the NAAQS for CO, PM_{10}, $PM_{2.5}$, and Lead, serious nonattainment for the O_3 eight-hour average standard, attainment for the O_3 one-hour average standard and unclassified for NO_X and SO_X. A federal designation for hydrogen sulfide (H_2S) has not been made.

The EKAPCD has been designated as nonattainment for the state one-hour and eight-hour standards for O_3, and PM10, unclassified $PM_{2.5}$ and CO, and attainment for NO_X, SO_X, and Lead. A state designation for hydrogen sulfide (H2S) has not been made.

The EKACPD along with CARB operates an air quality monitoring network that provides average concentrations of those pollutants for which state or federal agencies have established ambient air quality standards. Information from the various monitoring stations is available from the corresponding agency's websites. A map of the monitoring stations in the MDAB is provided in **Figure 3-1** below.

Figure 3-1. CARB Monitoring Network



3.2 Existing Air Quality

For the purposes of background data and this air quality assessment, this analysis relied on data collected in the last three years for the CARB monitoring stations that are located in the closest proximity to the Project site. **Table 3-3** provides the background concentrations for O_3, particulate matter of 10 microns (PM_{10}), particulate matter of less than 2.5 microns ($PM_{2.5}$), CO, NO_2, and H_2S as of 2018 and for Pb as of 2017. Information is provided for the Mojave – Poole Street, Lancaster – Division Street, Victorville – Park Avenue and Bakersfield – 5558 California Ave monitoring stations for 2017 through 2019. No data is available for SO_2, Vinyl Chloride, or other toxic air contaminants in the MDAB.

Table 3-3. Existing Air Quality Monitoring Data in Project Area

Pollutant and Monitoring Station Location	Maximum Concentration			Days Exceeding Standard		
	2017	2018	2019	2017	2018	2019
O_3 – 1-hour CAAQS (0.09 ppm)						
Lancaster-43301 Division Street	0.109	0.125	0.96	10	5	1
Mojave-923 Poole Street	0.097	0.111	0.085	1	8	0
O_3 – 8-hour CAAQS (0.07 ppm)						
Lancaster-43301 Division Street	0.087	0.105	0.082	43	49	14
Mojave-923 Poole Street	0.086	0.095	0.078	37	56	10
O_3 – 8-hour NAAQS (0.070 ppm)						
Lancaster-43301 Division Street	0.087	0.104	0.081	43	48	13
Mojave-923 Poole Street	0.085	0.094	0.077	35	53	10
PM_{10} – 24-hour CAAQS (50 µg/m^3)						
Lancaster-43301 Division Street	N/A	N/A	N/A	N/A	N/A	N/A
Mojave-923 Poole Street	85.7	86.5	240.8	10	19	15
PM_{10} – 24-hour NAAQS (150 µg/m^3)						
Lancaster-43301 Division Street	82.4	89.3	165.1	0	0	2
Mojave-923 Poole Street	93.4	93.1	248.7	0	0	2
$PM_{2.5}$ - 24-hour NAAQS (35 µg/m^3)						
Lancaster-43301 Division Street	26.6	40.4	13.6	0	1	0
Mojave-923 Poole Street	26.9	39.0	19.8	0	2	0
CO - 8-Hour CAAQS & NAAQS (9.0 ppm)						
No data collected	*	*	*	*	*	*
NO_2 - 1-Hour CAAQS (0.18 ppm)						
Lancaster-43301 Division Street	0.046	0.047	0.049	0	0	0
Victorville-14306 Park Avenue	0.057	0.051	0.056	0	0	0
NO_2 - 1-Hour NAAQS (0.10 ppm)						
Lancaster-43301 Division Street	0.046	0.047	0.049	0	0	0
Victorville-14306 Park Avenue	0.057	0.051	0.056	0	0	0
SO_2 – 24-hour Concentration - CAAQS (0.04 ppm) & NAAQS (0.14 ppm)						
No data collected	*	*	*	*	*	*
Pb - Maximum 30-Day Concentration CAAQS (1500 ng/m^3)						
Bakersfield – 5558 California Ave[1]	12.6	9.3	*	*	*	*

Source: CARB 2020
Notes: ppm= parts per million
* There was insufficient (or no) data available to determine the value.
1. This monitoring station is not in the MDAB, however, it is the closest monitoring station to the Project that monitors lead.

The following is a description of criteria air pollutants, typical sources and health effects and the recently documented pollutant levels in the Project vicinity.

3.2.1 Ozone (O_3)

The MDAB has high concentrations of O_3 and these high levels are known to cause eye irritation and impair respiratory functions. High levels of O_3 can also affect plants and materials. Grapes, lettuce, spinach and many types of garden flowers and shrubs are particularly vulnerable to O_3 damage. O_3 is not directly emitted into the atmosphere; it is a secondary pollutant produced from a photochemical interaction between hydrocarbons and nitrogen oxides (NO_X). One to three hours of strong sunlight in a stable atmosphere creates O_3. The "O_3 season" therefore typically spans from April through October. O_3 is a regional pollutant; wind transports and diffuses the precursors while activating the photochemical reaction process. The data presented in **Table 3-3**

shows that the Mojave and Lancaster area monitoring stations exceeded the 1-hour average ambient O_3 CAAQS and the 8-hour average ambient O_3 NAAQS and CAAQS between 2017 through 2019.

3.2.2 Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)

Both NAAQS and CAAQS now apply to particulates under 10 microns (PM_{10}). Since the smaller diameter fraction of total suspended particulates are documented to represent the greatest health hazard, EPA has established NAAQS for particulates under 2.5 microns ($PM_{2.5}$). The Project area is classified as unclassifiable/attainment for PM10 and PM2.5 for NAAQS.

Dust and fumes from industrial and agricultural operations generate particulate matter. Natural activities, such as wind-raised dust, fires, and ocean spray, also increase the level of particulates in the atmosphere. The largest source of PM_{10} and $PM_{2.5}$ in Kern County is vehicle movement over paved and unpaved roads from demolition and construction activities and farming operations. PM_{10} and $PM_{2.5}$ are considered regional pollutants with elevated levels typically occurring over a wide geographic area. Concentrations tend to be highest in the winter, during periods of high atmospheric stability and low wind speed. Very small particulates may contain absorbed gases that produce injury to the respiratory tract. Particulates of aerosol size suspended in the air can both scatter and absorb sunlight, producing haze and reducing visibility. They can also damage a wide range of materials. **Table 3-3** shows that PM_{10} levels exceeded the CAAQS and both PM_{10} and $PM_{2.5}$ exceeded the NAAQS in 2019 and 2018, respectively. Similar levels can be expected to occur in the vicinity of the Project site.

3.2.3 Carbon Monoxide (CO)

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. Wind speed and atmospheric mixing also influence CO concentrations.

Internal combustion engines, principally in vehicles, produce CO due to incomplete fuel combustion. Various industrial processes also produce CO emissions through incomplete combustion. Gasoline-powered motor vehicles are typically the major source of this contaminant. CO does not irritate the respiratory tract but passes through the lungs directly into the blood stream, and by interfering with the transfer of fresh oxygen to the blood, deprives sensitive tissues of oxygen, thereby aggravate cardiovascular disease, causing fatigue, headaches, and dizziness. CO is not known to have adverse effects on vegetation, visibility, or materials. **Table 3-3** reports insufficient data for the CO monitoring at any monitoring stations during the three-year period from 2017 through 2019.

3.2.4 Nitrogen Dioxide (NO_2) and Hydrocarbons

Eastern Kern County has been designated as an unclassified area for the NAAQS for NO_2. NO_2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution. Mobile sources account for nearly all of the county's NO_X emissions, most of which is emitted as NO_2. Combustion in motor vehicle engines, power plants, refineries and other industrial operations are the primary sources in the air basin. Railroads and aircraft are other potentially significant sources of combustion air contaminants. Oxides of nitrogen are direct participants in photochemical smog reactions. The emitted compound, nitric oxide, combines with oxygen in the atmosphere in the presence of hydrocarbons and sunlight to form NO_2 and O_3. NO_2, the most significant of these pollutants, can color the atmosphere at concentrations as low as 0.5 ppm on days of 10-mile visibility. NO_X is an important air pollutant in the region because it is a primary receptor of ultraviolet light, which initiates the reactions producing photochemical smog. It also reacts in the air to form nitrate particulates.

Motor vehicles are the major source of reactive hydrocarbons in the basin. Other sources include evaporation of organic solvents and petroleum production and refining operations. Certain hydrocarbons can damage plants by inhibiting growth and by causing flowers and leaves to fall. Levels of hydrocarbons currently measured in urban areas are not known to cause adverse effects in humans. However, certain members of this contaminant group are important components in the reactions, which produce photochemical oxidants. **Table 3-3** shows that the NO_2 NAAQS and CAAQS were not exceeded over the three-year period of 2017 through 2019. Hydrocarbons are not currently monitored.

3.2.5 Sulfur Dioxide

Eastern Kern County has been designated as an unclassified area for the NAAQS for SO_2. SO_2 is the primary combustion product of sulfur, or sulfur-containing fuels. Fuel combustion is the major source of this pollutant, while chemical plants, sulfur recovery plants, and metal processing facilities are minor contributors. Gaseous fuels (natural gas, propane, etc.) typically have lower percentages of sulfur containing compounds than liquid fuels such as diesel or crude oil. SO_2 levels are generally higher in the winter months. Decreasing levels of SO_2 in the atmosphere reflect the use of natural gas in power plants and boilers.

At high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when respirated in combination with particulates, SO_2 can result in greater harm by injuring lung tissues. Sulfur oxides (SO_X), in combination with moisture and oxygen, results in the formation of sulfuric acid, which can yellow the leaves of plants, dissolve marble, and oxidize iron and steel. SO_X can also react to produce sulfates that reduce visibility and sunlight. **Table 3-3** shows no data has been reported over the three-year period.

3.2.6 Lead (Pb) and Suspended Sulfate

Ambient Pb levels have dropped dramatically due to the increase in the percentage of motor vehicles that run exclusively on unleaded fuel. Ambient Pb levels in Bakersfield (the closest monitoring station to the Project) are well below the ambient standard and are expected to continue to decline; the data reported in **Table 3-3** only shows the highest concentration as the number of days exceeding standards are not reported. Suspended sulfate levels have stabilized to the point where no excesses of the State standard are expected in any given year.

3.3 Climate

Climate of the project area is a continentally modified Mediterranean type, characterized by cool, wet winters and hot, dry summers. Temperatures during the summer drop to the mid to lower 50s and rise to the upper 80s. In winter, the average high temperatures reach into the upper 50s, and the average low temperatures drop into the mid- 30s. The mean annual precipitation in Fairmont, California is 15.76 inches, the bulk of which falls during the period November through March. Snowfall commonly occurs from December through March.

Meteorological data for various monitoring stations is maintained by the Western Regional Climate Center. Meteorological data for the Project site is expected to be similar to the data recorded at the Fairmont, California monitoring station. **Table 3-4** presents average precipitation data recorded at the Fairmont, California monitoring station from February 1909 through May 2016 (the most recent data available at the time this report was prepared).

Table 3-4. Fairmont, California Weather Data

Period of Record Monthly Climate Summary for the Period 01/01/1999 to 6/09/2016													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Maximum Temp (F)	53.3	56.0	60.2	65.9	73.7	82.6	90.8	90.9	85.4	74.6	62.5	54.4	70.9
Avg. Minimum Temp (F)	35.8	38.0	40.8	45.2	51.8	60.0	67.5	66.8	61.2	52.1	42.8	36.8	49.9
Average Total Precipitation (in.)	3.43	3.52	2.42	1.13	0.36	0.06	0.05	0.12	0.27	0.49	1.40	2.51	15.76
Average Snowfall (in.)	3.1	1.6	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.5	8.2
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent of possible observations for period of record: Max. Temp.: 99.7% Min. Temp.: 96.2% Precipitation: 100% Snowfall: 99.8% Snow Depth: 99.4%													
Source: Western Regional Climate Center, 2021.													

3.4 Climate Change and Greenhouse Gases

3.4.1 Global Climate Change

"Global climate change" refers to change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms, lasting for decades or longer. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred by some scientists and policy makers to "global warming" because it helps convey the notion that in addition to rising temperatures, other changes in global climate may occur. Climate change may result from the following influences:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

As determined from worldwide meteorological measurements between 1990 and 2005, the primary observed effect of global climate change has been a rise in the average global tropospheric temperature of 0.36 degree Fahrenheit (°F) per decade. Climate change modeling shows that further warming could occur, which could induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather (e.g., droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones). Specific effects from climate change in California may include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Sacramento-San Joaquin River Delta.

Human activities, including fossil fuel combustion and land use changes, release carbon dioxide (CO_2) and other compounds cumulatively termed greenhouse gases. GHGs are effective at trapping radiation that would otherwise escape the atmosphere. This trapped radiation warms the atmosphere, the oceans, and the earth's surface (USGCRP 2014). Many scientists believe most of the warming observed over the last 50 years is attributable to human activities" (IPCC 2014). The increased amount of CO_2 and other GHGs in the atmosphere is the alleged primary result of human-induced warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2, methane (CH_4), nitrous oxide (N_2O), and O_3. In the last 200 years, substantial quantities of GHGs have been released into the atmosphere, primarily from fossil fuel combustion. These human-induced emissions are increasing GHG concentrations in the atmosphere, therefore enhancing the natural greenhouse effect. The GHGs resulting from human activity are believed to be causing global climate change. While human-made GHGs include CO_2, CH_4, and N_2O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere. GHGs vary considerably in terms of Global Warming Potential (GWP), the comparative ability of each GHG to trap heat in the atmosphere. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

Natural sources of CO_2 include the respiration (breathing) of animals and plants and evaporation from the oceans. Together, these natural sources release approximately 150 billion metric tons of CO_2 each year, far outweighing the 7 billion metric tons of GHG emissions from fossil fuel burning, waste incineration, deforestation, cement manufacturing, and other human activity. Nevertheless, natural GHG removal processes such as photosynthesis cannot keep pace with the additional output of CO_2 from human activities. Consequently, GHGs are building up in the atmosphere (Enviropedia 2019).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 production include wetlands, termites, and oceans. Human activity accounts for the majority of the approximately 500 million metric tons of CH_4 emitted annually. These anthropogenic sources include the mining and burning of fossil fuels; digestive processes in ruminant livestock such as cattle; rice cultivation; and the decomposition of waste in landfills. The major removal process for atmospheric CH_4, the chemical breakdown in the atmosphere, cannot keep pace with source emissions; therefore, CH_4 concentrations in the atmosphere are rising.

Worldwide emissions of GHGs in 2008 were 30.1 billion metric tons of CO_2e and have increased considerably since that time (United Nations 2011). It is important to note that the global emissions inventory data are not all from the same year and may vary depending on the source of the data (U.S. EPA 2019). Emissions from the top five emitting countries (China, the United States, India, the Russian Federation, and Japan) and the European Union accounted for approximately 70% of total global GHG emissions in 2014. The United States was the number two producer of GHG emissions, behind China. The primary GHG emitted by human activities was CO_2, representing approximately 76% of total GHG emissions (U.S. EPA 2020).

In 2018, the United States emitted approximately 6.7 billion metric tons of CO_2e. Of the six major sectors nationwide (electric power industry, transportation, industry, agriculture, commercial, and residential), the electric power industry and transportation sectors combined account for approximately 55% of the GHG emissions; the majority of the electrical power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Between 1990 and 2018, total United States GHG emissions rose approximately 3.7% (U.S. EPA 2020).

Worldwide, energy-related CO_2 emissions are expected to increase at an average rate of 0.6% annually between 2018 and 2050, compared with the average growth rate of 1.8% per year from 1990 to 2018. Much of the increase in these emissions is expected to occur in the developing world where emerging economies, such as China and India, fuel economic development with fossil fuel energy. Developing countries' emissions are expected to grow above the world average at a rate of approximately 1% annually between 2018 and 2050 and surpass emissions of industrialized countries around 2025 (U.S. EIA 2019).

CARB is responsible for developing and maintaining the California GHG emissions inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the state of California and supports the Assembly Bill (AB) 32 Climate Change Program. CARB's current GHG emission inventory covers the years 2000 through 2017 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural lands).

In 2017, emissions from statewide emitting activities were 424 million metric tons of CO_2 equivalent (MMT CO_2e), which is 5 MMT CO_2e lower than 2016 levels. 2017 emissions have decreased by 14% since peak levels in 2004 and are 7 MMT CO_2e below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 tonnes per person to 10.7 tonnes per person in 2017, a 24% decrease (CARB 2019a).

CARB estimates that transportation was the source of approximately 40% of California's GHG emissions in 2017, followed by electricity generation at 15%. Other sources of GHG emissions were industrial sources at 21%, residential plus commercial activities at 10%, and agriculture at 8% (CARB 2019a).

CARB has projected statewide GHG emissions for the year 2020, which represent the emissions that would be expected to occur with reductions anticipated from Pavley I and the Renewables Portfolio Standard (RPS) (30 MMT CO2e total), will be 509 MMT of CO_2e. GHG emissions from the transportation and electricity sectors as a whole are expected to increase at approximately 36% and 20% of total CO_2e emissions, respectively, as compared to 2009. The industrial sector consists of large stationary sources of GHG emissions and the percentage of the total 2020 emissions is projected to be 18% of total CO_2e emissions. The remaining sources of GHG emissions in 2020 are high global warming potential gases at 6%, residential and commercial activities at 10%, agriculture at 7%, and recycling and waste at 2% (CARB 2014).

3.4.2 Effects of Global Climate Change

Changes in the global climate are assessed using historical records of temperature changes that have occurred in the past. Climate change scientists use this temperature data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from past climate changes in rate and magnitude.

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fifth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, could range from 1.1 degree Celsius (°C) to 6.4 °C (8 to 10.4 °Fahrenheit) (IPCC 2013). Global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2014). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many of the aspects of climate change, the actual temperature changes during the 20th century, and contributions from human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke, drought, etc. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

According to the 2006 California Climate Action Team (CAT) Report, several climate change effects can be expected in California over the course of the next century (CalEPA 2006). These are based on trends established by the IPCC and are summarized below.

- A diminishing Sierra snowpack declining by 70% to 90%, threatening the state's water supply.
- A rise in sea levels, resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Sea level rises of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the Proposed Project area, as it is a significant distance away from coastal areas.)
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30% toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90% more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4 °F under the higher emission scenarios, leading to a 25% to 35% increase in the number of days that ozone pollution levels are exceeded in most urban areas (see below).
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85% more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

3.4.3 Global Climate Change Regulatory Issues

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete O_3 in the stratosphere (chlorofluorocarbons [CFCs], halons, carbon tetrachloride, and methyl chloroform) were phased out by 2000 (methyl chloroform was phased out by 2005).

On September 27, 2006, Assembly Bill 32 (AB32), the California Global Warming Solutions Act of 2006 (the Act) was enacted by the State of California. The legislature stated, "global warming poses a serious threat to

the economic well-being, public health, natural resources, and the environment of California." The Act caps California's GHG emissions at 1990 levels by 2020. The Act defines GHG emissions as all of the following gases: carbon dioxide (CO2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. This agreement represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

AB32 charges CARB with responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. CARB has adopted a list of discrete early action measures that can be implemented to reduce GHG emissions. CARB has defined the 1990 baseline emissions for California and has adopted that baseline as the 2020 statewide emissions cap. CARB is conducting rulemaking for reducing GHG emissions to achieve the emissions cap by 2020. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the state's efforts to improve air quality.

Subsequent legislation by the California legislature has included Senate Bill (SB) 32, which expanded upon AB32 to reduce GHG emissions to 40% below the 1990 levels by 2030; AB197 which increased the legislative oversight of the CARB by adding two legislatively appointed non-voting members to the CARB Board and provided additional protection to disadvantaged communities; SB350, which increased California's renewable energy electricity procurement goal and SB100, which established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electrical retail sales to end use customers and 100 percent of electricity procured to serve state agencies by 2045.

Global warming and climate change have received substantial public attention for more than 20 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand and predict global change, and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even farther in the future.

The California Supreme Court's most recent CEQA decision on the Newhall Ranch development case, Center for Biological v. California Department of Fish and Wildlife (November 30, 2015, Case No. 217763), determined that the project's Environmental Impact Report (EIR) did not substantiate the conclusion that the GHG cumulative impacts would be less than significant. The EIR determined that the Newhall Ranch development project would reduce GHG emissions by 31 percent from business as usual (BAU). This reduction was compared to the California's target of reducing GHG emissions statewide by 29 percent from business as usual. The Court determined that "the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas reduction effort required by the state as a whole, and attempting to use that method, without adjustments, for a purpose very different from its original design." In the Court's final ruling it offered suggestions that were deemed appropriate use of the BAU methodology:

1. Lead agencies can use the comparison to BAU methodology if they determine what reduction a particular project must achieve in order to comply with statewide goals,

2. Project design features that comply with regulations to reduce emissions may demonstrate that those components of emissions are less that significant, and
3. Lead agencies could also demonstrate compliance with locally adopted climate plans or could apply specific numerical thresholds developed by some local agencies.

As discussed in Section 4.1, Significance Criteria, the EKAPCD, the CEQA Commenting Agency for this Project, has developed a specific numerical threshold to determine significance of a proposed project. According to the Court's ruling, this numerical threshold can be used to demonstrate compliance. This threshold is applied to the subject Project in order to determine significance.

4. IMPACT ASSESSMENT

4.1 Significance Criteria

To determine whether a proposed Project could create a potential CEQA impact, local, state, and federal agencies have developed various means by which a project's impacts may be measured and evaluated. Such means can generally be categorized as follows:

- Thresholds of significance adopted by air quality agencies to guide lead agencies in their evaluation of air quality impacts under the CEQA.
- Regulations established by air districts, CARB, and EPA for the evaluation of stationary sources when applying for Authorities to Construct, Permits to Operate, and other permit program requirements (e.g., New Source Review).
- Thresholds utilized to determine if a project would cause or contribute significantly to violations of the ambient air quality standards or other concentration-based limits.
- Regulations applied in areas where severe air quality problems exist.

Summary tables of these emission-based and concentration-based thresholds of significance for each pollutant are provided below along with a discussion of their applicability.

4.1.1 Thresholds Adopted for the Evaluation of Air Quality Impacts under CEQA

In order to maintain consistency with CEQA, the EKACPD adopted guidelines to assist applicants in complying with the various requirements. According to the EKAPCD's Guidelines (EKAPCD 1999), a proposed project does not have significant air quality impacts on the environment, if operation of the project will:

- Emit (from all projects sources subject to EKAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3 of EKAPCD's Rule 210.1 (New and Modified Source Review Rule);
- Emit less than 137 pounds per day (25 tons per year) of NOx or Reactive Organic Compounds from motor vehicle trips (indirect sources only);
- Not cause or contribute to exceeding any California or National Ambient Air Quality Standard;
- Not exceed the District health risk public notification thresholds adopted by the EKAPCD Board; or
- Be consistent with adopted Federal and State Air Quality Attainment Plans.

The guideline thresholds are designed to implement the general criteria for air quality emissions as required in the State CEQA Guidelines, Appendix G, Paragraph III and CEQA (State of California CEQA Guidelines, §15064.7). As such, EKAPCD thresholds provide a means by which the general standards set forth by Appendix G may be used to quantitatively measure the air quality impacts of a specific project. According to the EKAPCD Guidelines and Thresholds of Significance, which apply to a project located within the proposed project area would result in a significant impact if it exceeds any of the thresholds are presented in **Table 4-1**.

Table 4-1. EKAPCD CEQA Thresholds of Significance

Criteria Pollutant	Significance Level	
	Daily (Indirect Mobile Only)	Annual
NOx	137 lbs/day	25 tons/yr
ROG	137 lbs/day	25 tons/yr
SOx	-	27 tons/yr
PM_{10}	-	15 tons/yr
$PM_{2.5}$	-	15 tons/yr

Source: EKAPCD 1999 and EKAPCD 2000.

4.1.2 Threshold for Ambient Air Quality Impacts

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*" would be considered to create significant impacts on air quality. Therefore, an AQIA should determine whether the emissions from a project would cause or contribute significantly to violations of the NAAQS or CAAQS (presented above in **Table 3-1**) when added to existing ambient concentrations.

The EPA has established the federal Prevention of Significant Deterioration (PSD) program to determine what comprises "significant impact levels" (SIL) to NAAQS attainment areas. A project's impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. As the Project would not include modification to the stationary source under New Source Review (NSR), it would not be subject to either PSD or NSR review. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the project would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*." Ambient air quality emissions estimates below the PSD SIL thresholds would result in less than significant ambient air quality impacts on both a project and cumulative CEQA impact analysis. The MDAB is classified as non-attainment/marginal for the 8-hour O_3 NAAQS and, as such, is subject to non-attainment NSR. PSD SILs and increments are more stringent than the CAAQS or NAAQS and represent the most stringent thresholds of significance.

4.1.3 Thresholds for Hazardous Air Pollutants

The EKAPCD's Guidelines state, that a project result in a significant impact if it exceeds that District's health risk notification thresholds presented in **Table 4-2**.

Table 4-2. Measures of Significance - Toxic Air Contaminants

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
EKAPCD	Carcinogens	Maximally Exposed Individual risk **equals or exceeds** 10 in one million.
	Non-Carcinogens	**Acute**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual.
		Chronic: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual.
Source: EKAPCD 1996		

4.1.4 Global Climate Change Thresholds of Significance

On March 8, 2012, the EKAPCD adopted the *Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving as Lead CEQA Agency*, which outlined the EKAPCD's Project-Specific CEQA significance thresholds for GHG emissions (EKAPCD 2012):

- If project is exempt from CEQA due to either a statutory or categorical exemption, no further analysis under CEQA is required.
- Project-Specific GHG Emissions must be quantified if the project is not exempt from CEQA.
- Project is considered to have a less than significant impact or not have a cumulatively considerable impact on GHG emissions if it meets one of the following conditions:
  1. Project-Specific GHG emissions are less than 25,000 tons per year (tpy);
  2. Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan;
  3. Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:
     a. Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy;
     b. Compliance with GHG Offset as detailed in Section VI of this Policy;
     c. Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.
- If none of the above is met the project will be deemed significant and an Environmental Impact Report (EIR) will be required.

4.2 Project Related Emissions

This document was prepared pursuant to the EKAPCD's *Guidelines for Implementation of the California Environmental Quality Act, July 1, 1999 Revision*. The guidelines do not necessarily require a quantification of construction emissions for all projects. Construction emissions quantification is typically required only at the request of the lead agency. The EKAPCD generally assumes that implementation of any construction-related mitigation measures will result in construction emissions impacts that are *less than significant*.

Project emissions were estimated separately for each emission source. EMFAC2017 and California Emissions Estimator Model (CalEEMod) were used to estimate emissions for both short-term, construction-related, sources as well as long-term, operations-related, sources.

Project emissions were estimated for the following development stages:

- Short-term (Construction and Demolition) – Short-term construction emissions from the proposed Project were estimated using EMFAC2017 and AP-42 emission factors for solar panel delivery and CalEEMod for off-road construction equipment usage and worker travel. (See **Appendix B**)
- Long-term (Operations) – Long term emissions were also estimated using EMFAC2017, AP-42 emissions factors and CalEEMod for operation of a solar facility. (See **Appendix B**)
- Short-term (Decommissioning) - Short-term decommissioning emissions are less than short-term construction emissions due to labor being less intensive, materials being recycled or discarded locally without additional transport, and equipment in future years having significantly lower emissions than current equipment. Therefore, short-term decommissioning emissions will be less than significant if short-term construction emissions are less than significant, and no further evaluation is necessary.

4.2.1 Short-Term Emissions

Short-term emissions are primarily from the construction and decommissioning phases of a project and would have temporary impacts on air quality.

CalEEMod was used to estimate emissions from construction worker vehicles and on-site construction equipment. Construction equipment was estimated using a Project proponent supplied construction fleet mix and schedule. EMFAC2017 emissions factors were used to estimate emissions from solar panel delivery off-site travel on paved surfaces and AP-42 emission factors were used to calculate fugitive dust emissions from travel on on-site unpaved surfaces.

Solar panels are assumed to be delivered from the Port of Long Beach; assuming 540 panels per truck trip, there would be 1,482 one-way heavy duty truck trips delivering the 400,000 solar panels. Many variables are factored into the calculation of construction emissions including length of the construction period, number of each type of equipment, site characteristics, area climate, and construction personnel activities. All equipment was assumed to be in use for the Project in accordance with the Project proponent supplied construction fleet mix and schedule. CalEEMod default load factors were used for all construction equipment.

Adjustments to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the Project description;
- Demolition construction phase was removed as the Project Location is open land;
- The construction schedule was adjusted to match the anticipated schedule for the Project;
- The Project specific construction equipment list described above was used;

Mitigation Measures applied in CalEEMod resulting in Mitigated emissions shown in Table 4-3:

- Water exposed area 3 times per day; and
- Reduce vehicle speed to less than 15 miles per hour.

Table 4-3 presents the Project's short-term emissions based on the various emission sources and a 12-month construction period starting in 2022 and ending in 2023. The emission calculations based on CalEEMod and emission factors from EMFAC2017 and AP-42 are available in **Appendix B**.

Table 4-3. Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Unmitigated						
2022	0.92	6.74	7.53	0.02	3.66	0.84
2023	0.90	6.33	7.89	0.02	3.07	0.70
Maximum Annual Emission	**0.92**	**6.74**	**7.89**	**0.02**	**3.66**	**0.84**
Mitigated						
2022	0.92	6.74	7.53	0.02	1.72	0.60
2023	0.90	6.33	7.89	0.02	1.76	0.57
Maximum Annual Emission	**0.92**	**6.74**	**7.89**	**0.02**	**1.76**	**0.60**
Significance Threshold	25	25	NA	27	15	15
Is Threshold Exceeded for a Single Year After Mitigation?	No	No	No	No	No	No

Source: Trinity Consultants 2021

As calculated with CalEEMod, EMFAC2017, and AP-42, the estimated short-term construction-related emissions would not exceed EKAPCD significance threshold levels during any given year and would therefore be *less than significant*. Since short-term construction emissions are less than significant, short-term decommissioning emissions are also expected to be *less than significant*.

4.2.2 Long-Term Operational Emissions

Long-term emissions are caused by operational mobile sources from periodic cleaning of the solar panels as well as a small, full-time staff (2 employees) and area source emissions from the on-site building.

4.2.2.1 Water Truck Emissions

Per the Project proponent, water trucks would clean the solar panels up to four times per year, which would be a source of ROG, NO_X, SO_X, CO, PM_{10} and $PM_{2.5}$ exhaust emissions. It was estimated that 5 x 5,000-gallon water trucks would travel approximately 217.7 miles per cleaning. EMFAC2017 emission factors were used to estimate off-site and on-site water truck exhaust emissions; operational year 2023 was used per the anticipated operational start date for this Project. Additionally, on-site water truck travel is a source of PM fugitive emissions; fugitive dust from water truck travel over on-site unpaved surfaces was estimated with AP-42 emissions factors (United Stated Environmental Protection Agency (USEPA) 2006). EKAPCD under Rule 402 implements required control measures to assist in further minimizing these emissions.

The Project would comply with applicable EKAPCD Rules and Regulations, the local zoning codes, and additional emissions reduction measures recommended later in this analysis, in Section 7, Mitigation and Other Recommended Measures.

4.2.2.2 Employee Trip and Building Emissions

Project-related transportation activities from employees and area source activities (buildings) would generate ROG, NO_X, SO_X, CO, PM_{10} and $PM_{2.5}$ emissions. The Project proponent estimates 2 full time employees working on the Project site throughout operations, and the CalEEMod default worker trip length of 16.8 miles was used. EMFAC2017 emission factors were used to estimate off-site and on-site employee vehicle exhaust emissions; operational year 2023 was used per the anticipated operational start date for this Project. As the make of employee vehicles is not known, a 50:50 split of emissions for light duty autos and light duty trucks was applied when estimating emissions. CalEEMod was also used to estimate area source emissions from the on-site buildings. Additionally, on-site employee vehicle travel is a source of PM emissions; fugitive dust from employee vehicle travel over on-site unpaved surfaces was estimated with AP-42 emissions factors (USEPA 2006).

4.2.2.3 Projected Emissions

The proposed project is expected to have long-term air quality impacts as shown in T**able 4-4**. Emission calculations are available in Appendix B. The following mitigation measures were selected in CalEEMod or applied to emission calculations.

- Water exposed area 3 times per day.
- Reduce vehicle speed to less than 15 miles per hour.

Table 4-4. Post-Project (Operational) Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Unmitigated Emissions						
Solar Facility Operational Emissions	0.030	0.008	0.004	0.000	1.684	0.169
Mitigated Emissions						
Solar Facility Operational Emissions	0.030	0.008	0.004	0.000	0.368	0.0.7
EKAPCD Threshold	25	25	NA	27	15	15
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

As shown in Table 4-4, operations-related emissions, as calculated in Appendix B, would be less than the EKAPCD significant threshold levels. Therefore, the proposed Project would have a *less than significant impact* during Project operations.

PM_{10} generated as a part of fugitive dust emissions pose a potentially serious health hazard, alone or in combination with other pollutants. EKAPCD under Rule 402 implements required control measures to assist in further minimizing these emissions.

The Project would comply with applicable EKAPCD Rules and Regulations, the local zoning codes, and additional mitigation measures required in this analysis to reduce PM_{10} fugitive dust emissions even further to ensure that the project's emissions remain at a "less than significant" level.

4.3 Potential Impacts on Sensitive Receptors

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers. The nearest residential sensitive receptor to the proposed Project is located adjacent to portions of the Project's sites. There are no known non-residential sensitive receptors within 2 miles of the Project site. Discussion of health risks and risks to sensitive receptors is addressed in detail below in Section 4.6.

4.4 Potential Impacts to Visibility to Nearby Class 1 Areas

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. Because the Project's PM_{10} emissions increase are predicted to be less than the PSD threshold levels, an impact at any Class 1 area or military/airspace operation within 100 kilometers of the Project (including Edwards Air Force Base, China Lake Naval Weapons Station and the entire R-2508 Airspace Complex, and Death Valley National Monument) is extremely unlikely. Therefore, based on the Project's predicted less-than significant PM_{10} emissions, the Project would be expected to have a *less than significant impact* to visibility at any Class 1 area or military/airspace operation.

4.5 Potential Impacts from Carbon Monoxide

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. CO concentrations are also influenced by wind speed and atmospheric mixing. CO concentrations may be more uniformly distributed when inversion conditions are prevalent in the valley. Under certain meteorological conditions, CO concentrations along a congested roadway or intersection may reach

unhealthful levels for sensitive receptors, e.g. children, the elderly, hospital patients, etc. This localized impact can result in elevated levels of CO, or "hotspots" even though concentrations at the closest air quality monitoring station may be below NAAQS and CAAQS.

The localized project impacts depend on whether ambient CO levels in the Project vicinity would be above or below NAAQS. If ambient levels are below the standards, a project is considered to have significant impacts if a project's emissions would exceed of one or more of these standards. If ambient levels already exceed a state standard, a project's emissions are considered significant if they would increase one-hour CO concentrations by 10 ppm or more or eight-hour CO concentrations by 0.45 ppm or more.

No vehicular traffic other than sporadic maintenance, panel washing trucks, and two full time employees are expected and due to the location of the site, potentially impacted intersections and roadway segments are anticipated to operate at a LOS of C or better during Project operations. Therefore, CO "Hotspot" Modeling was not conducted for this Project and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

4.6 Predicted Health Impacts

Projects are considered for potential health risks wherein a new or modified source of Hazardous Air Pollutants (HAPs) is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs.

The proposed Project would result in emissions of Hazardous Air Pollutants (HAPs) and would be located near existing residents; therefore, an assessment of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed Project is required.

To predict the potential health risk to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over a 70-year lifetime or operational emissions and over the construction period for construction emissions. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices (HIs), which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risk is the identification of sources with increased HAPs. HAP emissions from anticipated on-site construction activities and exhaust emissions from water trucks were evaluated.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP2) software distributed by the CARB; HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. Assumptions used to calculate the emission rates for the proposed Project are outlined below.

The most recent version of EPA's AMS/EPA Regulatory Model - AERMOD (recompiled for the Lakes ISC-AERMOD View 9.9.0 interface) was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

Diesel combustion emissions from diesel on-site construction equipment and HHD trucks from panel deliveries were modeled as an area source for on-site construction activity on the property. Additionally, since routes for the panel cleaning water trucks are not known; area source emissions were also used to model on-site operational truck trips. Diesel particulate matter was calculated using CalEEMod for on-site construction equipment and EMFAC approved emission factors for HHD panel delivery trucks and water trucks. EMFAC

emission factors are provided by the California Air Resources Board (CARB 2018). A unit emission rate of 1 grams/second (g/sec) was input to AERMOD for each source. Operational HHD truck emissions for on-site water truck travel were less than 0.01 pounds per year and are therefore a negligible amount of HAPs but was still included in this HRA.

Discrete receptors were placed on scattered agricultural houses and businesses within close proximity of the Project site. A total of 105 discrete off-site receptors were analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area. 7.5 minute DEM terrain data for Fairmont Butte, CA and Little Buttes, CA was processed with AERMAP to identify elevations for the proposed Project.

SJVAPCD-provided, AERMET processed meteorological datasets for the Mojave Airport monitoring station, calendar years 2009 through 2013 was input to AERMOD (CARB 2020c). This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility is considered "rural" under the Auer land use classification method (Auer 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP 2) (CARB 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA) using the OEHHA Derived Method. HARP2 site parameters were set for the mandatory minimum pathways of inhalation, soil ingestion, dermal, and mother's milk. The noninhalation pathways used a deposition rate of 0.02 m/s along with all other default parameters. Both inhalation pathway faction of time at home options were utilized and breathing rates were not adjusted. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for the inhalation pathway at each receptor. A hazard index was computed for chronic non-cancer health effects for each applicable endpoint and each receptor. A hazard index for acute non-cancer health effects was not computed since DPM does not have a risk exposure level for acute risk.

EKAPCD has set the level of significance for carcinogenic risk at ten in one million, which is understood as the possibility of causing ten additional cancer cases in a population of one million people. The level of significance for chronic non-cancer risk is a hazard index of 1.0. All receptors were modeled with a 1-year exposure for the construction activities and a 70-year exposure for operational activities.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of ten in one million (10 x 10-6) and 1.0, respectively for the proposed Project. The PMIs, are identified by receptor location and risk, and are provided in **Table 4-5**. The electronic AERMOD and HARP2 output files are provided in Appendix D.

Table 4-5. Potential Maximum Impacts Predicted by HARP

	Cancer Risk	Chronic Hazard Index
Construction	2.77E-06	3.67E-03
Operational	4.67E-11	1.16E-08
Total	2.77E-06	3.67E-03
Receptor #	8	8
UTM Easting (m)	375337.91	375337.91
UTM Northing (m)	3855921.20	3855921.20

As shown above in **Table 4-5**, the maximum predicted cancer risk for the proposed Project is 2.77E-06. The maximum chronic non-cancer hazard index for the proposed Project is 3.67E-03. Since the PMI remained below the significance threshold for cancer and chronic risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be *less than significant* based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of ten in a million at each of the modeled receptors; and
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk was not calculated since there is no acute risk associated with DPM emission; therefore, the proposed Project is considered below the significance level.

Therefore, potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant.

4.7 Potential impacts from Valley Fever

The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to Valley Fever spores as fugitive dust is generated during construction. In order to mitigate potential risk, the proposed Project would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the mitigation measures, dust from the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

4.8 Potential Impacts from Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDCDMG, 2000). Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

4.9 Odor Impacts and Mitigation

An evaluation is typically conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, and 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. The criteria for this evaluation are based on the

Lead Agency's determination of the proximity to one another of the proposed project and the sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, i.e. the 24-hour, 8-hour or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors.

The proposed Project is not considered a source of objectionable odors or odorous compounds. Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the project site when it is in operation. As such, the proposed project will not be a source of any odorous compounds nor will it likely be impacted by any odorous source.

4.10 Impacts to Ambient Air Quality

An ambient air quality analysis, when required, determines if a proposed project has the potential to cause a violation of the ambient air quality standards or a substantial contribution to an existing or projected air quality standard. As demonstrated in *Section 4.2.2 Long Term Operational Emissions*, the Project's potential increase to any criteria pollutants is negligible and would not be anticipated to cause an exceedance of any ambient air quality thresholds; therefore, an ambient air quality analysis was not required. Therefore, the Project's contribution to potential violations of ambient air quality standards would be l*ess-than-significant*.

4.11 Impacts to Greenhouse Gases and Climate Change

The proposed Project's construction and operational GHG emissions were estimated using the CalEEMod program (version 2016.3.2), EMFAC2014, and the California Climate Action Registry General Reporting Protocol (Version 3.1). **Table 4-6** presents the Project's annual GHG emissions.

Table 4-6. Estimated Annual GHG Emissions (MT/Year)

Source	CO_2	CH_4	N_2O	CO_2e
2022 Construction Emissions	1,658.21	0.31	0.00	1,666.03
2023 Construction Emissions	1,931.55	0.33	0.02	1,946.61
Total Construction Emissions	3,738.32	0.64	0.05	3,768.45
Annualized Construction Emissions[1]	124.61	0.02	0.00	125.61
Total Operational Emissions	29.14	0.11	0.00	32.28
Total Project Emissions	**153.75**	**0.13**	**0.00**	**157.89**
GHG Savings from Solar Project[2]	122,802.12	0.94	0.52	122,982.02
Net Project Savings	**122,648.37**	**0.80**	**0.51**	**122,824.12**
EKAPCD's Significance Threshold	**-**	**-**	**-**	**25,000**
Significance Threshold Exceeded?	**-**	**-**	**-**	**No**

1 Per South Coast AQMD's Methodology
2 California Climate Action Registry Reporting Protocol (Version 3.1)

Additionally, the proposed Project substations may feature circuit breakers that contain SF_6 gas, used as an insulator and an arc suppressor in the breakers. SF_6 is inert and non-toxic and is encapsulated in the breaker assembly. SF_6 is a GHG with substantial global warming potential because of its chemical nature and long residency time within the atmosphere. However, under normal conditions, it would be completely contained in the equipment and SF_6 would be released only in the unlikely event of a failure, leak, or crack in the circuit breaker housing. New circuit breaker designs have been developed to minimize the potential for leakage, compared to that of past designs, and the amount of SF_6 that could be released by the solar facility equipment would be minimal.

The Project will not result in the emissions of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) the other gases identified as GHG in AB32. The proposed Project will be subject to any regulations developed under AB32 as determined by CARB. As demonstrated in **Table 4-6**, the Project would have a positive impact on global climate change by reducing the demand for conventional power generation and the rate of global climate change resulting from conventional power generation. Additionally, the Project is a net negative producer of GHGs which results in a savings of 122,824 MT CO_2e per year. Therefore, the proposed Project would meet the the EKAPCD's GHG Policy threshold of 25,000 MT of CO2e per year (EKAPCD 2012). The proposed Project would therefore have a *less than significant* GHG impact.

4.11.1 Feasible and Reasonable Mitigation Relative to Global Warming

CEQA requires that all feasible and reasonable mitigation be applied to the project to reduce the impacts from construction and operations on air quality. The SJVAPCD's "Non-Residential On-Site Mitigation Checklist" was applied in preparing the mitigation measures and evaluating the Project's features as a proxy for EKAPCD. These measures include using controls that limit the exhaust from construction equipment and using alternatives to diesel when possible. Additional reductions would be achieved through the air districts and CARB implementing regulations to reduce diesel engine emissions.

The Project is a net negative producer of GHGs and will achieve the required 29% reduction needed to conform with AB32 goals without any mitigation, as demonstrated in **Table 4-6**. Therefore, the cumulative impacts to global climate change would be *less than significant*.

5. CUMULATIVE IMPACTS

By its very nature, air pollution has a cumulative impact. The District's nonattainment status is a result of past and present development within the MDAB. Furthermore, attainment of ambient air quality standards can be jeopardized by increasing emissions-generating activities in the region. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the Basin. When assessing whether there is a new significant cumulative effect, the Lead Agency shall consider whether the incremental effects of the project are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual 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 [CCR §15064(h)(1)]. Per CEQA Guidelines §15064(h)(3), a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

Attachment A of Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* states "The following threshold are defined for purposes of determining cumulative effects as the baseline for "considerable". Projects in…Kern County Air Pollution Control District will be subject to the following significance thresholds". The thresholds outlined in the guidelines mirror the individual project significance thresholds of 15 tons per year for PM_{10} and 25 tons per year for NO_X and ROG. Therefore, owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is simply whether the project would exceed project-level thresholds. Additionally, the EKAPCD Guidelines for Implementation of CEQA also states that "*Unless otherwise specified in published/adopted thresholds of significance and guidelines, a project's potential contribution to cumulative impacts shall be assessed utilizing the same significance criteria as those for project specific impacts*"[1]. Based on the analysis conducted for this Project, it is individually *less than significant*. This AQIA, however, also considered impacts of the proposed Project in conjunction with the impacts of other projects previously proposed in the area. The following cumulative impacts were considered:

- Cumulative O_3 Impacts (ROG and NOx) from numerous sources within the region including transport from outside the region. O_3 is formed through chemical reactions of ROG and NOx in the presence of sunlight.
- Cumulative CO Impacts produced primarily by vehicular emissions.
- Cumulative PM_{10} Impacts from within the region and locally from the various projects. Such projects may cumulatively produce a significant amount of PM10 if several projects conduct grading or earthmoving activities at the same time; and
- Hazardous Air Pollutant (HAP) Impacts on sensitive receptors.

5.1 Cumulative Regional Air Quality Impacts

The most recent, certified MDAB Emission Inventory data available from the EKAPCD is based on data gathered for the 2020 annual inventory. This data will be used to assist the EKAPCD in demonstrating

[1] EKAPCD Guidelines for Implementation of CEQA, Page 22

attainment of Federal 1-hour O_3 Standards. **Table 5-1** provides a comparative look at the impacts proposed by the proposed Project to the MDAB Emissions Inventory.

Table 5-1. Comparative Analysis Based on MDAB 2020 Inventory

Emissions Inventory Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Kern County – 2020[2]	2,153	11,315	19,345	3,139	5,913	2,810
MDAB – 2020[2]	20,841	51,246	71,102	4,708	52,377	14,490
Proposed Project	0.030	0.008	0.004	0.000	0.368	0.037
Proposed Project's % of Kern[1]	0.0014%	0.0001%	0.0000%	0.0000%	0.0062%	0.0013%
Proposed Project's % of MDAB[1]	0.0001%	0.0000%	0.0000%	0.0000%	0.0007%	0.0003%

Source: CARB 2020b
Notes: 1) Percentages equaling 0.0000 could represent a percent <0.00005.
2) This is the latest inventory available as of March 2021, excluding Natural Sources.

As shown in **Table 5-1** the proposed Project does not pose a substantial increase to basin emissions, as such basin emissions would be essentially the same if the Project is approved.

Table 5-2, **Table 5-3**, and **Table 5-4** provide CARB Emissions Inventory projections for the year 2025 for both the MDAB and the Kern County portion of the air basin (see **Appendix C**). Looking at the MDAB Emissions predicted by the CARB year 2025 emissions inventory, the Kern County portion of the air basin is a moderate source of the emissions. The proposed Project produces a small portion of the total emissions in both Kern County and the entire MDAB.

Table 5-2. Emission Inventory MDAB 2025 Projection - Tons per Year

	ROG	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Total Emissions	20,914.5	46,282.0	65,736.5	5,037.0	56,429.0	15,439.5
Percent Stationary Sources	38.05%	65.85%	18.71%	93.48%	42.95%	51.77%
Percent Area-Wide Sources	29.14%	1.58%	13.83%	0.72%	52.59%	36.64%
Percent Mobile Sources	32.98%	32.65%	67.41%	5.80%	4.46%	11.82%
Total Stationary Source Emissions	7,957.0	30,477.5	12,300.5	4,708.5	24,236.0	7,993.5
Total Area-Wide Source Emissions	6,095.5	730.0	9,088.5	36.5	29,674.5	5,657.5
Total Mobile Source Emissions	6,898.5	15,111.0	44,311.0	292.0	2,518.5	1,825.0

Source: CARB 2020b
Note: Total may not add due to rounding.

Table 5-3. Emission Inventory MDAB - Kern County Portion 2025 Estimate Projection - Tons per Year

	ROG	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Total Emissions	3,540.5	10,840.5	19,016.5	3,358.0	5,986.0	2,847.0
Percent Stationary Sources	14.43%	74.75%	22.65%	95.65%	21.34%	28.21%
Percent Area-Wide Sources	27.84%	2.02%	21.31%	0.00%	59.15%	33.33%
Percent Mobile Sources	57.73%	23.23%	56.05%	3.26%	19.51%	38.46%
Total Stationary Source Emissions	511.0	8,103.0	4,307.0	3,212.0	1,277.5	803.0
Total Area-Wide Source Emissions	985.5	219.0	4,051.5	0.0	3,540.5	949.0
Total Mobile Source Emissions	2,044.0	2,518.5	10,658.0	109.5	1,168.0	1,095.0

Source: CARB 2020b
Note: Total may not add due to rounding.

Table 5-4. 2025 Emissions Projections - Proposed Project, Kern County, and MDAB

	ROG	NO_X	PM_{10}
Proposed Project	0.03	0.01	0.37
Kern County	3,541	10,841	5,986
MDAB	20,915	46,282	56,429
Proposed Project Percent of Kern County	0.001%	0.000%	0.006%
Proposed Project Percent of MDAB	0.000%	0.000%	0.001%
Kern County Percent of MDAB	16.93%	23.42%	10.61%

As shown above, the proposed Project would pose no impact on regional O_3 and PM_{10} formation. Because the regional contribution to these cumulative impacts would be negligible, additionally, the Project would not exceed cumulatively considerable thresholds since the Project would be less than thresholds outlined in Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports*. Therefore, this Project would *not be considered cumulatively considerable* in its contribution to regional O_3 and PM_{10} impacts.

5.2 Cumulative Local Air Quality Impacts

Kern County provided a list of tentative development maps within a six-mile radius of the proposed Project area, however, the details provided for these projects do not provide enough information to accurately estimate their potential emissions. The cumulative projects are typically listed only as geographical reference to demonstrate the construction activity within a six-mile radius of the proposed Project. The number and sizes of these projects are of no particular significance since the cumulative considerable thresholds established by Kern County are based on Project specific thresholds which are inherently cumulative in nature.

As details regarding the various cumulative projects were not readily available, emissions estimates were not calculated. The cumulative projects are already approved or pending approval it is assumed that these projects are in conformance with the regional AQAP and/or the Kern County General Plan. Additionally, the proposed Project would generate less-than-significant impacts to criteria air pollutants, the Project's incremental contribution to cumulative air quality impacts would *not be cumulatively considerable*. (CEQA Guidelines Section 15064(h)(3).

5.3 Cumulative Hazardous Air Pollutants

Combined HAPs emission impacts from the project and other existing and planned projects are considered cumulatively significant when air quality standards are exceeded. Because the Project would not be a significant source of HAPs, the proposed Project would *also not be expected to pose a significant cumulative HAPs impact*.

5.4 Cumulative Carbon Monoxide (CO) – Mobile Sources

Traffic increases and added congestion caused by a project can combine to cause a CO "Hotspot". No vehicular traffic other than sporadic maintenance, panel washing trucks, and two full time employees are expected and due to the location of the site, potentially impacted intersections and roadway segments are anticipated to operate at a LOS of C or better during Project operations. Therefore, CO "Hotspot" Modeling was not conducted for this Project and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

6. CONSISTENCY WITH THE AIR QUALITY ATTAINMENT PLAN

Air quality impacts from proposed projects within the eastern Kern County are controlled through policies and provisions of the EKAPCD and the Kern County General Plan (Kern County 2004). In order to demonstrate that a proposed project would not cause further air quality degradation in either of the EKAPCD's plan to improve air quality within the air basin or federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the EKAPCD's adopted AQAP. The EKAPCD is required to submit a "Rate of Progress" document to the CARB that demonstrates past and planned progress toward reaching attainment for all criteria pollutants. The California Clean Air Act (CCAA) requires the local air districts with severe or extreme air quality problems to provide for a 5 percent reduction in non-attainment emissions per year. The Attainment Plans prepared for the Eastern Kern County by the EKAPCD complies with this requirement. CARB reviews, approves, or amends the document and forwards the plan to the U.S. Environmental Protection Agency (U.S. EPA) for final review and approval within the State Implementation Plan (SIP).

Air pollution sources associated with stationary sources are regulated through the EKAPCD permitting authority under the New and Modified Stationary Source Review Rule (EKAPCD Rule 210.1). Owners of any new or modified equipment that emits, reduces or controls air contaminants, except those specifically exempted by the EKAPCD, are required to apply for an Authority to Construct and Permit to Operate (EKAPCD Rule 201). Additionally, best available control technology (BACT) is required on specific types of stationary equipment and are required to offset both stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (EKAPCD Rule 210.1, III.B.). Through this mechanism, the EKAPCD would ensure that all stationary sources within a project area would be subject to the standards of the EKAPCD to ensure that new developments do not result in net increases in stationary sources of criteria air pollutants.

6.1 Required Evaluation Guidelines

CEQA Guidelines and the Federal Clean Air Act (Sections 176 and 316) contain specific references on the need to evaluate consistency between a proposed project and the applicable AQAP for the Project site. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQAP:

1. *Determination that an AQAP is being implemented in the area where the project is being proposed*. The EKAPCD has implemented the current, modified AQAP as approved by CARB.
2. *The proposed project must be consistent with the growth assumptions of the applicable AQAP*. The proposed Project is included in the employment increases projected in the Kern County General Plan.
3. *The project must contain in its design all reasonably available and feasible air quality control measures*. The proposed project incorporates various policy and rule-required implementation measures that will reduce related emissions.

The CCAA and AQAP identify transportation control measures as methods to further reduce emissions from mobile sources. Strategies identified to reduce vehicular emissions such as reductions in vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion, in order to reduce vehicular emissions, can be implemented as control measures under the CCAA as well. Additional measures may also be implemented through the building process such as providing electrical outlets on exterior walls of structures to encourage use of electrical landscape maintenance equipment or measures such as electrical outlets for electrical systems on diesel trucks to reduce or eliminate idling time.

As the growth represented by the proposed Project was anticipated by the Kern County General Plan and incorporated into the AQAP, conclusions may be drawn from the following criteria:

1. The findings of the analysis conducted using review of Traffic Analysis Zones (TAZ) data show that sufficient employment increases are planned for the project area as the TAZ in the project area calls for an increase in employment of 3 between the years of 2020 and 2030 which is enough to account for the 2 full time employees the Project proposes;

2. That, by definition, the proposed emissions from the Project are below the EKAPCD's established emissions impact thresholds; and

3. That the primary source of emissions from the Project would be motor vehicles which would be licensed through the State of California and whose emissions are already incorporated into the CARB's Eastern Kern County's Emissions Inventory.

Based on these factors, the Project *appears to be consistent with the AQAP*.

6.2 Consistency with the Kern Council of Government's Regional Conformity Analysis

The Kern Council of Governments (Kern COG) Regional Conformity Analysis Determination demonstrates that the regional transportation expenditure plans (Destination 2030 Regional Transportation Plan and Federal Transportation Improvement Program) in the Kern County portion of the Mojave Desert air quality attainment areas would not hinder the efforts set out in the CARB's SIP for each area's non-attainment pollutants (CO, O_3 and PM_{10}). The analysis uses an adopted regional growth forecast, governed by both the adopted Kern COG Policy and Procedure Manual and a Memorandum of Understanding between the County of Kern and Kern COG (representing itself and outlying municipal member agencies).

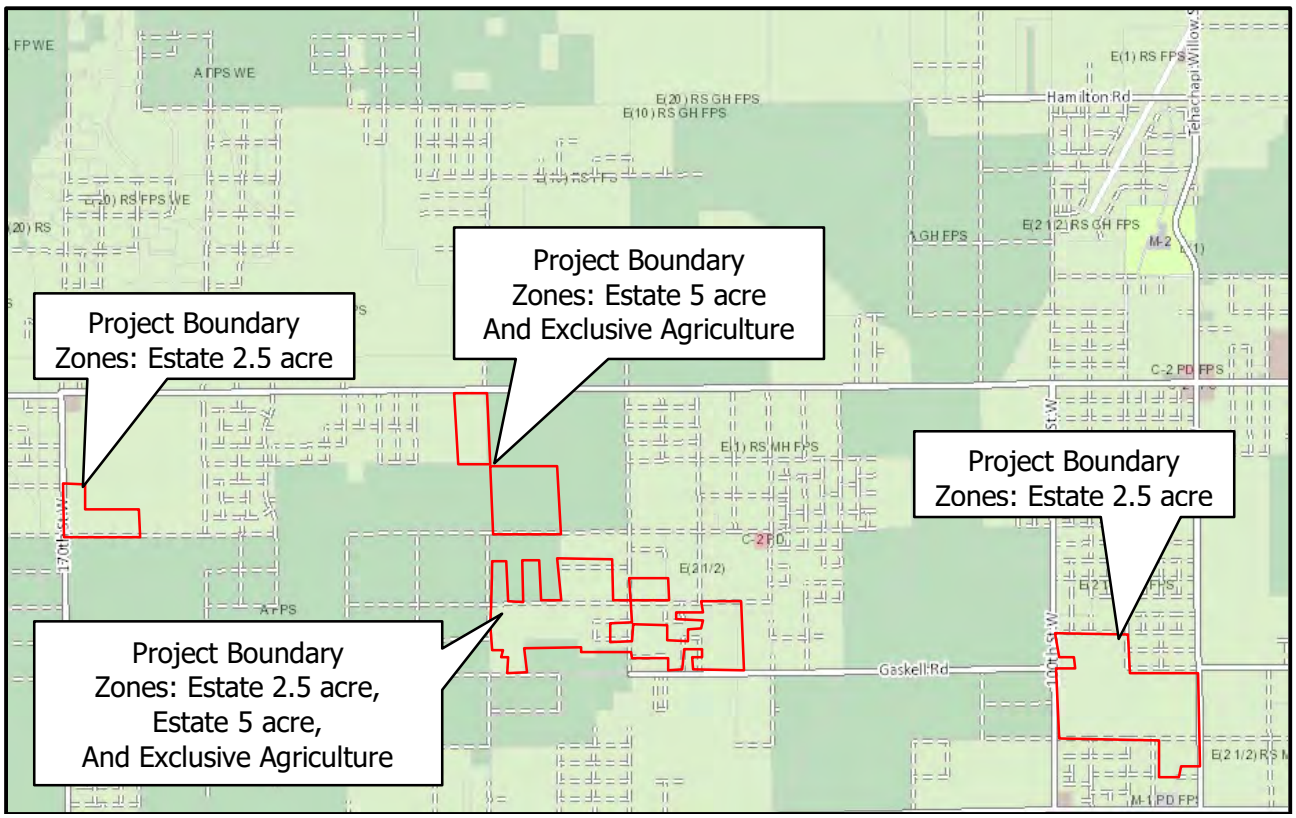
The Kern COG Regional Conformity Analysis considers General Plan Amendments (GPA) and zone changes that were enacted at the time of the analysis as projected growth within the area based on land use designations incorporated within the Kern County General Plan. Land use designations that are altered based on subsequent GPAs that were not included in the Regional Conformity Analysis were not incorporated into the Kern COG analysis. Consequently, if a proposed project is not included in the regional growth forecast using the latest planning assumptions, it may not be said to conform to the regional growth forecast.

Item 2 under Section 3 – Model Maintenance Procedure, of the Kern COG Regional Transportation Modeling Policy and Procedure Manual states "Land Use Data – General Plan land capacity data or "Build -out capacity" is used to distribute the forecasted County totals, and may be updated as new information becomes available, and is revised in regular consultation with local planning departments."

Under the current Kern County Zoning, the Project site is designated as various residential estate districts (E) (see **Figure 6-1**).

In addition, a review of Kern COG regional forecast was prepared to evaluate if the Project area growth forecast would be sufficient to account for the Project's projected employment increase. The adopted growth forecasts are assigned to TAZs; a review of the growth forecast one mile from a project presents a conservative assessment of the Project area. Given there are only two full time employees as a result of the Project the current growth forecast of 3 jobs from 2020 to 2030 accounts for the proposed employment increase, therefore, the Project is consistent with the regional growth forecast.

Figure 6-1. Kern County Zoning



7. MITIGATION AND OTHER RECOMMENDED MEASURES

As the estimated construction, operational, and decommissioning emissions from the proposed Project would be less than significant, no specific mitigation measures would be required. However, to ensure that Project is in compliance with all applicable EKAPCD rules and regulations and emissions are further reduced, the applicant would be required to implement and comply with a number of measures by regulation and would result in further emission reductions through their inclusion in Project construction and long-term design. The following measures have been applied to the Project as EKAPCD rules and regulations and conditions of approval and through the CalEEMod model analysis.

7.1 Applicable PM_{10} Reduction Measures

As the Project would be completed in compliance with EKAPCD Rules and Regulations, dust control measures would be taken to ensure compliance specifically during grading and the construction phase.

7.1.1 Land Preparation, Excavation, and/or Demolition

The following dust control measures should be implemented:

- All soil excavated or graded should be sufficiently watered to prevent excessive dust. Watering should occur as needed with complete coverage of disturbed soil areas. Watering should be a minimum of three times daily on unpaved/untreated roads and on disturbed soil areas with active operations.[2]
- All clearing, grading, earth moving, and excavation activities should cease
  - during periods of winds greater than 20 mph (averaged over one hour), if disturbed material is easily windblown, or
  - when dust plumes of 20% or greater opacity impact public roads, occupied structures or neighboring property.
- All fine material transported offsite should be either sufficiently watered or securely covered to prevent excessive dust.
- If more than 5,000 cubic yards of fill material will be imported or exported from the site, then all haul trucks should be required to exit the site via an access point where a gravel pad or grizzly has been installed.
- Areas disturbed by clearing, earth moving, or excavation activities should be minimized at all times.
- Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.
- Where acceptable to the fire department, weed control should be accomplished by mowing instead of discing, thereby, leaving the ground undisturbed and with a mulch covering.

7.1.2 Building (Structure) Construction

After clearing, grading, earth moving and/or excavating, the following dust control practices should be implemented:

- Once initial leveling has ceased all inactive soil areas within the construction site should either be seeded and watered until plant growth is evident, treated with a dust palliativeor similar, or watered three times daily until soil has sufficiently crusted to prevent fugitive dust emission.

[2] This mitigation measure has been implemented in the CalEEMod model as mentioned in Section 4.2.1, and the mitigated emissions in Table 4-3 reflect this mitigation.

- All active disturbed soil areas should be sufficiently watered to prevent excessive dust, but no less than three times per day.

7.1.3 Vehicular Activities

During all phases of construction, the following vehicular control measures should be implemented:

7.1.3.1 Dust

- Onsite vehicle speed should be limited to 15 mph[2].
- All areas with vehicle traffic should be paved, treated with dust palliatives, or watered a minimum of three times daily.
- Streets adjacent to the project site should be kept clean and accumulated silt removed.

Access to the site should be by means of an apron into the project from adjoining surfaced roadways. The apron should be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of the vehicles, a grizzly or other such device should be used on the road exiting the project, immediately prior to the pavement, in order to remove most of the soil material from the vehicle's tires.

7.1.3.2 Tailpipe Emissions

- Properly maintain and tune all internal combustion engine powered equipment.
- Require employees and subcontractors to comply with California's idling restrictions for compression ignition engines.
- Use low sulfur (CARB) diesel fuel.

7.2 Recommended Measures to Reduce Equipment Exhaust

These measures are recommended to reduce exhaust emissions:

- Maintain all construction equipment as recommended by manufacturer manuals.
- Shut down equipment when not in use for extended periods.
- Construction equipment shall operate no longer than eight (8) cumulative hours per day.
- Use electric equipment for construction whenever possible in lieu of diesel or gasoline powered equipment.
- Curtail use of high-emitting construction equipment during periods of high or excessive ambient pollutant concentrations.
- All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_x emissions.
- On-Road and Off-Road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.
- On-Road and Off-Road diesel equipment shall use cooled exhaust gas recirculation (EGR) if permitted under manufacturer's guidelines.
- All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.
- All construction activities within the Project area shall be discontinued during the first stage smog alerts.
- Construction and grading activities shall not be allowed during first stage O_3 alerts. First stage O_3 alerts are declared when the O_3 level exceeds 0.20 ppm (1-hour average).

8. LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project would have short-term air quality impacts due to facility construction and decommissioning activities as well as vehicular emissions. Construction-related short-term emissions would be reduced by implementation of measures required of all projects by EKACPD and *were found to be less than significant* with no mitigation beyond what is required by the EKAPCD.

The proposed Project would result in long-term air quality impacts due to operational-related mobile source emissions. These operational-related long-term emissions would be reduced by implementation of measures required of all projects by EKACPD and *were found to be less than significant* with no mitigation beyond what is required by the EKAPCD.

The proposed Project's incremental contribution to cumulative impacts would be reduced by implementation of measures required of all projects by EKACPD and be below thresholds of significance. Additionally, the proposed Project would generate less-than-significant impacts to criteria air pollutants, the Project's incremental contribution to cumulative air quality impacts would *not be cumulatively considerable*. Therefore, the Project's contribution to cumulative impacts *were found to be less than significant*.

The proposed Project in conjunction with other past, present, and foreseeable future projects would result in cumulative long-term impacts to global climate change. The proposed Project will create a net reduction in GHG emissions and would, therefore, be considered *less than significant* before and after mitigation and a positive impact to air quality.

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APPENDIX A. EXISTING AIR QUALITY MONITORING DATA

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

at Mojave-923 Poole Street

	2017		2018		2019	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jul 14	0.097	Aug 9	0.111	Jun 19	0.085
Second High:	Jul 1	0.089	Aug 1	0.103	Aug 14	0.084
Third High:	Jul 8	0.089	Aug 7	0.103	Jun 4	0.080
Fourth High:	Jun 24	0.088	Jul 30	0.102	Sep 13	0.080
California:						
# Days Above the Standard:	1		8		0	
California Designation Value:	0.09		0.10		0.10	
Expected Peak Day Concentration:	0.092		0.097		0.096	
National:						
# Days Above the Standard:	*0*		*0*		*0*	
3-Year Estimated Expected Number of Exceedance Days:	*0.0*		*0.0*		*0.0*	
1-Year Estimated Expected Number of Exceedance Days:	*0.0*		*0.0*		*0.0*	
Nat'l Standard Design Value:	*0.097*		*0.103*		*0.102*	
Year Coverage:	99		99		100	

Notes:

Hourly ozone measurements and related statistics are available at Mojave-923 Poole Street between 1993 and 2019. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

CALIFORNIA AIR RESOURCES BOARD

Top 4 Summary: Highest 4 Daily Maximum Hourly Ozone Measurements

iADAM

at Lancaster-43301 Division Street

	2017		2018		2019	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jul 15	0.109	Aug 7	*0.125*	Aug 26	0.096
Second High:	Jun 20	0.104	Aug 9	0.111	Aug 2	0.092
Third High:	Jun 14	0.103	Aug 4	0.101	Aug 15	0.092
Fourth High:	Jun 16	0.101	Jul 27	0.100	Aug 22	0.090
California:						
# Days Above the Standard:	10		5		1	
California Designation Value:	0.11		0.10		0.10	
Expected Peak Day Concentration:	0.114		0.102		0.103	
National:						
# Days Above the Standard:	*0*		*1*		*0*	
3-Year Estimated Expected Number of Exceedance Days:	*0.3*		*0.3*		*0.3*	
1-Year Estimated Expected Number of Exceedance Days:	*0.0*		*1.0*		*0.0*	
Nat'l Standard Design Value:	*0.120*		*0.108*		*0.104*	
Year Coverage:	96		93		94	

Notes:

Hourly ozone measurements and related statistics are available at Lancaster-43301 Division Street between 2001 and 2019. Some years in this range may not be represented.

All concentrations expressed in parts per million.

The national 1-hour ozone standard was revoked in June 2005. Statistics related to the national 1-hour ozone standard are shown in or .

An exceedance of a standard is not necessarily related to a violation of the standard.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

iADAM

at Lancaster-43301 Division Street

	2017		2018		2019	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jul 15	0.087	Aug 7	0.104	Aug 22	0.081
Second High:	Jul 21	0.087	Aug 9	0.094	Aug 26	0.079
Third High:	Jun 16	0.086	Jul 27	0.089	Jul 29	0.078
Fourth High:	Jun 20	0.084	Aug 4	0.087	Aug 2	0.076
California Std (0.070 ppm):						
First High:	Jul 15	0.087	Aug 7	0.105	Aug 22	0.082
Second High:	Jul 21	0.087	Aug 9	0.095	Aug 26	0.080
Third High:	Jun 16	0.086	Jul 27	0.090	Jul 29	0.079
Fourth High:	Jun 20	0.085	Aug 4	0.088	Aug 2	0.077
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		43		48		13
Nat'l Standard Design Value:		0.089		0.085		0.082
National Year Coverage:		96		94		94
California Std (0.070 ppm):						
# Days Above the Standard:		43		49		14
California Designation Value:		0.101		0.091		0.090
Expected Peak Day Concentration:		0.101		0.092		0.091
California Year Coverage:		96		93		92

Notes:

- Eight-hour ozone averages and related statistics are available at Lancaster-43301 Division Street between 2001 and 2019. Some years in this range may not be represented.
- All averages expressed in parts per million.
- An exceedance of a standard is not necessarily related to a violation of the standard.
- State and national statistics may differ for the following reasons:
  - National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.
  - State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.
- Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.
- Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

CALIFORNIA AIR RESOURCES BOARD

Top 4 Summary: Highest 4 Daily Maximum 8-Hour Ozone Averages

at Mojave-923 Poole Street

	2017		2018		2019	
	Date	8-Hr Average	Date	8-Hr Average	Date	8-Hr Average
National 2015 Std (0.070 ppm):						
First High:	Jul 14	0.085	Aug 7	0.094	Jun 19	0.077
Second High:	Jul 1	0.081	Aug 9	0.093	Jun 4	0.076
Third High:	Jun 23	0.080	Aug 4	0.092	Jul 5	0.075
Fourth High:	Jul 15	0.080	Jul 29	0.091	Jun 18	0.074
California Std (0.070 ppm):						
First High:	Jul 14	0.086	Aug 7	0.095	Jun 19	0.078
Second High:	Jul 1	0.082	Aug 4	0.093	Jun 4	0.076
Third High:	Jul 15	0.081	Aug 9	0.093	Jun 18	0.075
Fourth High:	Jun 23	0.080	Jul 29	0.091	Jul 5	0.075
National 2015 Std (0.070 ppm):						
# Days Above the Standard:		35		53		10
Nat'l Standard Design Value:		0.081		0.085		0.081
National Year Coverage:		99		99		100
California Std (0.070 ppm):						
# Days Above the Standard:		37		56		10
California Designation Value:		0.086		0.091		0.091
Expected Peak Day Concentration:		0.088		0.092		0.091
California Year Coverage:		99		99		100

Notes:

- Eight-hour ozone averages and related statistics are available at Mojave-923 Poole Street between 1993 and 2019. Some years in this range may not be represented.
- All averages expressed in parts per million.
- An exceedance of a standard is not necessarily related to a violation of the standard.
- State and national statistics may differ for the following reasons:
  - National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places.
  - State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the national criteria.
- Daily maximum 8-hour averages associated with the National 0.070 ppm standard exclude those 8-hour averages that have first hours between midnight and 6:00 am, Pacific Standard Time.
- Daily maximum 8-hour averages associated with the National 0.070 ppm standard include only those 8-hour averages from days that have sufficient data for the day to be considered valid.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Lancaster-43301 Division Street

	2017		2018		2019	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Oct 12	26.6	Aug 9	40.4	Nov 25	13.6
Second High:	Dec 16	23.9	Aug 4	30.8	Dec 21	13.1
Third High:	Jul 15	19.5	Aug 7	25.5	Jul 5	13.0
Fourth High:	Sep 2	19.3	Jul 27	20.2	Nov 26	12.7
California:						
First High:	Oct 12	26.6	Aug 9	40.4	Nov 25	13.6
Second High:	Dec 16	23.9	Aug 4	30.8	Dec 21	13.1
Third High:	Jul 15	19.5	Aug 7	25.5	Jul 5	13.0
Fourth High:	Sep 2	19.3	Jul 27	20.2	Nov 26	12.7
National:						
Estimated # Days > 24-Hour Std:		0.0		1.0		0.0
Measured # Days > 24-Hour Std:		0		1		0
24-Hour Standard Design Value:		*		18		15
24-Hour Standard 98th Percentile:		15.7		16.4		11.6
2006 Annual Std Design Value:		*		7.4		6.9
2013 Annual Std Design Value:		*		7.4		6.9
Annual Average:		7.2		7.2		6.1
California:						
Annual Std Designation Value:		7		7		7
Annual Average:		7.3		7.2		6.1
Year Coverage:		97		99		99

Notes:

Daily PM2.5 averages and related statistics are available at Lancaster-43301 Division Street between 2001 and 2019. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Mojave-923 Poole Street

	2017		2018		2019	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Jul 14	26.9	Aug 4	39.0	Sep 2	19.8
Second High:	Jul 11	20.1	Aug 7	37.3	Oct 17	19.2
Third High:	Oct 19	18.5	Aug 10	32.1	Sep 19	18.5
Fourth High:	Dec 16	18.0	Aug 9	31.5	Nov 25	18.5
California:						
First High:	Jul 14	26.9	Aug 4	39.0	Sep 2	19.8
Second High:	Jul 11	20.1	Aug 7	37.3	Oct 17	19.2
Third High:	Oct 19	18.5	Aug 10	32.1	Sep 19	18.5
Fourth High:	Dec 16	18.0	Aug 9	31.5	Nov 25	18.5
National:						
Estimated # Days > 24-Hour Std:		0.0		2.1		0.0
Measured # Days > 24-Hour Std:		0		2		0
24-Hour Standard Design Value:		17		21		19
24-Hour Standard 98th Percentile:		16.6		25.9		14.3
2006 Annual Std Design Value:		6.0		6.7		6.4
2013 Annual Std Design Value:		6.0		6.7		6.4
Annual Average:		5.5		7.1		6.5
California:						
Annual Std Designation Value:		*		*		7
Annual Average:		*		*		6.5
Year Coverage:		95		94		100

Notes:

Daily PM2.5 averages and related statistics are available at Mojave-923 Poole Street between 1999 and 2019.
Some years in this range may not be represented.
All averages expressed in micrograms per cubic meter.

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Lancaster-43301 Division Street

	2017		2018		2019	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Dec 16	82.4	Sep 20	89.3	Nov 26	165.1
Second High:	Oct 12	74.8	Sep 21	85.2	Nov 25	159.9
Third High:	Oct 19	63.7	Feb 11	81.5	Oct 17	113.3
Fourth High:	Oct 2	62.8	Jun 4	76.2	Oct 10	91.6
California:						
First High:		*		*		*
Second High:		*		*		*
Third High:		*		*		*
Fourth High:		*		*		*
National:						
Estimated # Days > 24-Hour Std:		0.0		0.0		2.1
Measured # Days > 24-Hour Std:		0		0		2
3-Yr Avg Est # Days > 24-Hr Std:		0.0		0.0		1.0
Annual Average:		*26.3*		*25.2*		*22.5*
3-Year Average:		*24*		*26*		*25*
California:						
Estimated # Days > 24-Hour Std:		*		*		*
Measured # Days > 24-Hour Std:		*		*		*
Annual Average:		*		*		*
3-Year Maximum Annual Average:		*		*		*
Year Coverage:		0		0		0

Notes:

Daily PM10 averages and related statistics are available at Lancaster-43301 Division Street between 2001 and 2019. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

CALIFORNIA AIR RESOURCES BOARD

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

iADAM

at Mojave-923 Poole Street

	2017		2018		2019	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Sep 19	93.4	Oct 29	93.1	Nov 25	248.7
Second High:	Oct 11	76.5	Aug 31	89.4	Oct 17	193.1
Third High:	Oct 12	73.4	Jul 10	78.5	Sep 2	125.3
Fourth High:	Oct 19	62.0	Feb 11	77.9	Sep 8	122.7
California:						
First High:	Sep 19	85.7	Oct 29	86.5	Nov 25	240.8
Second High:	Oct 11	70.8	Aug 31	77.5	Oct 17	180.3
Third High:	Oct 12	68.2	Feb 11	74.1	Sep 8	113.5
Fourth High:	Oct 2	56.5	Sep 19	70.3	Sep 2	113.3
National:						
Estimated # Days > 24-Hour Std:		*		0.0		2.0
Measured # Days > 24-Hour Std:		0		0		2
3-Yr Avg Est # Days > 24-Hr Std:		*		*		*
Annual Average:		*25.3*		*26.7*		*23.7*
3-Year Average:		*24*		*26*		*25*
California:						
Estimated # Days > 24-Hour Std:		*		*		15.0
Measured # Days > 24-Hour Std:		10		19		15
Annual Average:		*		*		22.0
3-Year Maximum Annual Average:		24		24		22
Year Coverage:		0		0		0

Notes:

Daily PM10 averages and related statistics are available at Mojave-923 Poole Street between 1994 and 2019.
Some years in this range may not be represented.
All averages expressed in micrograms per cubic meter.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Lancaster-43301 Division Street

	2017		2018		2019	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Dec 1	46.5	Sep 20	47.6	Mar 26	49.8
Second High:	Dec 15	44.3	Apr 24	44.3	Nov 4	43.3
Third High:	Nov 12	43.8	Apr 26	42.8	Nov 12	41.7
Fourth High:	Oct 27	43.5	Mar 8	42.4	Nov 15	41.4
California:						
First High:	Dec 1	46	Sep 20	47	Mar 26	49
Second High:	Dec 15	44	Apr 24	44	Nov 4	43
Third High:	Oct 25	43	Mar 8	42	Apr 24	41
Fourth High:	Oct 27	43	Apr 26	42	Nov 12	41
National:						
1-Hour Standard Design Value:		*		42		41
1-Hour Standard 98th Percentile:		42.9		39.7		39.8
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		8		9		8
California:						
1-Hour Std Designation Value:		50		50		50
Expected Peak Day Concentration:		48		48		47
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		8		8		8
Annual Average:		*		8		8
Year Coverage:		87		97		95

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Lancaster-43301 Division Street between 2001 and 2019. Some years in this range may not be represented.

All concentrations expressed in parts per billion.

Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

at Victorville-14306 Park Avenue

	2017		2018		2019	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 19	57.3	Sep 19	51.4	Nov 3	56.0
Second High:	Oct 6	54.8	Jun 21	49.0	Oct 8	53.2
Third High:	Oct 26	53.5	Jun 4	47.2	Jul 30	52.3
Fourth High:	Oct 13	52.1	Apr 23	46.9	Nov 13	49.3
California:						
First High:	Oct 19	57	Sep 19	51	Nov 3	56
Second High:	Oct 6	54	Jun 21	49	Oct 8	53
Third High:	Oct 26	53	Jun 4	47	Jul 30	52
Fourth High:	Oct 13	52	Apr 23	46	Jan 30	49
National:						
1-Hour Standard Design Value:		49		48		48
1-Hour Standard 98th Percentile:		50.6		44.9		48.5
# Days Above the Standard:		0		0		0
Annual Standard Design Value:		13		12		11
California:						
1-Hour Std Designation Value:		60		60		60
Expected Peak Day Concentration:		61		57		55
# Days Above the Standard:		0		0		0
Annual Std Designation Value:		12		12		12
Annual Average:		12		11		11
Year Coverage:		96		96		96

Notes:

Hourly nitrogen dioxide measurements and related statistics are available at Victorville-14306 Park Avenue between 2000 and 2019. Some years in this range may not be represented.

All concentrations expressed in parts per billion.

Air Resources Board

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Annual Toxics Summary

Bakersfield-5558 California Avenue

Lead

nanograms per cubic meter

iADAM
FAQs

Read About New Estimated Risk

Year	Months Present	Minimum	Median	Mean	90th Percentile	Maximum	Standard Deviation	Number of Observations	Detection Limit	Estimated Risk
2018	■-■■■■■■■■-■	2.3	*	*	*	9.3	3.00	5	1.3	*
2017	---■-------	0.65	3.5	*	7.5	12.6	2.60	29	1.3	*
2016	----------■	0.65	4.3	*	6.9	19.8	3.57	33	1.3	*
2015	----------	0.65	3.2	3.34	7.6	9.5	2.50	33	1.3	0.1
2014	■■■■■■-----	0.85	3.6	*	8.8	14	3.78	16	1.7	*
2013	--■------■■■	0.5	2.9	*	5.3	6.7	1.71	21	1.0	*
2012	----------	1.7	3.4	4.02	8.2	14	2.74	32	1.5	0.1
2011	-■■■■■-----	0.75	4.0	*	9.1	11	2.90	20	1.5	*
2010	■■■■-------	0.75	2.5	*	5.7	8.2	2.07	18	1.5	*
2009	----------	1.5	4.5	5.27	11.2	14	3.22	29	1.5	0.2
2008	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
2007	--------■■-■	0.75	7.1	*	11.7	13	3.23	24	1.5	*
2006	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
2005	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
2004	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
2003	--■■■■■■■■■	4.0	*	*	*	7.0	1.64	5	3.0	*
2002	----------	1.5	7.0	6.78	10	17	3.34	36	3.0	0.2
2001	----------	2	5.0	5.83	9.2	26	4.41	39	4.0	0.2
2000	----------	2	5.0	5.92	14.1	22	4.76	40	4.0	0.2
1999	----------	2	5.0	5.70	11.2	25	4.55	39	4.0	0.2
1998	----------	2	7.0	9.43	14	78	11.8	42	4.0	0.3
1997	----------	2	7.0	7.92	14	20	4.40	34	4.0	0.3
1996	----------	2	7.0	7.69	14.5	35	6.10	36	4.0	0.3
1995	----------	2	8.0	8.68	15.1	21	5.14	30	4.0	0.3
1994	■■■■-------	2	10	*	16	39	7.11	25	4.0	*
1993	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
1992	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
1991	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
1990	■■■■■■■■■■	*	*	*	*	*	*	0	*	*
1989	■■■■■■■■■■	*	*	*	*	*	*	0	*	*

Graph It!

Toxics Statistics Home

Notes: Values below the Limit of Detection (LoD) assumed to be ½ LoD.
Means and risks shown only for years with data in all 12 months.
"*" means there was insufficient or no data available to determine the value.

Data Descriptions Page

APPENDIX B. PROJECT EMISSION CALCULATIONS

Construction 2022 Unmitigated

Project Solar Panel Delivery T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	741	(400,000 panels, per applicant / average 540 panels per truck * 2 for round trip / 2 (half in 2022 and half in 2023)
One -way Miles/Trip:	120	(Distance from Port of Long Beach to Project Site)
Total miles traveled/year:	88,889	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.09	3.34	0.36	0.01	0.13	0.07	1480.34	4.04E-03	2.33E-01	
Lbs/Mile	1.92E-04	7.37E-03	7.96E-04	3.08E-05	2.89E-04	1.48E-04	3.26E+00	8.90E-06	5.13E-04	
Lbs/Year	17.03	655.40	70.76	2.74	25.69	13.20	290096.38	0.79	45.60	
Tons/year or MT/year	**8.52E-03**	**0.328**	**0.04**	**1.37E-03**	**1.28E-02**	**6.60E-03**	**145.05**	**3.96E-04**	**2.28E-02**	**152.12**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

Project Construction Equipment Delivery T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	86	(Estimated 43 HHDT trips to deliver construciton equipment)
One -way Miles/Trip:	25	(Estimated average distance)
Total miles traveled/year:	2,150	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.09	3.34	0.36	0.01	0.13	0.07	1480.34	4.04E-03	2.33E-01	
Lbs/Mile	1.92E-04	7.37E-03	7.96E-04	3.08E-05	2.89E-04	1.48E-04	3.26E+00	8.90E-06	5.13E-04	
Lbs/Year	0.41	15.85	1.71	0.07	0.62	0.32	7016.71	0.02	1.10	
Tons/year or MT/year	**2.06E-04**	**0.008**	**0.00**	**3.31E-05**	**3.11E-04**	**1.60E-04**	**3.51**	**9.57E-06**	**5.51E-04**	**3.68**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

On-Site Project Fugitive Dust from Solar Panel Delivery Emissions - AP-42

Assumptions:
Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)
Mean Vehicle Weight: 25 tons

Based on:

	2022
One-way Trips/year:	827
Miles/one-way trip*:	2.00
Total miles traveled/year:	1653

*Miles based on estimated average distance of unpaved travel.

	PM10	PM2.5
Em. Factor (lbs/VMT)[1]	2.86E+00	2.86E-01
Lbs/Year (2022)	4.72E+03	4.72E+02
Tons/year (2022)	**2.36**	**2.36E-01**

[1] AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Construction Equipment and Worker Travel - CalEEMod

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
2022 Tons/year or MT/year	**0.91**	**6.40**	**7.49**	**0.02**	**1.29**	**0.60**	**1658.21**	**0.31**	**0.00**	**1666.03**

1) Applied Projcet Proponent's construction equipment list with construction starting in 3rd quarter 2022 and lasting 12 months.

2) CalEEMod defaults for trip lengths were applied. Employee trips were taken from the Project's traffic study.

Total2022 *Unmitigated* Construction Emissions

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Truck Trips (Equipment & Panels Delivery)	0.009	0.336	0.036	0.001	0.013	0.007	148.557	0.000	0.023	155.804
Truck Trips – on-site fugitive dust					2.361	0.236				
Construction Equipment & Worker Travel	0.910	6.400	7.490	0.020	1.290	0.600	1658.210	0.310	0.000	1666.030
Tons/year or MT/year	**0.919**	**6.736**	**7.526**	**0.021**	**3.664**	**0.843**	**1806.767**	**0.310**	**0.023**	**1821.834**

Construction 2022 Mitigated

Project Solar Panel Delivery T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	741	(400,000 panels, per applicant / average 540 panels per truck * 2 for round trip / 2 (half in 2022 and half in 2023)
One -way Miles/Trip:	120	(Distance from Port of Long Beach to Project Site)
Total miles traveled/year:	88,889	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.09	3.34	0.36	0.01	0.13	0.07	1480.34	4.04E-03	2.33E-01	
Lbs/Mile	1.92E-04	7.37E-03	7.96E-04	3.08E-05	2.89E-04	1.48E-04	3.26E+00	8.90E-06	5.13E-04	
Lbs/Year	17.03	655.40	70.76	2.74	25.69	13.20	290096.38	0.79	45.60	
Tons/year or MT/year	**8.52E-03**	**0.328**	**0.04**	**1.37E-03**	**1.28E-02**	**6.60E-03**	**145.05**	**3.96E-04**	**2.28E-02**	**152.12**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

Project Construction Equipment Delivery T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	86	(Estimated 43 HHDT trips to deliver construciton equipment)
One -way Miles/Trip:	25	(Estimated average distance)
Total miles traveled/year:	2,150	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.09	3.34	0.36	0.01	0.13	0.07	1480.34	4.04E-03	2.33E-01	
Lbs/Mile	1.92E-04	7.37E-03	7.96E-04	3.08E-05	2.89E-04	1.48E-04	3.26E+00	8.90E-06	5.13E-04	
Lbs/Year	0.41	15.85	1.71	0.07	0.62	0.32	7016.71	0.02	1.10	
Tons/year or MT/year	**2.06E-04**	**0.008**	**0.00**	**3.31E-05**	**3.11E-04**	**1.60E-04**	**3.51**	**9.57E-06**	**5.51E-04**	**3.68**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

On-Site Project Fugitive Dust from Solar Panel Delivery Emissions - AP-42

Assumptions:
Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)
Mean Vehicle Weight: 25 tons

Based on:

	2022
One-way Trips/year:	827
Miles/one-way trip*:	2.00
Total miles traveled/year:	1653

*Miles based on estimated average distance of unpaved travel.

	PM10	PM2.5
Em. Factor (lbs/VMT)[1]	2.86E+00	2.86E-01
Lbs/Year (2022)*	1.03E+03	1.03E+02
Tons/year (2022)	**0.52**	**5.16E-02**

*61% Control for water surpression 3 times daily

*44% Control for reducing speed to less than 15 mph

[1] AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Construction Equipment and Worker Travel - CalEEMod

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
2022 Tons/year or MT/year	**0.91**	**6.40**	**7.49**	**0.02**	**1.19**	**0.54**	**1658.21**	**0.31**	**0.00**	**1666.03**

1) Applied Projcet Proponent's construction equipment list with construction starting in 3rd quarter 2022 and lasting 12 months.

2) CalEEMod defaults for trip lengths were applied. Employee trips were taken from the Project's traffic study.

Total 2022 *Mitigated* Construction Emissions

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Truck Trips (Equipment & Panels Delivery)	0.009	0.336	0.036	0.001	0.013	0.007	148.557	0.000	0.023	155.804
Truck Trips – on-site fugitive dust					0.516	0.052				
Construction Equipment & Worker Travel	0.910	6.400	7.490	0.020	1.190	0.540	1658.210	0.310	0.000	1666.030
Tons/year or MT/year	**0.919**	**6.736**	**7.526**	**0.021**	**1.719**	**0.598**	**1806.767**	**0.310**	**0.023**	**1821.834**

Construction 2023 Unmitigated

Project Solar Panel Delivery T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	741	(400,000 panels, per applicant / average 540 panels per truck * 2 for round trip / 2 (half in 2022 and half in 2023)
One -way Miles/Trip:	120	(Distance from Port of Long Beach to Project Site)
Total miles traveled/year:	88,889	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.02	2.25	0.20	0.01	0.11	0.05	1408.46	1.03E-03	2.21E-01	
Lbs/Mile	4.90E-05	4.96E-03	4.32E-04	2.93E-05	2.49E-04	1.10E-04	3.11E+00	2.28E-06	4.88E-04	
Lbs/Year	4.36	441.06	38.42	2.61	22.12	9.79	276011.05	0.20	43.39	
Tons/year or MT/year	**2.18E-03**	**0.221**	**0.02**	**1.30E-03**	**1.11E-02**	**4.90E-03**	**138.01**	**1.01E-04**	**2.17E-02**	**144.73**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

Project Construction Equipment Pickup T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	86	(Estimated 43 HHDT trips to deliver construciton equipment)
One -way Miles/Trip:	25	(Estimated average distance)
Total miles traveled/year:	2,150	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.02	2.25	0.20	0.01	0.11	0.05	1408.46	1.03E-03	2.21E-01	
Lbs/Mile	4.90E-05	4.96E-03	4.32E-04	2.93E-05	2.49E-04	1.10E-04	3.11E+00	2.28E-06	4.88E-04	
Lbs/Year	4.36	441.06	38.42	2.61	22.12	9.79	276011.05	0.20	43.39	
Tons/year or MT/year	**2.18E-03**	**0.221**	**0.02**	**1.30E-03**	**1.11E-02**	**4.90E-03**	**138.01**	**1.01E-04**	**2.17E-02**	**144.73**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

On-Site Project Fugitive Dust from Solar Panel Delivery Emissions - AP-42

Assumptions:
Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)
Mean Vehicle Weight: 25 tons

Based on:

	2023
One-way Trips/year:	827
Miles/one-way trip*:	2.00
Total miles traveled/year:	1653

*Miles based on estimated average distance of unpaved travel.

	PM10	PM2.5
Em. Factor (lbs/VMT)[1]	2.20E+00	2.20E-01
Lbs/Year (2023)	3.64E+03	3.64E+02
Tons/year (2023)	**1.82**	**1.82E-01**

[1] AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Construction Equipment and Worker Travel - CalEEMod

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
2023 Tons/year or MT/year	**0.90**	**5.89**	**7.85**	**0.02**	**1.23**	**0.51**	**1790.21**	**0.33**	**0.00**	**1798.38**

1) Applied Projcet Proponent's construction equipment list with construction starting in 3rd quarter 2022 and lasting 12 months.

2) CalEEMod defaults for trip lengths were applied. Employee trips were taken from the Project's traffic study.

Total 2023 *Unmitigated* Construction Emissions

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Truck Trips (Equipment & Panels Delivery)	0.004	0.441	0.038	0.003	0.022	0.010	276.011	0.000	0.043	289.465
Truck Trips – on-site fugitive dust					1.819	0.182				
Construction Equipment & Worker Travel	0.900	5.890	7.850	0.020	1.230	0.510	1790.210	0.330	0.000	1798.380
Tons/year or MT/year	**0.904**	**6.331**	**7.888**	**0.023**	**3.071**	**0.702**	**2066.221**	**0.330**	**0.043**	**2087.845**

Construction 2023 Mitigated

Project Solar Panel Delivery T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	741	(400,000 panels, per applicant / average 540 panels per truck * 2 for round trip / 2 (half in 2022 and half in 2023)
One -way Miles/Trip:	120	(Distance from Port of Long Beach to Project Site)
Total miles traveled/year:	88,889	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.02	2.25	0.20	0.01	0.11	0.05	1408.46	1.03E-03	2.21E-01	
Lbs/Mile	4.90E-05	4.96E-03	4.32E-04	2.93E-05	2.49E-04	1.10E-04	3.11E+00	2.28E-06	4.88E-04	
Lbs/Year	4.36	441.06	38.42	2.61	22.12	9.79	276011.05	0.20	43.39	
Tons/year or MT/year	**2.18E-03**	**0.221**	**0.02**	**1.30E-03**	**1.11E-02**	**4.90E-03**	**138.01**	**1.01E-04**	**2.17E-02**	**144.73**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

Project Construction Equipment Pickup T7 Single Exhaust Emissions - EMFAC2017

Based on:

One-way Trips/year:	86	(Estimated 43 HHDT trips to deliver construciton equipment)
One -way Miles/Trip:	25	(Estimated average distance)
Total miles traveled/year:	2,150	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4[2]	N2O[2]	CO2e
Em. Factor (grams/mile)	0.02	2.25	0.20	0.01	0.11	0.05	1408.46	1.03E-03	2.21E-01	
Lbs/Mile	4.90E-05	4.96E-03	4.32E-04	2.93E-05	2.49E-04	1.10E-04	3.11E+00	2.28E-06	4.88E-04	
Lbs/Year	0.11	10.67	0.93	0.06	0.54	0.24	6676.02	0.00	1.05	
Tons/year or MT/year	**5.27E-05**	**0.005**	**0.00**	**3.15E-05**	**2.68E-04**	**1.18E-04**	**3.34**	**2.45E-06**	**5.25E-04**	**3.50**

[1] PM accounts for PM from running, tire wear and break wear.

[2]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009. Table C4 Diesel Heavy -Duty Vehicles, All Model Years

On-Site Project Fugitive Dust from Solar Panel Delivery Emissions - AP-42

Assumptions:
Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)
Mean Vehicle Weight: 25 tons

Based on:

	2023
One-way Trips/year:	827
Miles/one-way trip*:	2.00
Total miles traveled/year:	1653

*Miles based on estimated average distance of unpaved travel.

	PM10	PM2.5
Em. Factor (lbs/VMT)[1]	2.86E+00	2.86E-01
Lbs/Year (2023)*	1.03E+03	1.03E+02
Tons/year (2023)	**0.52**	**5.16E-02**

*61% Control for water surpression 3 times daily

*44% Control for reducing speed to less than 15 mph

[1] AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Construction Equipment and Worker Travel - CalEEMod

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
2023 Tons/year or MT/year	**0.90**	**5.89**	**7.85**	**0.02**	**1.23**	**0.51**	**1790.21**	**0.33**	**0.00**	**1798.38**

1) Applied SJVAPCD construction equipment list, scaled for a 300 MW then split into 2 phases (each with a 16 month project construction schedule) with Phase 1 starting in 2022.

2) CalEEMod defaults for employee number and trip lengths were applied except 100 employees was used for panel assembly per estimates from similar projects.

Total 2023 *Mitigated* Construction Emissions

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Truck Trips (Equipment & Panels Delivery)	0.002	0.226	0.020	0.001	0.011	0.005	141.344	0.000	0.022	148.233
Truck Trips – on-site fugitive dust					0.516	0.052				
Construction Equipment & Worker Travel	0.900	5.890	7.850	0.020	1.230	0.510	1790.210	0.330	0.000	1798.380
Tons/year or MT/year	**0.902**	**6.116**	**7.870**	**0.021**	**1.757**	**0.567**	**1931.554**	**0.330**	**0.022**	**1946.613**

2023 Unmitigated Operational Emissions:

Project Operational Water Trucks T6 Utility Off-Site Exhaust Emissions - EMFAC2017

Panel cleaning - water truck travel to and from site

Based on:

One-way Trips/year:	40	(5 trucks, 4 times per year, x 2 for round trips)
One-way Miles/Trip:	12.8	(distance to central Rosamond)
Total miles traveled/year:	512	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4	N2O	CO2e
Em. Factor (grams/mile)	0.01	0.99	0.09	9.41E-03	0.15	0.06	996.49	3.42E-04	1.57E-01	
Lbs/Mile	1.62E-05	2.19E-03	1.90E-04	2.08E-05	3.22E-04	1.37E-04	2.20E+00	7.54E-07	3.45E-04	
Lbs/Year	0.0083	1.1220	0.0973	0.0106	0.1647	0.0703	1124.8023	0.0004	0.1768	
lbs/day	0.0004	0.0561	0.0049	0.0005	0.0082	0.0035	56.2401	0.0000	0.0088	58.9810
Tons/year	**4.16E-06**	**5.61E-04**	**4.86E-05**	**5.31E-06**	**8.23E-05**	**3.51E-05**	**5.62E-01**	**1.93E-07**	**8.84E-05**	**5.90E-01**

[1] PM accounts for PM from running, tire wear and break wear.

Project Operational Water Trucks T6 Utility On-Site Exhaust Emissions - EMFAC2017

panel cleaning - water truck travel on-site

Based on:

On-site miles/cleaning	217.7	(See Note 1)
cleaning per year	4	(Client provided)
Total miles traveled/year:	871	

Note 1: On-site miles per cleaning are estimates made based on numbers from other solar projects. Assumption of 3 on-site miles per 17.5 acres.

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Em. Factor (grams/mile)	0.01	2.39	0.21	1.46E-02	1.85E-03	1.77E-03	1547.65	6.83E-04	2.43E-01	1623.0757
Lbs/Mile	3.24E-05	5.27E-03	4.71E-04	3.22E-05	4.09E-06	3.91E-06	3.41E+00	1.50E-06	5.36E-04	3.5783
Lbs/Year	0.0282	4.5878	0.4099	0.0281	0.0036	0.0034	2971.3469	0.0013	0.4671	3116.1613
lbs/day	0.0071	1.1470	0.1025	0.0070	0.0009	0.0009	742.8367	0.0003	0.1168	779.0403
Tons/year	**1.41E-05**	**2.29E-03**	**2.05E-04**	**1.40E-05**	**1.78E-06**	**1.70E-06**	**1.49E+00**	**6.55E-07**	**2.34E-04**	**1.5581**

Project Unpaved Road Travel Fugitive Dust from On-Site Water Truck Emissions - AP-42

panel cleaning - water truck on site movement

Assumptions:

Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)

Mean Vehicle Weight: 12 tons

Based on:

	2023	
On-site miles/cleaning	217.7	(See Note 1)
cleaning per year	4	(Client provided)
Total miles traveled/year:	871	

Note 1: On-site miles per cleaning are estimates made based on numbers from other solar projects. Assumption of 3 on-site miles per 17.5 acres.

	PM10	PM2.5
Em. Factor (lbs/VMT)	2.05E+00	2.05E-01
Lbs/Year (2023)	1787.22	178.72
Tons/year (2023)	**0.8936**	**0.08936**

AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Unpaved Road Travel Fugitive Dust from Employee Trip Emissions - AP-42

employee trips - on-site travel fugitive dust

AP-42 Chapter 13, Section 13.2.2 Equation 1a and 2

Assumptions:

Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)

Mean Vehicle Weight: 2.5 tons

Based on:

	2023	
One-way Trips/year:	1560	[1] Based on client info, Project will have 2 full time employees working on site during operations (2 employees x 3 trips/day x 260 workdays/year)
Miles/one-way trip*:	1	
Total miles travelled/year:	1,560	

*Miles based on estimated unpaved travel distance.

	PM10	PM2.5
Em. Factor (lbs/VMT)	1.01E+00	1.01E-01
Lbs/Year (2023)	1580.51	158.05
Tons/year (2023)	**0.7903**	**0.0790**

AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Operational Building and Worker Travel - CalEEMod

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
2023 Tons/year or MT/year	**0.03**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**27.09**	**0.11**	**0.00**	**30.13**

Total 2023 *Unmitigated* Operational Emissions

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Water Truck - off-site travel	0.000	0.001	0.000	0.000	0.000	0.000	0.562	0.000	0.000	0.590
Water Truck - on-site travel	0.000	0.002	0.000	0.000	0.000	0.000	1.486	0.000	0.000	1.558
Water truck - on-site fugitive dust					0.894	0.089				
Employee Trips - on-site fugitive dust					0.790	0.079				
Building and Worker Travel	0.030	0.005	0.004	0.000	0.000	0.000	27.090	0.110	0.001	30.130
Operational total emissions (tons/year)	**0.030**	**0.008**	**0.004**	**0.000**	**1.684**	**0.169**	**29.138**	**0.110**	**0.002**	**32.278**

2023 Mitigated Operational Emissions:

Project Operational Water Trucks T6 Utility Off-Site Exhaust Emissions - EMFAC2017

Panel cleaning - water truck travel to and from site

Based on:

One-way Trips/year:	40	(5 trucks, 4 times per year, x 2 for round trips)
One-way Miles/Trip:	12.8	(distance to central Rosamond)
Total miles traveled/year:	512	

	ROG	NOx	CO	SOX	PM10[1]	PM2.5[1]	CO2	CH4	N2O	CO2e
Em. Factor (grams/mile)	0.01	0.99	0.09	9.41E-03	0.15	0.06	996.49	3.42E-04	1.57E-01	
Lbs/Mile	1.62E-05	2.19E-03	1.90E-04	2.08E-05	3.22E-04	1.37E-04	2.20E+00	7.54E-07	3.45E-04	
Lbs/Year	0.0083	1.1220	0.0973	0.0106	0.1647	0.0703	1124.8023	0.0004	0.1768	
lbs/day	0.0004	0.0561	0.0049	0.0005	0.0082	0.0035	56.2401	0.0000	0.0088	58.9810
Tons/year	**4.16E-06**	**5.61E-04**	**4.86E-05**	**5.31E-06**	**8.23E-05**	**3.51E-05**	**5.62E-01**	**1.93E-07**	**8.84E-05**	**5.90E-01**

[1] PM accounts for PM from running, tire wear and break wear.

Project Operational Water Trucks T6 Utility On-Site Exhaust Emissions - EMFAC2017

panel cleaning - water truck travel on-site

Based on:

On-site miles/cleaning	217.7	(See Note 1)
cleaning per year	4	(Client provided)
Total miles traveled/year:	871	

Note 1: On-site miles per cleaning are estimates made based on numbers from other solar projects. Assumption of 3 on-site miles per 17.5 acres.

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Em. Factor (grams/mile)	0.01	2.39	0.21	1.46E-02	1.85E-03	1.77E-03	1547.65	6.83E-04	2.43E-01	1623.0757
Lbs/Mile	3.24E-05	5.27E-03	4.71E-04	3.22E-05	4.09E-06	3.91E-06	3.41E+00	1.50E-06	5.36E-04	3.5783
Lbs/Year	0.0282	4.5878	0.4099	0.0281	0.0036	0.0034	2971.3469	0.0013	0.4671	3116.1613
lbs/day	0.0071	1.1470	0.1025	0.0070	0.0009	0.0009	742.8367	0.0003	0.1168	779.0403
Tons/year	**1.41E-05**	**2.29E-03**	**2.05E-04**	**1.40E-05**	**1.78E-06**	**1.70E-06**	**1.49E+00**	**6.55E-07**	**2.34E-04**	**1.5581**

Project Unpaved Road Travel Fugitive Dust from On-Site Water Truck Emissions - AP-42

panel cleaning - water truck on site movement

Assumptions:

Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)

Mean Vehicle Weight: 12 tons

Based on:

	2023	
On-site miles/cleaning	217.7	(See Note 1)
cleaning per year	4	(Client provided)
Total miles traveled/year:	871	

Note 1: On-site miles per cleaning are estimates made based on numbers from other solar projects. Assumption of 3 on-site miles per 17.5 acres.

	PM10	PM2.5
Em. Factor (lbs/VMT)	2.05E+00	2.05E-01
Lbs/Year (2023)*	390.33	39.03
Tons/year (2023)	**0.1952**	**0.01952**

*61% Control for water surpression 3 times daily

*44% Control for reducing speed to less than 15 mph

AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Unpaved Road Travel Fugitive Dust from Employee Trip Emissions - AP-42

employee trips - on-site travel fugitive dust

AP-42 Chapter 13, Section 13.2.2 Equation 1a and 2

Assumptions:

Surface Material Silt Content: 8.5% (From AP-42 Table 13.2.2-1)

Mean Vehicle Weight: 2.5 tons

Based on:

	2023
One-way Trips/year:	1560
Miles/one-way trip*:	1
Total miles travelled/year:	1,560

*Miles based on a diagonal distance to center of the project.

	PM10	PM2.5
Em. Factor (lbs/VMT)	1.01E+00	1.01E-01
Lbs/Year (2023)*	345.18	34.52
Tons/year (2023)	**0.1726**	**0.0173**

*61% Control for water surpression 3 times daily

*44% Control for reducing speed to less than 15 mph

AP-42 Chapter 13, Section 13.2.2 Equation 1a

Project Operational Building and Worker Travel - CalEEMod

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
2023 Tons/year or MT/year	**0.03**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**27.09**	**0.11**	**0.00**	**30.13**

Total 2023 *Mitigated* Operational Emissions

	ROG	NOx	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Water Truck - off-site travel	0.000	0.001	0.000	0.000	0.000	0.000	0.562	0.000	0.000	0.590
Water Truck - on-site travel	0.000	0.002	0.000	0.000	0.000	0.000	1.486	0.000	0.000	1.558
Water truck - on-site fugitive dust					0.195	0.020				
Employee Trips - on-site fugitive dust					0.173	0.017				
Building and Worker Travel	0.030	0.005	0.004	0.000	0.000	0.000	27.090	0.110	0.001	30.130
Operational total emissions (tons/year)	**0.030**	**0.008**	**0.004**	**0.000**	**0.368**	**0.037**	**29.138**	**0.110**	**0.002**	**32.278**

Reduction In Operational GHG Emissions

	Emission Factor[1]	Electricity Useage[2]	Conversion	Emissions	Conversion Factor	CO2e Emissions
	lbs/MWh	MWh	lbs/metric ton	metric tons	to CO2e	metric tons
Electricty CO2 Emissions	879	308000	2204.62	122,802.116	1	122,802.1
Electricty CH4 Emissions	0.0067	308000	2204.62	0.936	21	19.66
Electricty N2O Emissions	0.0037	308000	2204.62	0.517	310	160.2
					Total CO2e =	**122,982**

[1]California Climate Action Registry General Reporting Protocol Version 3.1 April 2009

[2]Industry average for solar panel use is 2,000 hour per MW

Source	CO_2	CH_4	N_2O	CO_2e
Construction GHG Emissions[1]	3738.32	0.64	0.05	3768.45
Annualized Construction Emissions	124.61	0.02	0.00	125.61
Operations GHG Emissions	29.14	0.11	0.00	32.28
Project emissions	**153.75**	**0.13**	**0.00**	**157.89**
GHG Savings from Solar	122,802.12	0.94	0.52	122,982.02
Net Project Savings	122,648.37	0.80	0.51	122,824.12

[1]Values take from "Construction Emission Totals" spreadsheet

Rosamond South Solar Operations

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	5.60	1000sqft	0.13	5,600.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Rosamond South Solar Operations - Kern-Mojave Desert County, Annual

Project Characteristics -

Land Use - Size of O&M Building and Communications Building

Construction Phase - Operational Run Only

Off-road Equipment - Operational Run Only

Off-road Equipment - Operational Run Only

Trips and VMT - Operational Run Only

On-road Fugitive Dust -

Landscape Equipment -

Construction Off-road Equipment Mitigation -

Vehicle Trips - 2 full time employes creating 3 trips each per day = 6 trips. 6/5600 = 0.001 trip rate/size/day

Fleet Mix - Employy trips could be either light duty trucks or light duty auto so fleet mix applied 50% to each

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblConstructionPhase	PhaseEndDate	11/18/2022	7/1/2022
tblConstructionPhase	PhaseEndDate	7/1/2022	6/30/2022
tblFleetMix	HHD	0.15	0.00
tblFleetMix	LDA	0.49	0.50
tblFleetMix	LDT1	0.03	0.50
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.5720e-003	0.00
tblFleetMix	MCY	5.7600e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	7.5900e-004	0.00

tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.6120e-003	0.00
tblFleetMix	SBUS	9.1200e-004	0.00
tblFleetMix	UBUS	1.6100e-003	0.00
tblGrading	AcresOfGrading	0.00	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	1.68	1.0000e-003

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	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	0.0000
Maximum	**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**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	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	0.0000
Maximum	**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**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0284	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.1000e-004
Energy	5.5000e-004	4.9600e-003	4.1700e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	20.7003	20.7003	8.0000e-004	2.4000e-004	20.7923
Mobile	0.0000	0.0000	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	6.2100e-003	6.2100e-003	0.0000	0.0000	6.2200e-003
Waste						0.0000	0.0000		0.0000	0.0000	1.0677	0.0000	1.0677	0.0631	0.0000	2.6453
Water						0.0000	0.0000		0.0000	0.0000	0.4108	4.9054	5.3163	0.0424	1.0400e-003	6.6873
Total	**0.0289**	**4.9600e-003**	**4.2400e-003**	**3.0000e-005**	**1.0000e-005**	**3.8000e-004**	**3.9000e-004**	**0.0000**	**3.8000e-004**	**3.8000e-004**	**1.4786**	**25.6120**	**27.0906**	**0.1063**	**1.2800e-003**	**30.1312**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0284	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.1000e-004
Energy	5.5000e-004	4.9600e-003	4.1700e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	20.7003	20.7003	8.0000e-004	2.4000e-004	20.7923
Mobile	0.0000	0.0000	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	6.2100e-003	6.2100e-003	0.0000	0.0000	6.2200e-003
Waste						0.0000	0.0000		0.0000	0.0000	1.0677	0.0000	1.0677	0.0631	0.0000	2.6453
Water						0.0000	0.0000		0.0000	0.0000	0.4108	4.9054	5.3163	0.0424	1.0400e-003	6.6873
Total	**0.0289**	**4.9600e-003**	**4.2400e-003**	**3.0000e-005**	**1.0000e-005**	**3.8000e-004**	**3.9000e-004**	**0.0000**	**3.8000e-004**	**3.8000e-004**	**1.4786**	**25.6120**	**27.0906**	**0.1063**	**1.2800e-003**	**30.1312**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2022	6/30/2022	5	0	
2	Building Construction	Building Construction	7/2/2022	7/1/2022	5	0	

Acres of Grading (Site Preparation Phase): 0.5

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
Site Preparation	Graders	1	8.00	187	0.41
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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	tons/yr										MT/yr					
Fugitive Dust	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	0.0000
Off-Road	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	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**	**0.0000**

Unmitigated Construction Off-Site

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

3.2 Site Preparation - 2022

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

3.3 Building Construction - 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	tons/yr										MT/yr					
Off-Road	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	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**	**0.0000**

Unmitigated Construction Off-Site

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

3.3 Building Construction - 2022

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

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	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	6.2100e-003	6.2100e-003	0.0000	0.0000	6.2200e-003
Unmitigated	0.0000	0.0000	2.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	6.2100e-003	6.2100e-003	0.0000	0.0000	6.2200e-003

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	0.01	0.00	0.00	21	21
Total	0.01	0.00	0.00	21	21

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
Unrefrigerated Warehouse-No Rail	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.2973	15.2973	6.9000e-004	1.4000e-004	15.3572
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.2973	15.2973	6.9000e-004	1.4000e-004	15.3572
NaturalGas Mitigated	5.5000e-004	4.9600e-003	4.1700e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4030	5.4030	1.0000e-004	1.0000e-004	5.4351
NaturalGas Unmitigated	5.5000e-004	4.9600e-003	4.1700e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4030	5.4030	1.0000e-004	1.0000e-004	5.4351

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	101248	5.5000e-004	4.9600e-003	4.1700e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4030	5.4030	1.0000e-004	1.0000e-004	5.4351
Total		**5.5000e-004**	**4.9600e-003**	**4.1700e-003**	**3.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**5.4030**	**5.4030**	**1.0000e-004**	**1.0000e-004**	**5.4351**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	101248	5.5000e-004	4.9600e-003	4.1700e-003	3.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4030	5.4030	1.0000e-004	1.0000e-004	5.4351
Total		**5.5000e-004**	**4.9600e-003**	**4.1700e-003**	**3.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**5.4030**	**5.4030**	**1.0000e-004**	**1.0000e-004**	**5.4351**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	52584	15.2973	6.9000e-004	1.4000e-004	15.3572
Total		**15.2973**	**6.9000e-004**	**1.4000e-004**	**15.3572**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	52584	15.2973	6.9000e-004	1.4000e-004	15.3572
Total		**15.2973**	**6.9000e-004**	**1.4000e-004**	**15.3572**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0284	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.1000e-004
Unmitigated	0.0284	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.1000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0219					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.1000e-004
Total	**0.0284**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.1000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	6.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0219					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-004	1.0000e-004	0.0000	0.0000	1.1000e-004
Total	**0.0284**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**1.0000e-004**	**0.0000**	**0.0000**	**1.1000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3163	0.0424	1.0400e-003	6.6873
Unmitigated	5.3163	0.0424	1.0400e-003	6.6873

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	1.295 / 0	5.3163	0.0424	1.0400e-003	6.6873
Total		**5.3163**	**0.0424**	**1.0400e-003**	**6.6873**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	1.295 / 0	5.3163	0.0424	1.0400e-003	6.6873
Total		**5.3163**	**0.0424**	**1.0400e-003**	**6.6873**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.0677	0.0631	0.0000	2.6453
Unmitigated	1.0677	0.0631	0.0000	2.6453

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	5.26	1.0677	0.0631	0.0000	2.6453
Total		**1.0677**	**0.0631**	**0.0000**	**2.6453**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	5.26	1.0677	0.0631	0.0000	2.6453
Total		**1.0677**	**0.0631**	**0.0000**	**2.6453**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Rosamond South Solar Construction

Kern-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1,270.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Actual Project Acreage

Construction Phase - Anticipated Construction Schedule

Off-road Equipment - Estimated Construction Equipment Provided by Project Proponent

Off-road Equipment - Estimated COnstruction Equipment Provided by Project Proponent

Trips and VMT - Trips match traffic study

On-road Fugitive Dust -

Landscape Equipment - Construction Run Only

Construction Off-road Equipment Mitigation -

Rosamond South Solar Construction - Kern-Mojave Desert County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	155,000.00	240.00
tblConstructionPhase	NumDays	6,000.00	21.00
tblConstructionPhase	PhaseEndDate	5/13/2737	6/30/2023
tblConstructionPhase	PhaseEndDate	10/28/2083	7/31/2022
tblConstructionPhase	PhaseStartDate	3/29/2143	8/1/2022
tblConstructionPhase	PhaseStartDate	10/29/2060	7/1/2022
tblGrading	AcresOfGrading	36.75	0.00
tblLandUse	LotAcreage	0.00	1,270.00
tblOffRoadEquipment	HorsePower	65.00	73.00
tblOffRoadEquipment	HorsePower	172.00	84.00
tblOffRoadEquipment	HorsePower	172.00	250.00
tblOffRoadEquipment	HorsePower	187.00	179.00
tblOffRoadEquipment	HorsePower	231.00	100.00
tblOffRoadEquipment	HorsePower	80.00	131.00
tblOffRoadEquipment	HorsePower	97.00	127.00
tblOffRoadEquipment	HorsePower	65.00	73.00
tblOffRoadEquipment	HorsePower	97.00	225.00
tblOffRoadEquipment	HorsePower	172.00	84.00
tblOffRoadEquipment	HorsePower	172.00	250.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	97.00	225.00
tblOffRoadEquipment	HorsePower	247.00	215.00
tblOffRoadEquipment	HorsePower	187.00	179.00
tblOffRoadEquipment	HorsePower	46.00	78.00
tblOffRoadEquipment	HorsePower	80.00	131.00
tblOffRoadEquipment	HorsePower	221.00	180.00

tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	158.00	161.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers

tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	12.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	3.37
tblOffRoadEquipment	UsageHours	8.00	4.10
tblOffRoadEquipment	UsageHours	8.00	3.45
tblOffRoadEquipment	UsageHours	7.00	5.06
tblOffRoadEquipment	UsageHours	7.00	4.83
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	3.27
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	95.00	106.00
tblTripsAndVMT	WorkerTripNumber	0.00	1,166.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.9105	6.3949	7.4857	0.0187	0.9835	0.3110	1.2945	0.3083	0.2873	0.5957	0.0000	1,658.2081	1,658.2081	0.3128	0.0000	1,666.0275
2023	0.9046	5.8944	7.8458	0.0201	0.9496	0.2828	1.2324	0.2522	0.2614	0.5136	0.0000	1,790.2143	1,790.2143	0.3268	0.0000	1,798.3830
Maximum	**0.9105**	**6.3949**	**7.8458**	**0.0201**	**0.9835**	**0.3110**	**1.2945**	**0.3083**	**0.2873**	**0.5957**	**0.0000**	**1,790.2143**	**1,790.2143**	**0.3268**	**0.0000**	**1,798.3830**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.9105	6.3949	7.4857	0.0187	0.8822	0.3110	1.1932	0.2527	0.2873	0.5400	0.0000	1,658.2069	1,658.2069	0.3128	0.0000	1,666.0263
2023	0.9046	5.8944	7.8458	0.0201	0.9496	0.2828	1.2324	0.2522	0.2614	0.5136	0.0000	1,790.2131	1,790.2131	0.3268	0.0000	1,798.3818
Maximum	**0.9105**	**6.3949**	**7.8458**	**0.0201**	**0.9496**	**0.3110**	**1.2324**	**0.2527**	**0.2873**	**0.5400**	**0.0000**	**1,790.2131**	**1,790.2131**	**0.3268**	**0.0000**	**1,798.3818**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.24**	**0.00**	**4.01**	**9.93**	**0.00**	**5.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2022	9-30-2022	3.4877	3.4877
2	10-1-2022	12-31-2022	3.8559	3.8559
3	1-1-2023	3-31-2023	3.3839	3.3839
4	4-1-2023	6-30-2023	3.4096	3.4096
		Highest	3.8559	3.8559

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	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	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	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	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2022	7/31/2022	5	21	
2	Building Construction	Building Construction	8/1/2022	6/30/2023	5	240	

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

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Skid Steer Loaders	9	4.00	73	0.37
Site Preparation	Other Construction Equipment	8	7.00	84	0.42
Site Preparation	Other Construction Equipment	3	4.00	250	0.42
Site Preparation	Graders	4	7.00	179	0.41
Building Construction	Cranes	6	3.37	100	0.29
Building Construction	Forklifts	12	4.10	89	0.20
Building Construction	Generator Sets	3	3.45	84	0.74
Site Preparation	Rollers	6	6.42	131	0.38
Site Preparation	Forklifts	2	7.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	7	5.06	127	0.37
Building Construction	Skid Steer Loaders	6	3.82	73	0.37
Building Construction	Tractors/Loaders/Backhoes	4	4.83	225	0.37
Building Construction	Other Construction Equipment	7	6.77	84	0.42
Building Construction	Other Construction Equipment	13	3.41	250	0.42
Building Construction	Rubber Tired Dozers	2	6.52	215	0.40
Site Preparation	Tractors/Loaders/Backhoes	3	7.00	225	0.37
Site Preparation	Rubber Tired Dozers	3	7.00	215	0.40
Building Construction	Graders	3	6.47	179	0.41
Building Construction	Welders	2	3.27	78	0.45
Building Construction	Rollers	4	6.84	131	0.38
Building Construction	Trenchers	2	6.68	78	0.50
Building Construction	Bore/Drill Rigs	5	6.68	180	0.50
Building Construction	Aerial Lifts	5	6.68	49	0.31
Building Construction	Excavators	3	3.18	161	0.38

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
Site Preparation	38	106.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	84	1,166.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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	tons/yr										MT/yr					
Fugitive Dust					0.1660	0.0000	0.1660	0.0912	0.0000	0.0912	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0755	0.8067	0.5854	1.2100e-003		0.0384	0.0384		0.0353	0.0353	0.0000	106.4400	106.4400	0.0344	0.0000	107.3007
Total	**0.0755**	**0.8067**	**0.5854**	**1.2100e-003**	**0.1660**	**0.0384**	**0.2044**	**0.0912**	**0.0353**	**0.1266**	**0.0000**	**106.4400**	**106.4400**	**0.0344**	**0.0000**	**107.3007**

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1300e-003	3.4100e-003	0.0348	1.3000e-004	0.0140	9.0000e-005	0.0140	3.7000e-003	8.0000e-005	3.7900e-003	0.0000	11.7799	11.7799	2.5000e-004	0.0000	11.7862
Total	**5.1300e-003**	**3.4100e-003**	**0.0348**	**1.3000e-004**	**0.0140**	**9.0000e-005**	**0.0140**	**3.7000e-003**	**8.0000e-005**	**3.7900e-003**	**0.0000**	**11.7799**	**11.7799**	**2.5000e-004**	**0.0000**	**11.7862**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0647	0.0000	0.0647	0.0356	0.0000	0.0356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0755	0.8067	0.5854	1.2100e-003		0.0384	0.0384		0.0353	0.0353	0.0000	106.4399	106.4399	0.0344	0.0000	107.3005
Total	**0.0755**	**0.8067**	**0.5854**	**1.2100e-003**	**0.0647**	**0.0384**	**0.1031**	**0.0356**	**0.0353**	**0.0709**	**0.0000**	**106.4399**	**106.4399**	**0.0344**	**0.0000**	**107.3005**

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1300e-003	3.4100e-003	0.0348	1.3000e-004	0.0140	9.0000e-005	0.0140	3.7000e-003	8.0000e-005	3.7900e-003	0.0000	11.7799	11.7799	2.5000e-004	0.0000	11.7862
Total	**5.1300e-003**	**3.4100e-003**	**0.0348**	**1.3000e-004**	**0.0140**	**9.0000e-005**	**0.0140**	**3.7000e-003**	**8.0000e-005**	**3.7900e-003**	**0.0000**	**11.7799**	**11.7799**	**2.5000e-004**	**0.0000**	**11.7862**

3.3 Building Construction - 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	tons/yr										MT/yr					
Off-Road	0.5342	5.3882	4.8619	9.8200e-003		0.2674	0.2674		0.2472	0.2472	0.0000	861.2397	861.2397	0.2637	0.0000	867.8312
Total	**0.5342**	**5.3882**	**4.8619**	**9.8200e-003**		**0.2674**	**0.2674**		**0.2472**	**0.2472**	**0.0000**	**861.2397**	**861.2397**	**0.2637**	**0.0000**	**867.8312**

3.3 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2957	0.1966	2.0037	7.5000e-003	0.8035	5.1400e-003	0.8087	0.2134	4.7300e-003	0.2181	0.0000	678.7484	678.7484	0.0144	0.0000	679.1094
Total	**0.2957**	**0.1966**	**2.0037**	**7.5000e-003**	**0.8035**	**5.1400e-003**	**0.8087**	**0.2134**	**4.7300e-003**	**0.2181**	**0.0000**	**678.7484**	**678.7484**	**0.0144**	**0.0000**	**679.1094**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5342	5.3882	4.8619	9.8200e-003		0.2674	0.2674		0.2472	0.2472	0.0000	861.2386	861.2386	0.2637	0.0000	867.8302
Total	**0.5342**	**5.3882**	**4.8619**	**9.8200e-003**		**0.2674**	**0.2674**		**0.2472**	**0.2472**	**0.0000**	**861.2386**	**861.2386**	**0.2637**	**0.0000**	**867.8302**

3.3 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2957	0.1966	2.0037	7.5000e-003	0.8035	5.1400e-003	0.8087	0.2134	4.7300e-003	0.2181	0.0000	678.7484	678.7484	0.0144	0.0000	679.1094
Total	**0.2957**	**0.1966**	**2.0037**	**7.5000e-003**	**0.8035**	**5.1400e-003**	**0.8087**	**0.2134**	**4.7300e-003**	**0.2181**	**0.0000**	**678.7484**	**678.7484**	**0.0144**	**0.0000**	**679.1094**

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5786	5.6863	5.6769	0.0116		0.2769	0.2769		0.2559	0.2559	0.0000	1,018.2501	1,018.2501	0.3115	0.0000	1,026.0379
Total	**0.5786**	**5.6863**	**5.6769**	**0.0116**		**0.2769**	**0.2769**		**0.2559**	**0.2559**	**0.0000**	**1,018.2501**	**1,018.2501**	**0.3115**	**0.0000**	**1,026.0379**

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3260	0.2082	2.1689	8.5300e-003	0.9496	5.9200e-003	0.9555	0.2522	5.4500e-003	0.2576	0.0000	771.9641	771.9641	0.0152	0.0000	772.3451
Total	**0.3260**	**0.2082**	**2.1689**	**8.5300e-003**	**0.9496**	**5.9200e-003**	**0.9555**	**0.2522**	**5.4500e-003**	**0.2576**	**0.0000**	**771.9641**	**771.9641**	**0.0152**	**0.0000**	**772.3451**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5786	5.6863	5.6769	0.0116		0.2769	0.2769		0.2559	0.2559	0.0000	1,018.2489	1,018.2489	0.3115	0.0000	1,026.0367
Total	**0.5786**	**5.6863**	**5.6769**	**0.0116**		**0.2769**	**0.2769**		**0.2559**	**0.2559**	**0.0000**	**1,018.2489**	**1,018.2489**	**0.3115**	**0.0000**	**1,026.0367**

3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3260	0.2082	2.1689	8.5300e-003	0.9496	5.9200e-003	0.9555	0.2522	5.4500e-003	0.2576	0.0000	771.9641	771.9641	0.0152	0.0000	772.3451
Total	**0.3260**	**0.2082**	**2.1689**	**8.5300e-003**	**0.9496**	**5.9200e-003**	**0.9555**	**0.2522**	**5.4500e-003**	**0.2576**	**0.0000**	**771.9641**	**771.9641**	**0.0152**	**0.0000**	**772.3451**

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	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	0.0000

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.487920	0.030073	0.170877	0.112061	0.016651	0.005572	0.019337	0.146855	0.001612	0.001610	0.005760	0.000912	0.000759

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**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	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C. CARB 2020 AND 2025 ESTIMATED EMISSION INVENTORIES

2016 SIP Emission Projection Data

2020 Estimated Annual Average Emissions

MOJAVE DESERT AIR BASIN

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	9.7	1.4	12.0	27.8	1.3	9.9	4.7	2.6	0.2
WASTE DISPOSAL	36.3	0.5	0.1	0.1	0.0	61.6	17.9	1.8	1.8
CLEANING AND SURFACE COATINGS	14.2	9.8	0.0	0.0	-	0.8	0.8	0.8	-
PETROLEUM PRODUCTION AND MARKETING	17.7	6.2	0.0	0.0	-	0.0	0.0	0.0	-
INDUSTRIAL PROCESSES	2.3	2.0	18.3	47.7	10.7	71.5	36.8	14.8	0.1
*** TOTAL STATIONARY SOURCES**	**80.2**	**19.9**	**30.5**	**75.6**	**12.0**	**143.9**	**60.3**	**19.9**	**2.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	11.1	9.6	-	-	-	-	-	-	2.3
MISCELLANEOUS PROCESSES	38.8	5.8	24.7	2.0	0.1	142.5	76.3	14.6	13.4
*** TOTAL AREAWIDE SOURCES**	**49.8**	**15.4**	**24.7**	**2.0**	**0.1**	**142.5**	**76.3**	**14.6**	**15.7**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	10.6	9.6	70.7	31.3	0.2	3.0	2.9	1.3	1.4
OTHER MOBILE SOURCES	13.3	12.3	68.9	31.5	0.5	4.1	4.0	3.8	0.0
*** TOTAL MOBILE SOURCES**	**23.9**	**21.8**	**139.6**	**62.8**	**0.8**	**7.1**	**6.9**	**5.1**	**1.4**
GRAND TOTAL FOR MOJAVE DESERT AIR BASIN	**153.9**	**57.1**	**194.8**	**140.4**	**12.9**	**293.5**	**143.5**	**39.7**	**19.3**

Start a new query.

2016 SIP EMISSION PROJECTION DATA

2020 Estimated Annual Average Emissions

KERN COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

KERN COUNTY COUNTY - MOJAVE DESERT AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	0.5	0.1	0.8	2.4	0.2	0.4	0.4	0.4	0.0
WASTE DISPOSAL	8.4	0.1	0.0	-	0.0	0.0	0.0	0.0	0.1
CLEANING AND SURFACE COATINGS	0.9	0.8	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	0.1	0.1	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES	0.1	0.1	10.2	18.4	8.1	3.7	2.9	1.7	0.1
*** TOTAL STATIONARY SOURCES**	**10.2**	**1.3**	**11.0**	**20.8**	**8.3**	**4.1**	**3.3**	**2.1**	**0.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	1.6	1.4	-	-	-	-	-	-	1.3
MISCELLANEOUS PROCESSES	3.5	1.2	11.0	0.6	0.0	18.6	9.7	2.6	0.7
*** TOTAL AREAWIDE SOURCES**	**5.0**	**2.6**	**11.0**	**0.6**	**0.0**	**18.6**	**9.7**	**2.6**	**2.0**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	1.1	1.1	7.2	4.1	0.0	0.3	0.3	0.1	0.1
OTHER MOBILE SOURCES	5.0	4.9	23.8	5.5	0.3	3.0	2.9	2.9	0.0
*** TOTAL MOBILE SOURCES**	**6.2**	**5.9**	**31.0**	**9.6**	**0.3**	**3.3**	**3.2**	**3.0**	**0.1**
TOTAL KERN COUNTY IN MOJAVE DESERT	**21.4**	**9.8**	**53.0**	**31.0**	**8.6**	**26.0**	**16.2**	**7.7**	**2.3**

KERN COUNTY COUNTY - SAN JOAQUIN VALLEY AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	12.6	1.8	9.9	7.6	0.7	2.7	2.6	2.5	1.6
WASTE DISPOSAL	224.6	12.2	0.2	0.1	0.0	0.1	0.0	0.0	5.4
CLEANING AND SURFACE COATINGS	3.0	2.7	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	46.2	11.8	0.9	0.3	0.4	0.2	0.1	0.1	0.0
INDUSTRIAL PROCESSES	2.4	2.3	0.1	0.1	0.1	3.7	1.6	0.6	0.2
*** TOTAL STATIONARY SOURCES**	**288.8**	**30.7**	**11.1**	**8.0**	**1.1**	**6.7**	**4.4**	**3.3**	**7.2**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	10.9	10.0	-	-	-	-	-	-	26.5

2016 SIP EMISSION PROJECTION DATA

2025 Estimated Annual Average Emissions

MOJAVE DESERT AIR BASIN

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	11.8	1.6	13.8	31.6	1.4	10.8	5.1	2.7	0.2
WASTE DISPOSAL	39.9	0.5	0.1	0.1	0.1	70.8	20.6	2.1	2.0
CLEANING AND SURFACE COATINGS	17.0	11.7	0.0	0.0	-	1.0	1.0	0.9	-
PETROLEUM PRODUCTION AND MARKETING	17.3	5.9	0.0	0.0	-	0.0	0.0	0.0	-
INDUSTRIAL PROCESSES	2.5	2.1	19.8	51.7	11.5	77.0	39.7	16.1	0.2
*** TOTAL STATIONARY SOURCES**	**88.4**	**21.8**	**33.7**	**83.5**	**12.9**	**159.6**	**66.4**	**21.9**	**2.3**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	12.5	10.8	-	-	-	-	-	-	2.2
MISCELLANEOUS PROCESSES	39.0	5.9	24.9	2.0	0.1	152.4	81.3	15.5	13.7
*** TOTAL AREAWIDE SOURCES**	**51.5**	**16.7**	**24.9**	**2.0**	**0.1**	**152.4**	**81.3**	**15.5**	**15.9**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	8.1	7.4	49.4	17.4	0.2	3.2	3.1	1.3	1.3
OTHER MOBILE SOURCES	12.4	11.5	72.0	24.0	0.5	4.0	3.8	3.7	0.0
*** TOTAL MOBILE SOURCES**	**20.5**	**18.9**	**121.4**	**41.4**	**0.8**	**7.1**	**6.9**	**5.0**	**1.4**
GRAND TOTAL FOR MOJAVE DESERT AIR BASIN	**160.4**	**57.3**	**180.1**	**126.8**	**13.8**	**319.1**	**154.6**	**42.3**	**19.6**

Start a new query.

2016 SIP Emission Projection Data

2025 Estimated Annual Average Emissions

KERN COUNTY

All emissions are represented in Tons per Day and reflect the most current data provided to ARB.

See detailed information.

Start a new query.

KERN COUNTY COUNTY - MOJAVE DESERT AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	0.5	0.1	0.8	2.5	0.2	0.4	0.4	0.4	0.0
WASTE DISPOSAL	9.3	0.1	0.0	-	0.0	0.0	0.0	0.0	0.1
CLEANING AND SURFACE COATINGS	1.0	0.9	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	0.1	0.1	-	-	-	-	-	-	-
INDUSTRIAL PROCESSES	0.1	0.1	11.0	19.7	8.6	3.9	3.2	1.9	0.1
*** TOTAL STATIONARY SOURCES**	**11.1**	**1.4**	**11.8**	**22.2**	**8.8**	**4.4**	**3.5**	**2.2**	**0.1**
AREAWIDE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
SOLVENT EVAPORATION	1.7	1.5	-	-	-	-	-	-	1.3
MISCELLANEOUS PROCESSES	3.5	1.2	11.1	0.6	0.0	18.5	9.7	2.6	0.7
*** TOTAL AREAWIDE SOURCES**	**5.2**	**2.7**	**11.1**	**0.6**	**0.0**	**18.5**	**9.7**	**2.6**	**2.0**
MOBILE SOURCES	**TOG**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM10**	**PM2.5**	**NH3**
ON-ROAD MOTOR VEHICLES	0.9	0.8	5.0	2.3	0.0	0.3	0.3	0.1	0.1
OTHER MOBILE SOURCES	5.0	4.8	24.2	4.6	0.3	3.0	2.9	2.9	0.0
*** TOTAL MOBILE SOURCES**	**5.8**	**5.6**	**29.2**	**6.9**	**0.3**	**3.3**	**3.2**	**3.0**	**0.1**
TOTAL KERN COUNTY IN MOJAVE DESERT	**22.1**	**9.7**	**52.1**	**29.7**	**9.2**	**26.1**	**16.4**	**7.8**	**2.3**

KERN COUNTY COUNTY - SAN JOAQUIN VALLEY AIR BASIN

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION	12.4	1.7	9.6	7.2	0.6	2.6	2.5	2.4	1.7
WASTE DISPOSAL	247.0	13.4	0.2	0.1	0.0	0.1	0.0	0.0	6.0
CLEANING AND SURFACE COATINGS	3.3	3.0	-	-	-	0.0	0.0	0.0	-
PETROLEUM PRODUCTION AND MARKETING	45.0	10.8	0.8	0.3	0.4	0.2	0.1	0.1	0.0
INDUSTRIAL PROCESSES	2.6	2.4	0.1	0.1	0.1	4.0	1.7	0.6	0.2
*** TOTAL STATIONARY SOURCES**	**310.3**	**31.3**	**10.7**	**7.6**	**1.1**	**6.9**	**4.4**	**3.2**	**7.8**

APPENDIX D. HEALTH RISK ASSESSMENT MODELING FILES

(Electronic Files)

Appendix C

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District Amicus Curiae Brief

Appendix

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs

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.

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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

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[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

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[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.

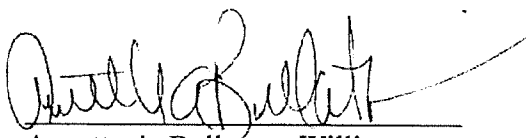
Rule 8.520 Disclosure

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



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SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

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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.

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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 (NOx) 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 NOx 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 NOx 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 NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[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 (SOx) and NOx.[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 (NOx, SOx 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

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[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 (NOx, SOx 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

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[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 PM2.5 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"

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[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/currntrules/Rule2201041l.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/GAMAQI%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

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[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%20_August%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

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[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.

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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.)

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[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.

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[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

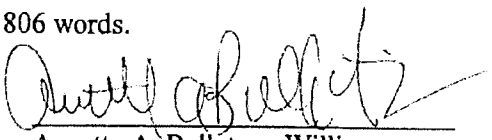
Catherine T. Redmond
Attorney for Proposed Amicus Curiae

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



Annette A. Ballatore-Williamson
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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 p[arty 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

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

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.

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*

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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
Barbara Baird
Attorneys for [proposed] Amicus Curiae
SOUTH COAST AIR QUALITY
MANAGEMENT DISTICT

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 Irritated 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

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[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

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[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 (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (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]

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[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.

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[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 Irritated 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 pollutants[5], 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.)

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[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*

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[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]

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[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.

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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.

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[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.

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[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

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[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]

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[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]

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[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]

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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.)

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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.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

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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

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Appendix D-1
Biological Analysis Report

BIOLOGICAL ANALYSIS REPORT

GOLDEN FIELDS SOLAR IV, LLC, A SUBSIDIARY OF CLEARWAY ENERGY GROUP, LLC

ROSAMOND SOUTH SOLAR PROJECT

OCTOBER 2021

BIOLOGICAL ANALYSIS REPORT

ROSAMOND SOUTH SOLAR PROJECT

Prepared for:

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October 2021

Project #190351

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ACRONYMS AND ABBREVIATIONS

BAR	Biological Analysis Report
BIOS	Biogeography Information and Observation System
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWHR	California Wildlife Habitat Relationships
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
RWQCB	Regional Water Quality Control Board
SBBM	San Bernardino Base and Meridian
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

This Biological Analysis Report (BAR) evaluates the potential for sensitive biological resources to be impacted by the proposed Rosamond South Solar Project (Project). The Project consists of 165MW photovoltaic energy generating facilities, 245 MW of battery storage, and associated infrastructure, to be constructed on approximately 1,292 acres of undeveloped land in the Antelope Valley of the western Mojave Desert, Kern County, California.

Database reviews were conducted to determine the potential for special-status species and other sensitive biological resources to occur on-site that may be impacted by the Project. These reviews resulted in 20 plant species and 30 wildlife species having the potential to be on or near the Project. Based on these database reviews, reconnaissance and floristic surveys conducted by QK in 2020 and 2021, and environmental conditions such as soil type, elevation, historical range, and other factors, it was determined that five special-status plant species have the potential to occur onsite: alkali mariposa lily (*Calochortus striatus*), Joshua tree (*Yucca brevifolia*), Lemmon's jeweflower (*Caulanthus lemmonii*), Clokey's cryptantha (*Cryptantha clokeyi*), and recurved larkspur (*Delphinium recurvatum*).

Based on the database reviews and QK field surveys, it was determined that eight special-status wildlife species have the potential to occur onsite: western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), desert kit fox (*Vulpes macrotis arsipus*), northern legless lizard (*Anniella pulchra*), desert tortoise (*Gopherus agassizii*), American badger (*Taxidea taxus*) and LeConte's thrasher (*Toxostoma lecontei*). Nesting migratory birds have the potential to occur within and near the Project.

QK biologists conducted general reconnaissance surveys in 2020 and 2021. These surveys were conducted to document site conditions, evaluate biological resources on-site, and determine the suitability of the existing habitat to support special-status plant and wildlife species. QK biologists conducted floristic surveys in March through June in both 2020 and 2021. A Joshua Tree census survey was conducted in 2021.

Based on 2020-2021 field surveys, two special-status plant species, alkali mariposa lily, and Joshua tree were present within the biological survey area (BSA). Four special-status wildlife species were present within the BSA: western burrowing owl, Swainson's hawk; loggerhead shrike; and desert kit fox. A total of 12 active nests (common raven (*Corvus corax*), burrowing owl, mourning dove (*Zenaida macroura*), cactus wren (*Campylorhynchus brunneicapillus*), Eurasian collared dove (*Streptotopelia decaocto*), loggerhead shrike, horned lark (*Ermophila alpestris*), and 10 inactive nests were present within the BSA.

There is an intermittent riverine feature that runs through the Project footprint that may fall under the jurisdiction of the Regional Water Quality Control Board and/or the California Department of Fish and Wildlife.

Potential direct impacts to biological resources without implementation of avoidance and minimization measures could include direct injury to or mortality of individual special-status species and interference with normal wildlife behaviors. Potential indirect impacts without implementation of avoidance and minimization measures could include loss of foraging habitat. Nesting migratory birds may be impacted if Project construction activities occur during the nesting season. The Project is not expected to substantially impact and would not conflict with local policies or ordinances or conservation plans. Because of the presence of a potentially jurisdictional waterway, special-status plant, and wildlife species, avoidance and minimization measures are recommended, which, when implemented, would reduce Project impacts to biological resources.

SECTION 1 - INTRODUCTION

QK prepared this Biological Analysis Report (BAR) to evaluate the potential for sensitive biological resources to be impacted by the proposed Rosamond South Solar Project (Project). The Project, as proposed by Golden Fields Solar IV, LLC, a subsidiary of Clearway Energy Group, LLC, would include the installation of photovoltaic panels on approximately 1,292 acres of undeveloped land and installation of associated electrical generation (gen-tie) lines over approximately 29 miles.

1.1 - Project Location

The Project is in California's Antelope Valley in the Mojave Desert, on the southern border of Kern County, approximately six miles southwest of the town of Rosamond (Figure 1-1). It is approximately seven miles west of State Route 14, four miles north of Highway 138, and is just south of Rosamond Boulevard (Figure 1-2). The Tehachapi Mountain Range occurs north and west of the Project, while the Central Transverse Range is to the south and west.

The Project is within U.S. Geological Survey (USGS) Quadrangles *Fairmont Butte* and *Little Buttes* and is in portions of Sections 23 and 24, Township 9 North, Range 15 West, San Bernardino Base and Meridian (SBBM); Sections 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28, Township 9 North, Range 14 West, SBBM; and Sections 30 and 31 in Township 9 North, Range 13 West, SBBM.

1.2 - Project Description

The Project consists of constructing 165-MW photovoltaic energy generating facilities and 245 MW of battery storage on approximately 1,292 acres of undeveloped land. The Project consists of four separate CUP Areas, Area 1, Area 2, Area 3, and Area 4, that occur within three zone district maps (see Figure 1-2). These areas are non-contiguous and privately owned. Approximately 29 miles of gen-tie lines are under evaluation along existing rights-of-way, connecting the photovoltaic panels to the existing Southern California Edison Whirlwind Substation. Portions of the gen-tie routes generally run in a west to an east direction along Rosemond Boulevard, Holiday Avenue and/or Gaskell Avenue (Figure 1-2). Each site will be surrounded by a perimeter fence that will be wildlife-friendly, allowing for the passage of wildlife into and through the sites.

1.3 - Purpose, Goals, and Objectives

The purpose of this BAR is to identify sensitive biological resources occurring within the Project site, identify other sensitive resources that may occur on the site, determine how those resources may be impacted by construction, operation, and decommissioning of the Project, and recommend avoidance, minimization, and mitigation measures to reduce potential impacts to a less than significant level. This BAR has been prepared to support an analysis of biological conditions and Project impacts as required by the California Environmental Quality Act (CEQA) and, if needed, to support regulatory permit applications.

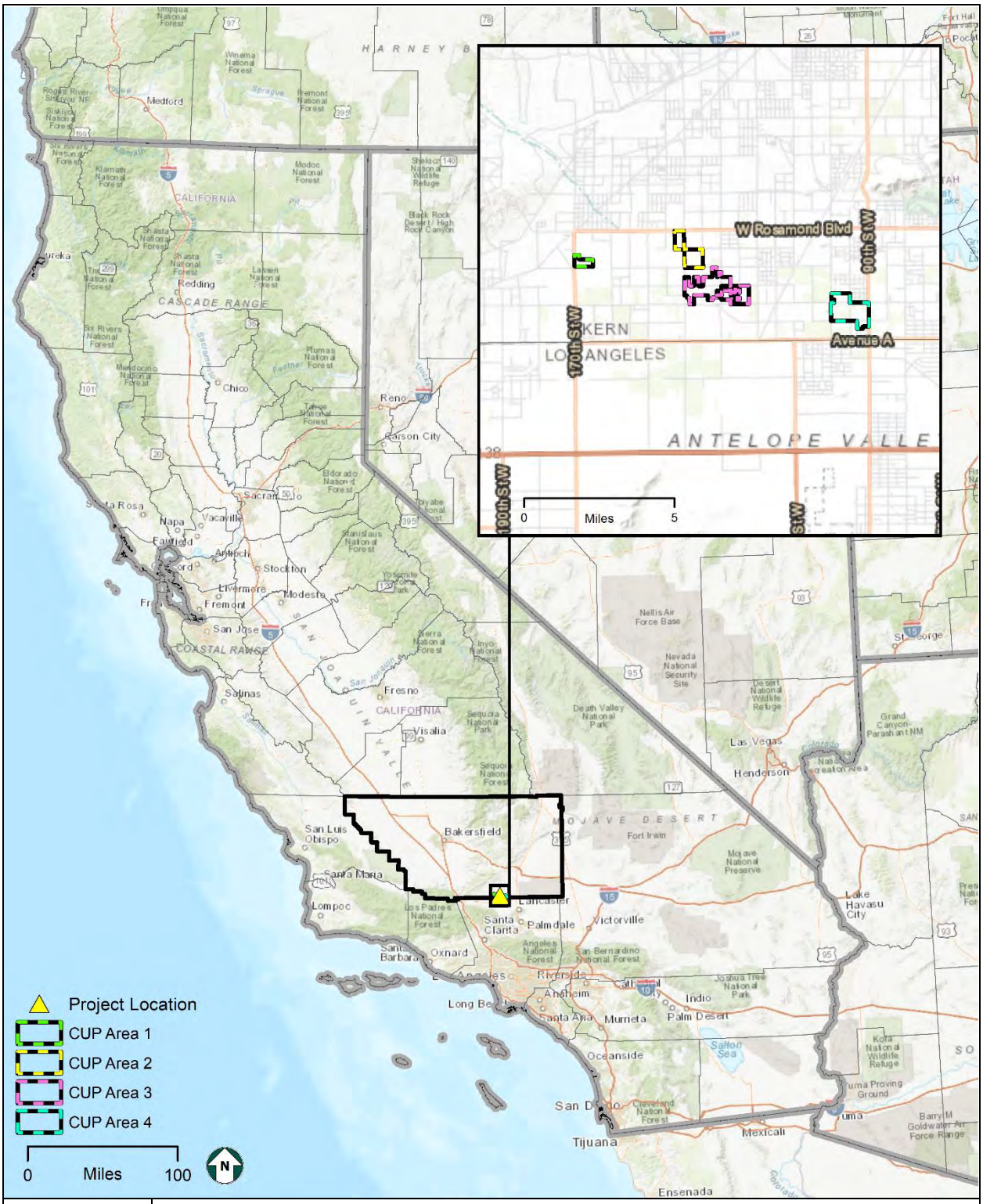

Figure 1-1
Regional Map
Rosamond South Solar Project
Kern County, California

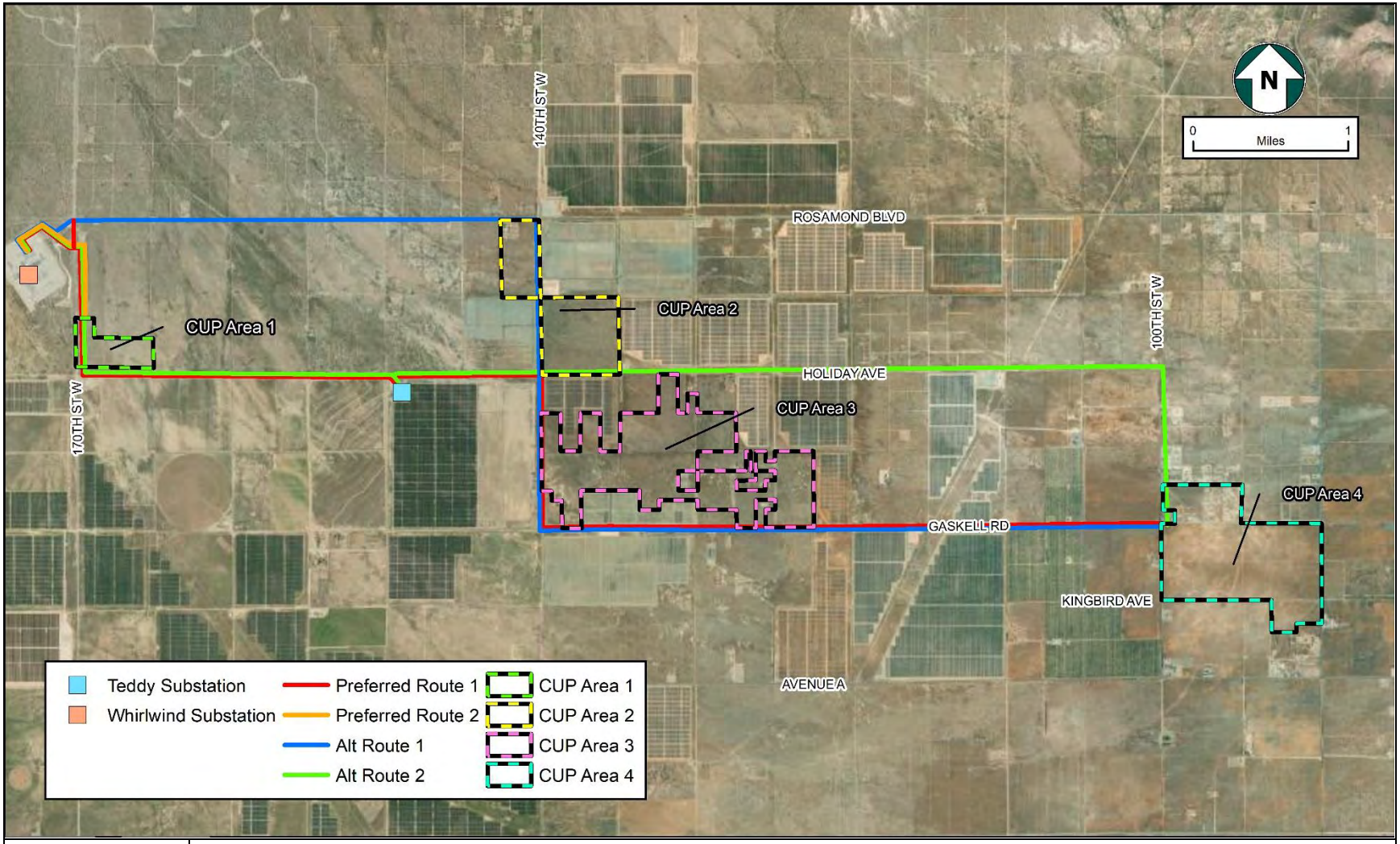

Figure 1-2
Project Location Map
Rosamond South Solar Project
Kern County, California

SECTION 2 - METHODS

2.1 - Definition of Biological Study Area

The Biological Study Area (BSA) used for this BAR includes everything within the limits of the Project boundaries and within a 250-foot buffer and a 0.5-mile buffer for Swainson's hawk nest sites (see Figures 1-2 and 5-5 through 5-7).

2.2 - Definition of Special-Status Species

For the purposes of this report, special-status species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the Project.
- Species listed as candidate, threatened, or endangered under the California Endangered Species Act (CESA).
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW).
- Other species included on the CDFW's Special Animals List.
- Plant species with a California Rare Plant Rank (CRPR) in categories 1 or 2.
- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy.

The potential for each special-status species to occur in the study area was evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the Project is clearly unsuitable to meet the needs of the species (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present.

- Potential. Conditions on the Project may, in some way, support a portion of the species ecology (foraging, reproduction, movement/migration). Negative survey results do not exclude the potential for a species to occur.

- Present. Species or diagnostic sign of the species was observed on the Project or has been recorded (e.g., databases, other reports) on the Project recently (within the last five years).

2.3 - Literature Review and Database Analysis

The following sources were reviewed for information on special-status biological resources in the project vicinity:

- CDFW's California Natural Diversity Database (CNDDB; CDFW 2021a; CDFW 2021b).
- CDFW's Biogeographic Information and Observation System (BIOS; CDFW 2021c).

- CDFW's California Wildlife Habitat Relationships (CWHR) System (Mayer and Laudenslayer 1988).
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2021).
- Calflora (Calflora 2021).
- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2021a).
- USFWS Critical Habitat Mapper (USFWS 2021b).
- USFWS National Wetlands Inventory (NWI; USFWS 2021c).
- United States Geological Survey (USGS) National Hydrography Dataset (NHD; USGS 2021).
- Federal Emergency Management Agency (FEMA) flood zone maps (FEMA 2021).
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2021a).
- NRCS Lists of Hydric Soils (NRCS 2021b).
- eBird Explore (ebird 2021).
- VertNet (VertNet 2021).
- Current and historical aerial imagery from Google Earth (Google LLC 2021).

The CNDDB query was focused on a 10-mile search radius surrounding the Project. For the remainder of the data sources, the searches were focused on the California USGS 7.5-minute quadrangles *Fairmont Butte* and *Little Buttes,* in which the Project is located, and also the surrounding ten quadrangles: *Neenach School, Liebre Twins, Tylerhorse Canyon, Willow Springs, Soledad Mountain, Rosamond, Lancaster West, Del Sur, Lake Hughes,* and *Burnt Peak*.

The CNDDB provides element-specific spatial information on individually documented occurrences of special-status species and sensitive natural communities. Some of the information available for review in the CNDDB is still undergoing review by the CDFW; these records are identified as unprocessed data. The CNPS database and Calflora provide similar information as the CNDDB but at a much lower spatial resolution. Much of the information in these databases is obtained opportunistically and is often focused on protected lands or on lands where development has been proposed. Neither database represents a comprehensive survey for special-status resources in the region. As such, the absence of recorded occurrences in these databases at any specific location does not preclude the possibility that a special-status resource may be present, which is why site-specific surveys were undertaken. The IPaC and CDFW's Special-status animals List provide only lists of species that could occur in the region, with no specific records of occurrence. The National Wetlands Inventory (NWI), National Hydrology Dataset (NHD), and Web Soil Survey provide comprehensive spatial data but at a low resolution that requires confirmation in the field.

The results of the database inquiries were reviewed to develop a comprehensive list of special-status resources that may be present within the vicinity of the Project (see Table A-1 in Appendix A). This list was then evaluated against existing conditions observed during the reconnaissance site visits and subsequent floristic surveys of the BSA to determine which

special-status resources have the potential to occur and then the potential for impacts to those resources as a result of the implementation of the Project.

2.4 - Biological Field Survey

A reconnaissance survey of the majority of the BSA was conducted in mid- to late-March 2020, mid-May 2020, and late January and early February 2021 by QK Biologists (Table 2-1). The survey consisted of walking meandering pedestrian transects spaced 50 to 100 feet apart throughout the entire Project footprint and a 250-foot buffer, mainly oriented north-south, where feasible. One hundred percent coverage of the Project footprint was achieved. Portions of the buffer fell on private property where access was not permitted, and these areas were visually surveyed with the aid of binoculars. On May 13, 2020, a survey was conducted within a half-mile of the solar panel areas, CUP Areas 1 through 4, to identify and record raptor nest locations.

Table 2-1
Biological Survey Personnel, Timing, and Conditions

Date	Area Surveyed	Personnel*	Time	Weather Conditions	Temperature
March 20, 2020	CUP Areas 2 and 3	EP, JH, KD, LS, SG	1020 -1535	Mostly cloudy, breezy	49 – 57°F
March 23, 2020	CUP Areas 1 and 4	EM, EP, JH, SG	0935 - 1545	Partly cloudy, windy	51 – 59°F
March 24, 2020	CUP Area 3	EM, EP, JH, SG	0930 - 1605	Partly cloudy, windy	55 – 58°F
March 30, 2020	CUP Area 3	EM, EP, JH, KD, SG	0935 – 1130	Clear, calm	55 – 68°F
May 13, 2020	CUP Area 3 and Gen-tie Routes	EM, EP, JH, KD, LS	0800 - 1430	Clear, windy	61– 71°F
May 18, 2020	CUP Areas 2 and 3	EP, JH, KD, LS, SG	0744 - 1400	Mostly cloudy, calm	66 – 72°F
January 27, 2021	CUP Areas 3 and 4	SG, EM, EP, SY	0930 - 1720	Cloudy, some rain, light wind	54 – 49°F
February 2, 2021	CUP Area 3	KD, LS, EP	0830 – 0930	Cloudy, some rain, light wind	54 – 49°F

* KD - Karissa Denney; SG - Shannon Gleason; JH - Julie Hausknecht; EM - Eric Madueno; EP - Erica Pena; LS - Laura Schneider

Tasks completed during the survey included developing an inventory of plant and animal species observed, characterizing vegetation associations and habitat conditions, assessing the potential for federally and State-listed special-status plant and animal species to occur on and near the Project, and assessing the potential for bat usage habitat, migratory bird and raptor nesting on and near the Project. All locational data were recorded using ESRI Collector for ArcGIS software installed on an iPad, and site conditions were documented with representative photographs.

2.5 - Focused Floristic Surveys

The Project is within the known distributional range of numerous special-status plants and provides habitat that could support some of these species. Six floristic surveys over two floristic seasons (2020 and 2021) were conducted over the four CUP Areas and along the gen-tie lines to coincide with the variable blooming periods of special-status plant species with the potential to occur within the BSA. Table 2-2 summarizes the floristic survey dates and associated information.

Table 2-2
Floristics Survey Personnel, Timing, and Conditions

Date	CUP Area Surveyed	Personnel*	Time	Weather Conditions	Temperature
Early Spring 2020 Survey					
March 31, 2020	2 & 3	EP, KD, LS, SG	0920 - 1535	Hazy, breezy	52 – 77°F
April 1, 2020	3	EP, JH, SG	0950 - 1500	Clear, breezy	59 – 74°F
April 2, 2020	1 & 3	EM, EP, JH, LS, SG	0910 - 1545	Clear, windy	52 – 65°F
April 3, 2020	3 & 4	EM, EP, JH, KD, LS	0907 - 1453	Clear, windy	53 – 68°F
April 7, 2020	Gen-tie Routes	EM, EP, JH, KD, SG	0915 - 1400	Overcast, small showers, breezy	44 – 54°F
April 13, 2020	Gen-tie Routes	EP, JH, KD, SG	0925 - 1450	Partly cloudy, breezy	62 – 68°F
Late Spring 2020 Survey					
May 8, 2020	4	EP, KD, LS	0930 - 1445	clear, calm	78 – 98°F
May 9, 2020	1 & 4	EP, KD, SG	0800 - 1250	clear, warm	75 – 93°F
May 11, 2020	3 & Gen-tie Routes	EP, JH, KD, SG	0800 - 1500	clear, windy	66 – 87°F
May 12, 2020	Gen-tie Routes	EP, KD, LS	0820 - 1445	clear, windy	62 – 73°F
May 13, 2020	3 & Gen-tie Routes	EP, JH, KD, LS	0800 - 1430	clear, windy	61– 71°F
May 14, 2020	2 & 3	EP, JH, KD	0800 - 1400	clear, windy	57 – 64°F
May 19, 2020	2 & 3	EP, JH, KD, LS, SG	0800 - 1430	partly cloudy, breezy	58 – 68°F
Summer 2020 Survey					
June 1, 2020	2 & 3	EP, KD, LS, SG	0820 - 1440	partly cloudy, calm	75 – 93°F
June 2, 2020	1, 3, & Gen-tie Route	EP, KD, LS, SG	0735 - 1345	partly cloudy, calm	68 – 92°F
June 3, 2020	4 & Gen-tie Route	EP, SG	0710 - 1345	clear, sunny	76 – 103°F
June 4, 2020	Gen-tie Route	EP, KD, LS, SG	0645 - 1155	clear, sunny	81 – 98°F
Early Spring 2021 Survey					
March 24, 2021	1, 2, 3 & Gen-tie Route	SG, CC, KD, LS	0810 - 1600	clear, partly cloudy (later in day)	40 - 65°F
March 25, 2021	2, 4 & Gen-tie Route	SG, CC, EP, EM	0740 - 1530	clear, windy, cloudy (in afternoon)	44 - 52°F

Date	CUP Area Surveyed	Personnel*	Time	Weather Conditions	Temperature
March 26, 2021	4 & Gen-tie Route	SG, CC, EP	0800 – 1600	cloudy, drizzly	50 - 71°F
March 29, 2021	4 & Gen-tie Route	SG, CC, EP, KD	0800 – 1525	clear, sunny	62 - 80°F
March 30, 2021	3	SG, CC, EP, LS	0830 – 1430	clear, sunny	66 - 78°F
April 1, 2021	3 & Gen-tie Route	SG, CC	0755 - 1415	partly cloudy	55 - 80°F
Late Spring 2021 Survey					
May 10, 2021	1, 2 & Gen-tie Route	SG, EP, EM, LK	0750 – 1635	clear, breezy	71 - 89°F
May 11, 2021	3 & Gen-tie Route	SG, EP, EM, LK, LS, CC	0755 – 1505	clear, sunny	71 - 93°F
May 12, 2021	2 & 4	EP, EM, LK, CC	0640 – 1330	clear, sunny	61 - 90°F
May 13, 2021	Gen-tie Routes	EP, KD, CC	0715 – 1310	clear, sunny	72 - 88°F
Summer 2021 Survey					
June 2, 2021	Gen-tie routes, 1	SG, CC, KD, EP	0623 – 1220	clear, sunny	82 – 104°F
June 3, 2021	4 & 2	SG, CC, LK, EM	0620 – 1200	clear, sunny	78 – 103°F
June 7, 2021	Gen-tie Route, 2	SG, EM, EP	0745 – 1510	cloudy, cool	79 – 87°F
June 8, 2021	3	KD, LK, EP, CC	0747 – 0245	cloudy, cool	61 – 83°F
June 9, 2021	3	SG, EM, EP	0740 – 1300	cloudy, cool	60 – 81°F

* CC- Courtney Chaney; KD- Karissa Denney; SG- Shannon Gleason; JH- Julie Hausknecht; LK- Lucas Knox; EM- Eric Madueno; EP- Erica Pena; LS- Laura Schneider

The Project was evaluated for the presence of special-status plant species using standard methods described in *Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). The surveys consisted of walking north-south meandering pedestrian transects spaced 30 to 100 feet apart over the entire Project and the 250-foot buffer, where feasible. One hundred percent coverage of the Project footprint was achieved. Portions of the buffer fell on private property where access was not permitted, and these areas were visually surveyed with the aid of binoculars. The intent of the surveys was to identify and record all plant communities and plant species. Any species that could not be identified were collected and placed in plastic bags and later identified using a dichotomous key (Baldwin et al., 2012). Special-status species were photographed, and their location was documented using ESRI Collector for ArcGIS installed on an iPad.

The early spring 2020 floristic survey was conducted by QK biologists over six days, from late March to mid-April. Weather conditions prevented surveying all five sites on consecutive days. Similarly, the late spring 2020 survey was conducted over seven days in early to mid-May. The summer 2020 survey was conducted during the first four days of June. The summer survey period required fewer hours to complete because most herbaceous plants were desiccated to the degree that they could not be identified, and the intent of the survey was to focus on living and blooming special-status plants.

Additional surveys were conducted in 2021. During the 2021 floristic survey season, all parcels and gen-tie routes were surveyed. There was a low amount of rainfall throughout the preceding winter and spring, and many annual plant species did not sprout or bloom in 2021. Skeletal remains of alkali mariposa lily were observed along the Holiday Avenue gen-tie route in 2021, but no living specimens were observed. QK's literature and database search, along with 2020 and 2021 floristic surveys, provide a comprehensive evaluation of the potential for special-status plant species within the BSA.

2.6 - Waters Delineation

Prior to conducting field investigations, a review of the National Wetlands Inventory (USFWS 2021c) was completed to determine the historic occurrence of known wetlands on the Project. The NWI is a collection of wetland and riparian maps that depict graphic representations of the type, size, and location of wetland, deepwater, and riparian habitats in the United States. The NWI maps were prepared through the analysis of high-altitude imagery, collateral data sources, and field work. Given that only one percent, on average, of the NWI is updated each year, its interpretation was accompanied by site-specific surveys. The National Hydrology Dataset (NHD) was referenced to evaluate the historical occurrence of blueline drainages within the Project (USGS 2021).

The database query indicated the presence of several aquatic resources in CUP Areas 2 and 3, which were delineated in the field on April 2, 2021, by QK environmental scientists and included in the Aquatic Resources Delineation Report (QK 2021). Aquatic resources were assessed using methodologies and diagnostic characteristics presented in the *1987 Army Corps of Engineers Wetland Delineation Manual*, the most recent version of the *Arid West Supplement* (Version 2.0), the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States,* and *Methods to Describe and Delineate Episodic Stream Processes on Arid-Landscapes for Permitting Utility-Scale Solar Power Plants: With the MESA Field Guide* (USACE 1987, USACE 2008a, USACE 2008b, Brady 2013).

SECTION 3 - REGULATORY SETTING

Regulated or sensitive resources that were studied and analyzed include special-status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement areas, and locally protected resources such as protected trees. Regulatory authority over biological resources is shared by federal, State, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the Kern County General Plan).

Regulation of biological resources on the site derives from the following list of statutes. Summaries of these statutes are provided in Appendix B. The significance of impacts to biological resources for purposes of CEQA was determined in the context of the Public Resources Code Sections 21000 et seq.

- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act (FESA)
- California Endangered Species Act (CESA)
- Federal Clean Water Act
- California Fish and Game Code (CFGC)
- Migratory Bird Treaty Act (MBTA)
- The Bald and Golden Eagle Protection Act
- Porter-Cologne Water Quality Control Act
- San Joaquin Valley Upland Species Recovery Plan
- Kern County General Plan
- Draft West Mojave Habitat Conservation Plan
- Desert Renewable Energy Conservation Plan
- California Desert Native Plants Act (CDNPA)

SECTION 4 - ENVIRONMENTAL SETTING

This section identifies the regional and local environmental setting of the Project and describes existing baseline conditions. The environmental setting of the BSA was obtained from various sources of literature, databases, and aerial photographs. Site conditions were verified and refined based on observations made during the biological surveys and focused floristic surveys described in Section 3.

4.1 - Physical Characteristics

The Project is situated on the western perimeter of the Mojave Desert, a region that is a mixture of desert habitat, solar arrays, agriculture, and urban development. Physical characteristics of the Project site are described below. Representative photographs of the Project are included in Appendix C.

4.1.1 - TOPOGRAPHY

The topography of the BSA is generally flat, although the terrain is slightly more variable where creosote bush scrub persists. The site slopes from northwest to southeast, with an elevation that ranges between 2,440 and 2,750 feet above mean sea level. The Tehachapi Mountain Range is approximately eight miles northwest of the Project, while the Central Transverse Range is approximately 10 miles to the southwest.

4.1.2 - CLIMATE

The region in which the Project is located is characterized by a typical desert climate, with hot, dry, windy summers and mild, relatively dry winters. Average high temperatures range from 57°F in December to 97°F in July, and it is not uncommon for temperatures to exceed 100°F during the summer (WRCC 2021). Average low temperatures range from 29°F in December to 66°F in July. Precipitation events are variable from year to year, with an average of 7.38 inches of rain falling mainly between December and March, although the region is known to experience sudden thunderstorms in the summer months.

4.1.3 - LAND USE

Currently, the Project footprint is mostly located on undeveloped land. Parcels on the eastern portion of the Project were previously used for agricultural purposes, although they have since been recolonized by ruderal vegetation. Dirt and paved roads run along the edges of many of the parcels and along the gen-tie routes. Southern California Edison's (SCE) Whirlwind Substation is located at the west end of the Project.

The land immediately surrounding the Project is mostly a mix of native and non-native vegetated habitat and existing solar array facilities. There are a few lots that were previously utilized for agriculture, although most of these were converted to solar array facilities in the 2010s (Google LLC 2021). Active construction for new solar array facilities was occurring on several parcels adjacent to the Project during site visits in 2020. Other existing or proposed

solar projects near the Project include the existing Antelope Valley Solar Project and Rosamond Central Solar Project and the proposed Raceway Solar Project, which are adjacent to the Project.

There are scattered residences in the vicinity of and adjacent to the Project. Rosamond, a census-designated place, shares its western border with the eastern end of the Project, although the majority of its population resides about 5.5 miles northeast of the Project. Off-highway vehicle use is a common recreational activity in the region.

4.1.4 - SOILS

The Project footprint, excluding the proposed gen-tie routes, are underlain by nine soil types: Hesperia loam, Hesperia fine sandy loam, Hesperia loamy fine sand, Rosamond loam, Rosamond fine sandy loam, Rosamond loamy fine sand, Rosamond silty clay loam, Sunrise loam, and Cajon loamy sand (Figures 4-1 through 4-3; NRCS 2021a). The soil types occurring within each Zone Map unit differ (Table 4-1).

Table 4-1
Soil Types Occurring Within Each Site in Each Zone Map Unit

Map Unit	CUP Area	Soil Type	Acreage
233	1	Hesperia loamy fine sand	14.70
		Hesperia fine sandy loam	56.31
232	2	Hesperia loamy fine sand	166.99
		Hesperia loam	10.05
		Hesperia fine sandy loam	61.27
	3	Hesperia loamy fine sand	287.70
		Hesperia fine sandy loam	54.37
		Rosamond loamy fine sand	0.69
		Sunrise sandy loam	1.86
		Cajon loamy sand	9.13
		Rosamond loam	73.24
		Rosamond fine sandy loam	90.05
231	4	Rosamond silty clay loam	5.77
		Rosamond loam	56.28
		Rosamond fine sandy loam	216.80
		Hesperia fine sandy loam	163.78

The Hesperia soil series consists of very deep, well-drained soils that are formed from granite and related rocks (NRCS 2021a). These soils are found on alluvial fans, valley plains, and stream terraces with slopes of up to nine percent, at elevations from 200 to 4,800 feet. Hesperia soils are distributed extensively in the lower San Joaquin Valley and the high desert of Southern California, and adjoining areas of the southwest. The series is found in areas with

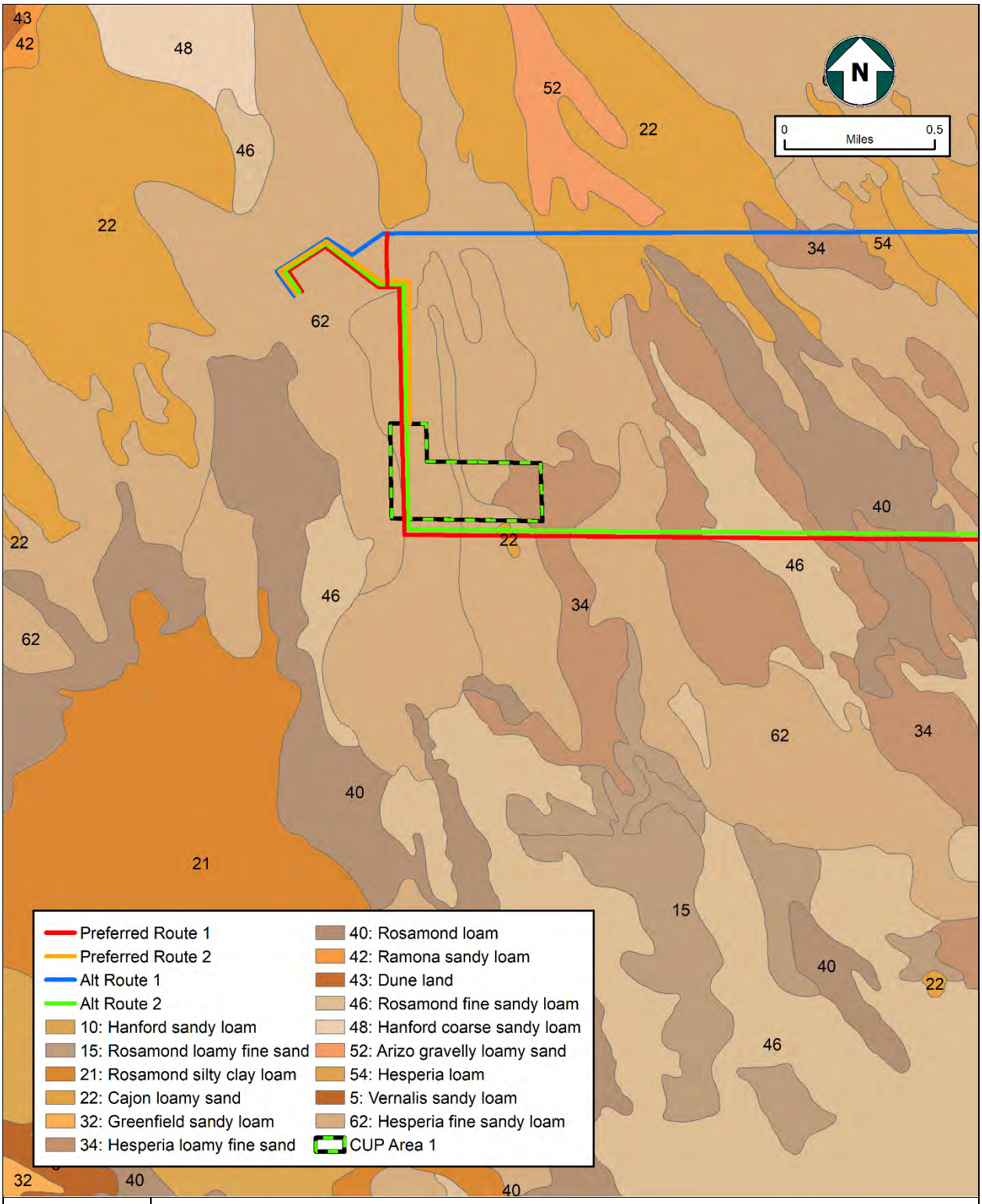

Figure 4-1
Soils within CUP Area 1 of the Rosamond South Solar Project
Kern County, California

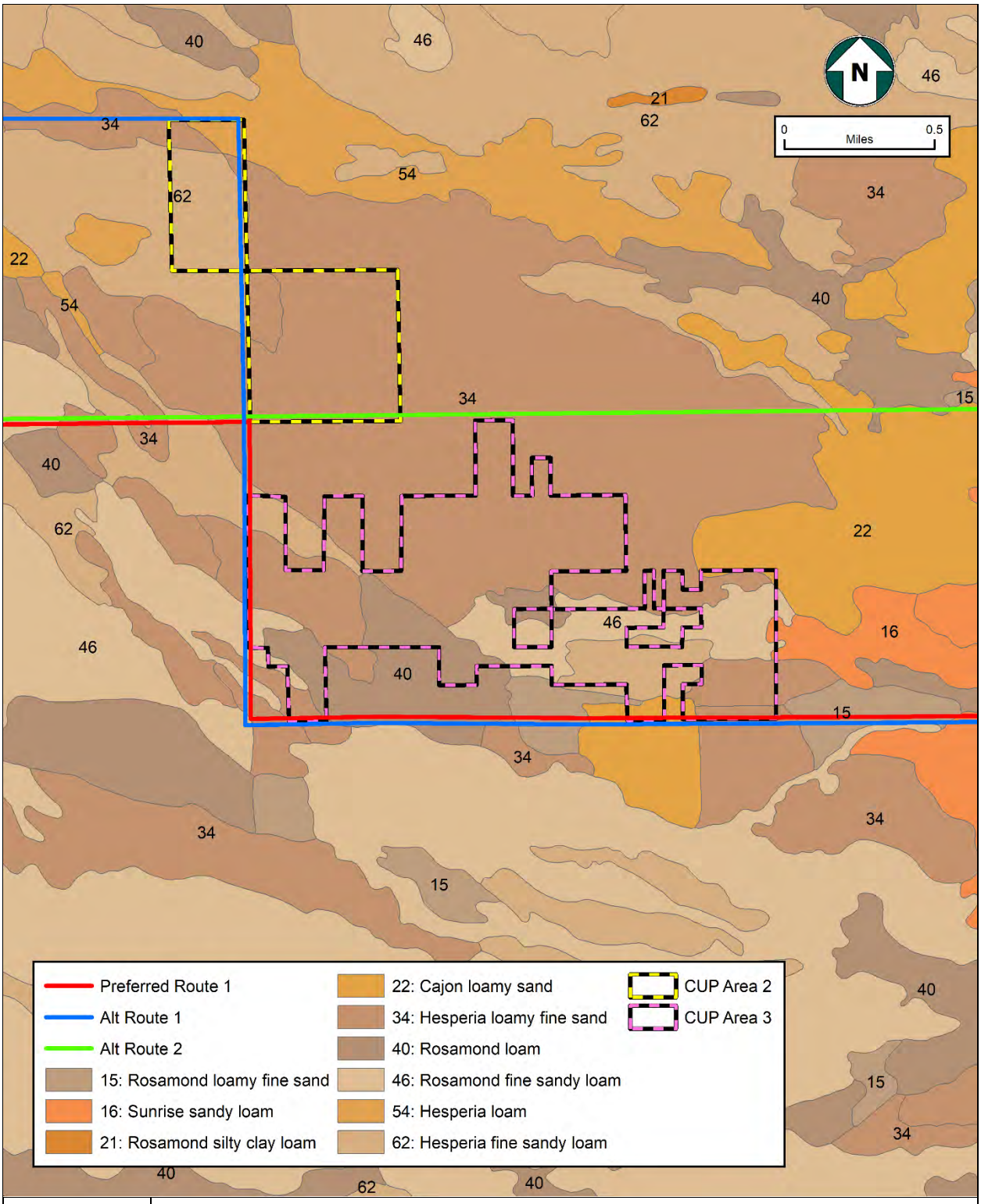

Figure 4-2
Soils within CUP Areas 2 and 3 of the
Rosamond South Solar Project
Kern County, California

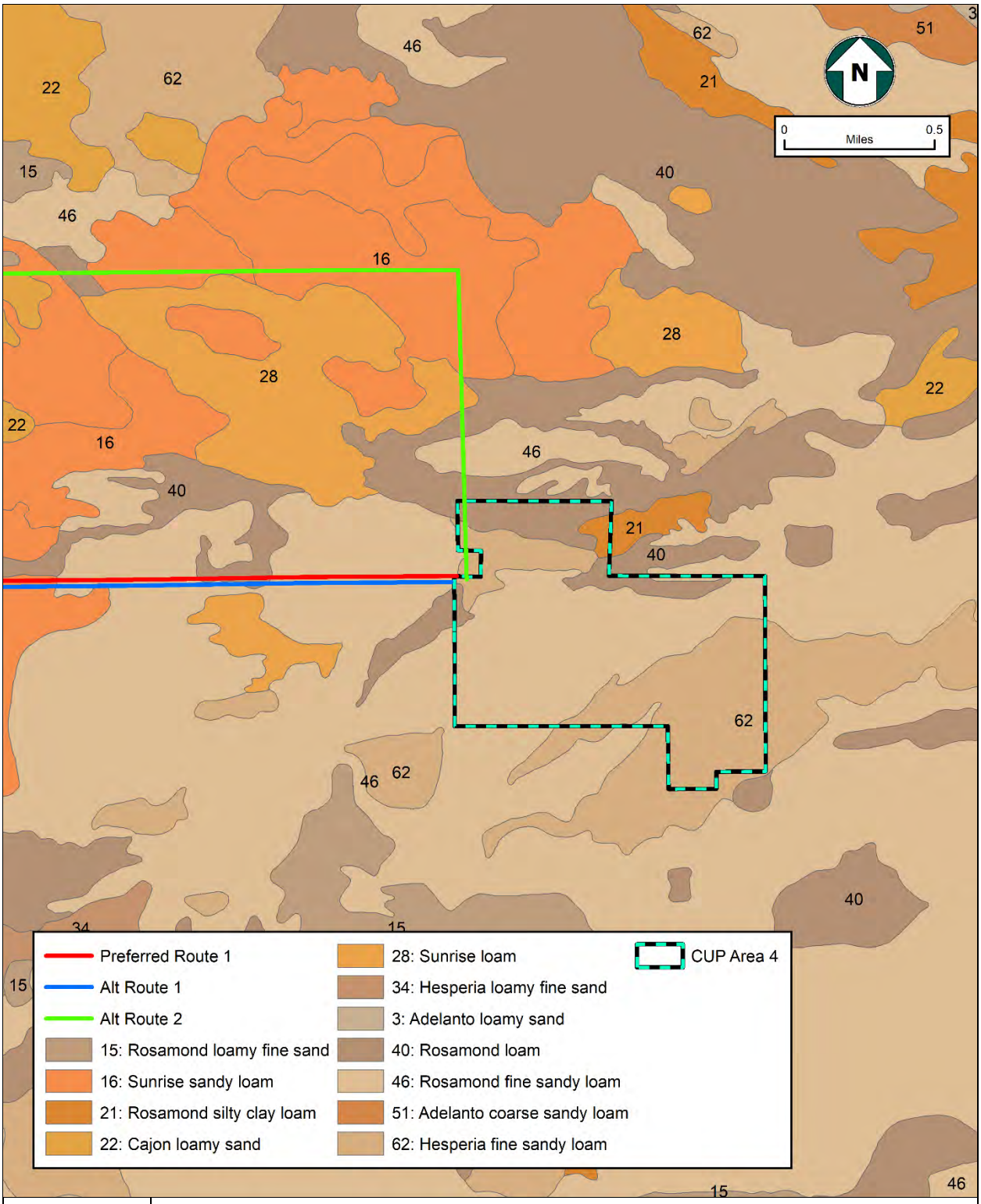

Figure 4-3
Soils within CUP Area 4 of the Rosamond South Solar Project
Kern County, California

a semiarid to arid climate, with somewhat rainy winters and infrequent summer thunderstorms. Mean annual precipitation is four to nine inches, and mean annual temperature is between 59 and 69°F. Rosamond soils are used for irrigated orchards, row crops, and vineyards, although they are often left as large tracts of desert habitat. Natural vegetation is typically creosote bush (*Larrea tridentata*) in the high desert and sparse annuals in the valley.

The Rosamond soil series consists of deep, well-drained soils that formed mainly from granitic alluvium (NRCS 2021a). These soils are found on the margins of alluvial fans on slopes less than two percent, at elevations between 2,200 and 2,900 feet. Rosamond soils are extensively distributed in the high desert of Los Angeles and adjacent counties. This series is found in areas with an arid climate, with winter rains and occasionally snow and infrequent summer thunderstorms. Annual precipitation is three to six inches, and mean annual temperature is between 61 and 65°F. Rosamond soils are used for irrigated and row crops like alfalfa, although they are often left as large tracts of desert habitat. Native vegetation is typically rabbitbrush (*Ericameria* sp.), big sagebrush (*Artemesia tridentata*), saltbush (*Atriplex* sp.), and some annual and perennial grasses and weeds.

The Sunrise soil series consists of deep, well-drained soils formed from mixed alluvium and is found on flood plains and basins on slopes up to nine percent (NRCS 2021a). These soils are not extensive and are found only in the high desert of the Mojave, at elevations between 1,500 and 3,500 feet. The Sunrise series is found in areas with an arid climate with hot, dry summers and mild, somewhat moist winters. Mean annual precipitation is three to eight inches, sometimes as snow, and mean annual temperature is between 61 and 65°F. Sunrise soils are used primarily for recreation and occasionally for sheep grazing. Natural vegetation is saltbush and creosote bush with scattered annual grasses.

The Cajon soil series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rock (NRCS 2021a). These soils are found on alluvial fans and river terraces with slopes of up to 15 percent, at elevations from 200 to 4,300 feet. Cajon soils are extensively distributed in southeastern California, southern Nevada, and Arizona. The series is found in areas with an arid climate with hot, dry summers and somewhat moist winters. Mean annual precipitation is two to nine inches, and mean annual temperature is between 57 and 70°F. Cajon soils are used mainly for rangeland, recreation, and watershed. Natural vegetation is desert shrubland, populated with creosote bush, saltbush, Mormon tea (*Ephedra* sp.), and Joshua trees (*Yucca brevifolia*), with Indian rice grass (*Stipa hymenoides*) and annual grasses and forbs.

All of the soils present, except for Cajon sandy loam, are listed as potentially hydric under Criterion 3 by the U.S. Department of Agriculture (USDA): map unit components that are frequently ponded for a long or very long duration during the growing season that a) based on the range of characteristics for the soil series, will at least in part meet one or more field indicators of hydric soils in the United States, or b) show evidence that the soil meets the definition of a hydric soil (NRCS 2021b). Cajon sandy loam may be considered hydric under Criteria 2 and 4 under certain conditions.

4.1.5 - HYDROLOGY

A query of the NHD and NWI databases indicated that several water features might be present in CUP Areas 2 and 3, and no water features are present in CUP Areas 1 and 4 (Figures 4-4 through 4-6; USGS 2020a, USFWS 2021c). These features were investigated by QK biologists and are discussed in Section 5.3.

The Project is in the Antelope Valley watershed, within the South Lahontan Hydrologic Region. The South Lahontan Hydrologic Region represents about 17 percent of the land (26,732 square miles) area in California. The region includes Inyo County and portions of Mono, San Bernardino, Kern, and Los Angeles counties. It is bounded to the north by the drainage divide between Mono Lake and East Walker River; to the west and south by the Sierra Nevada, San Gabriel, San Bernardino, and Tehachapi mountains; and to the east by the State of Nevada. In addition to the Sierra Nevada, important mountain ranges in the region include the White Mountains, the Avawatz Mountains, and the Argus and Coso ranges. The mountains are separated by many U-shaped alluvial valleys, some of which are quite large. Drainage for most of the watershed in the region is internal. Along with the arid climate, this accounts for the presence of many dry lakebeds or playas in the region. Major lakes and reservoirs within the region include Mono Lake, June Lake, Convict Lake, Crowley Lake, and Tinemaha Reservoir in the north and Lake Arrowhead, Silverwood Lake, and Lake Palmdale in the south. Most of the perennial rivers are in the northern portion of this hydrologic region. These include the Owens River and Rush Creek in the north. In the south, the Mojave and Amargosa rivers are present but typically dry for most of the year.

The Project site is almost entirely in an area of one percent Annual Chance Flood Hazard as designated by FEMA, and a small portion of the proposed gen-tie routes on the west side of the Project area is within an area of minimal flood hazard (FEMA 2021, Figure 4-7).

4.2 - Vegetation and Other Land Cover

Based on descriptions and the habitat classification system in the CWHR (Mayer and Laudenslayer 1998), six habitat types were present within the BSA. These included Annual Grassland, Desert Scrub, Alkali Desert Scrub, Barren, Urban, and Deciduous Orchard (Figures 4-8 through 4-10, Table 4-2). The most prevalent habitat type on the Project site was Annual Grassland, which covered approximately two-thirds of the Project footprint, and Desert Scrub, which covers most of the remaining habitat type. A complete list of plant species observed over the floristic surveys conducted in 2021 and is included in Appendix D.

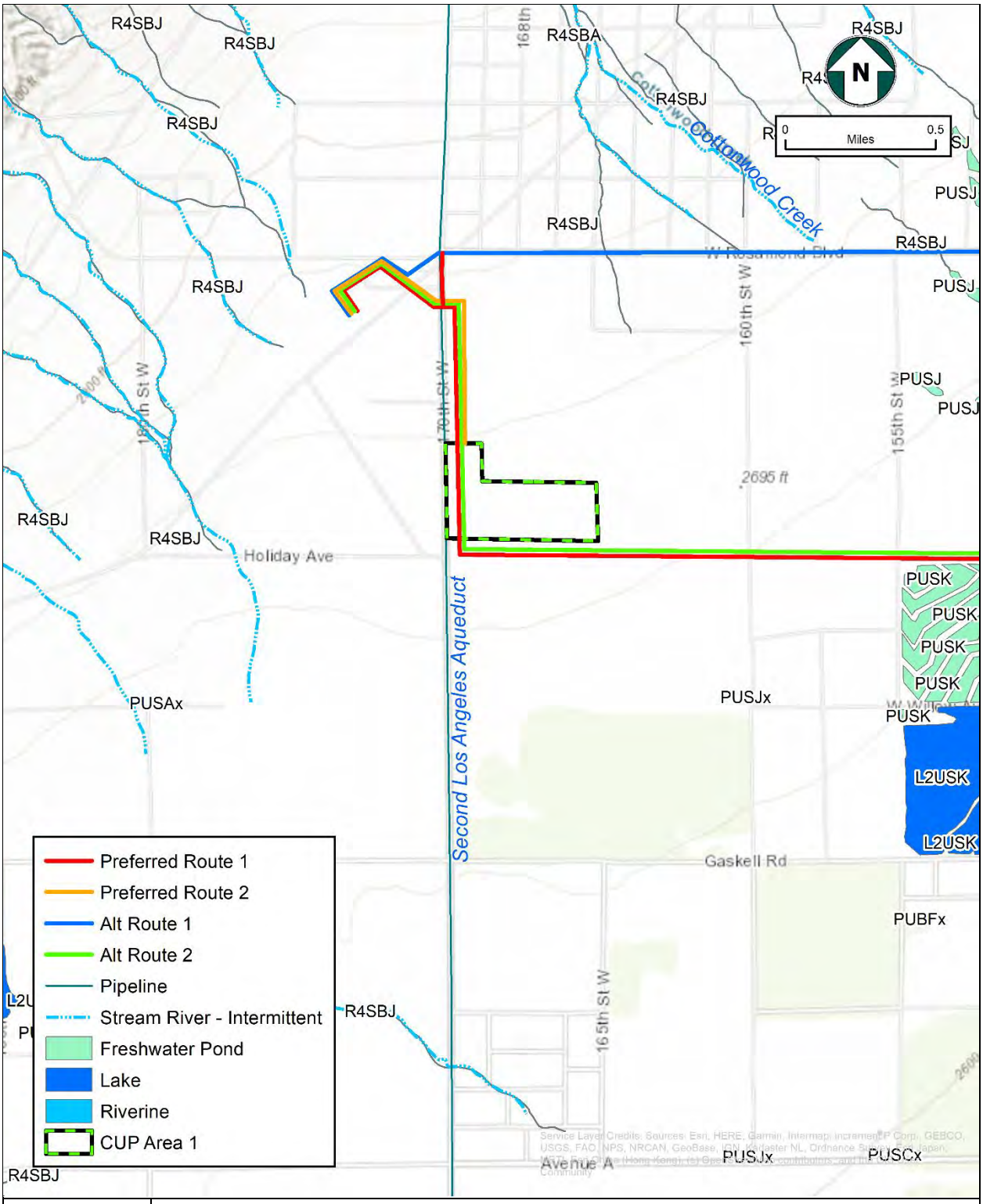

Figure 4-4
NWI and NHD Records of Aquatic Resources on CUP Area 1
Rosamond South Solar Project
Kern County, California

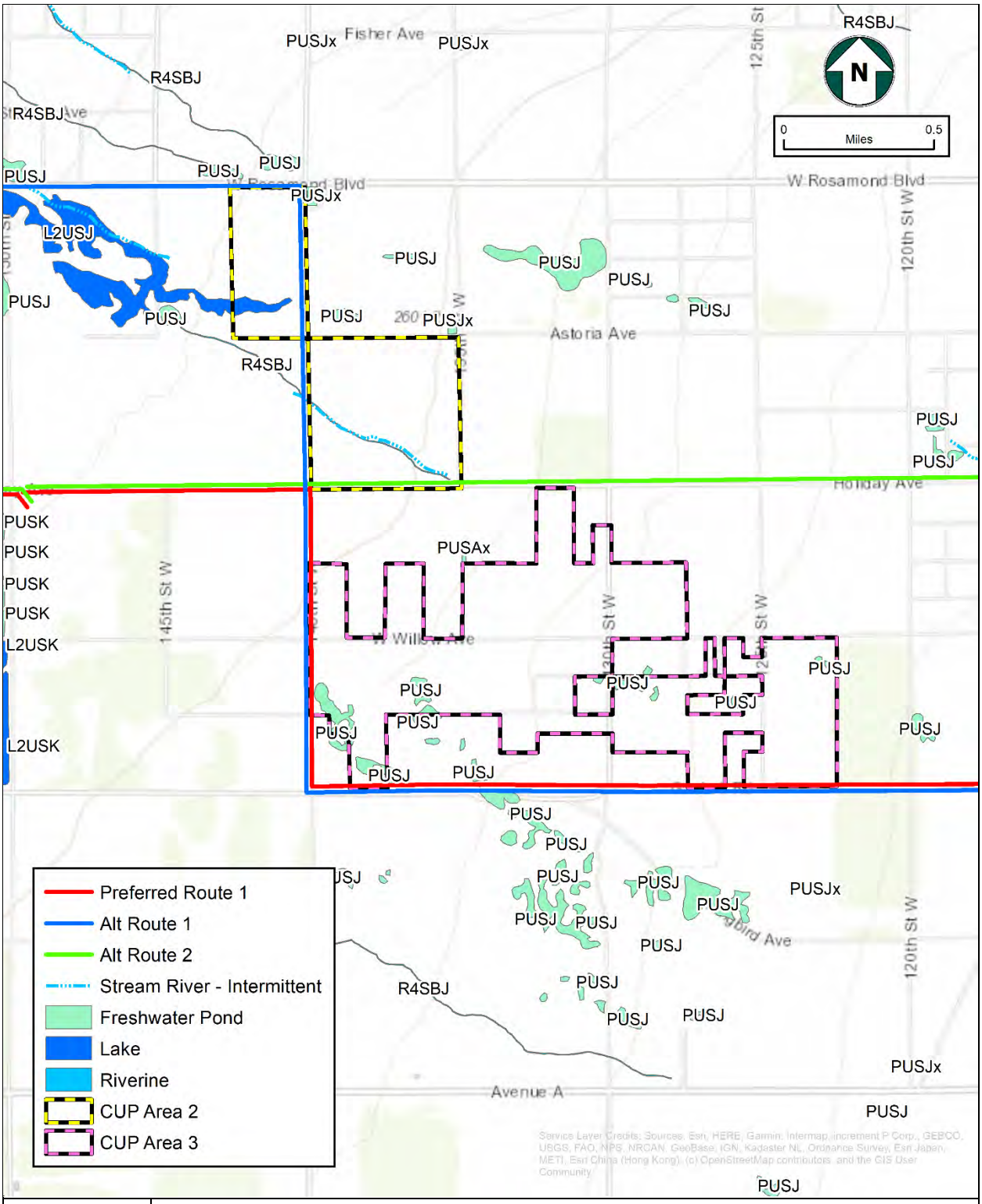

Figure 4-5
NWI and NHD Records of Aquatic Resources on CUP Areas 2 and 3
Rosamond South Solar Project
Kern County, California

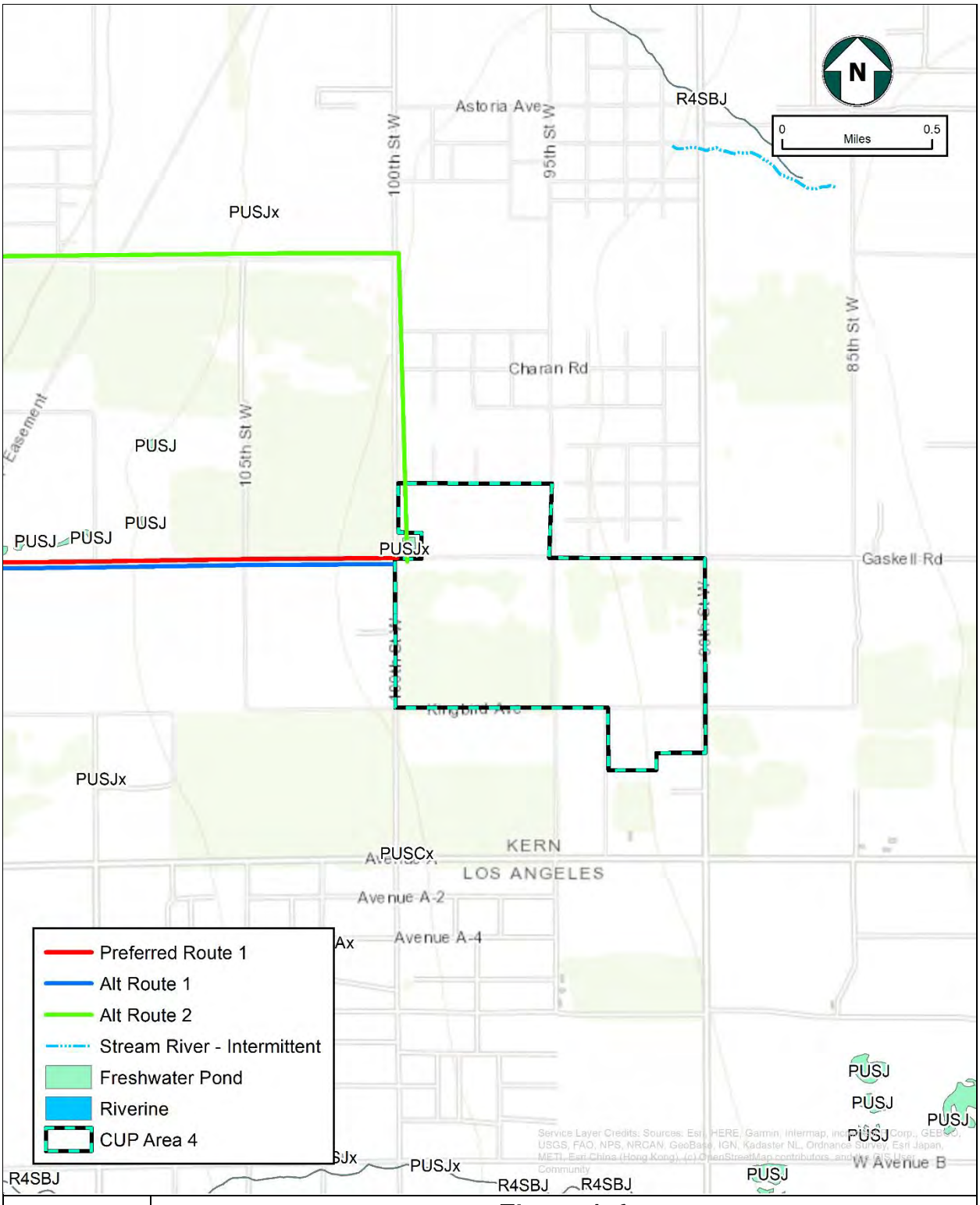

Figure 4-6
NWI and NHD Records of Aquatic Resources on CUP Area 4
Rosamond South Solar Project
Kern County, California

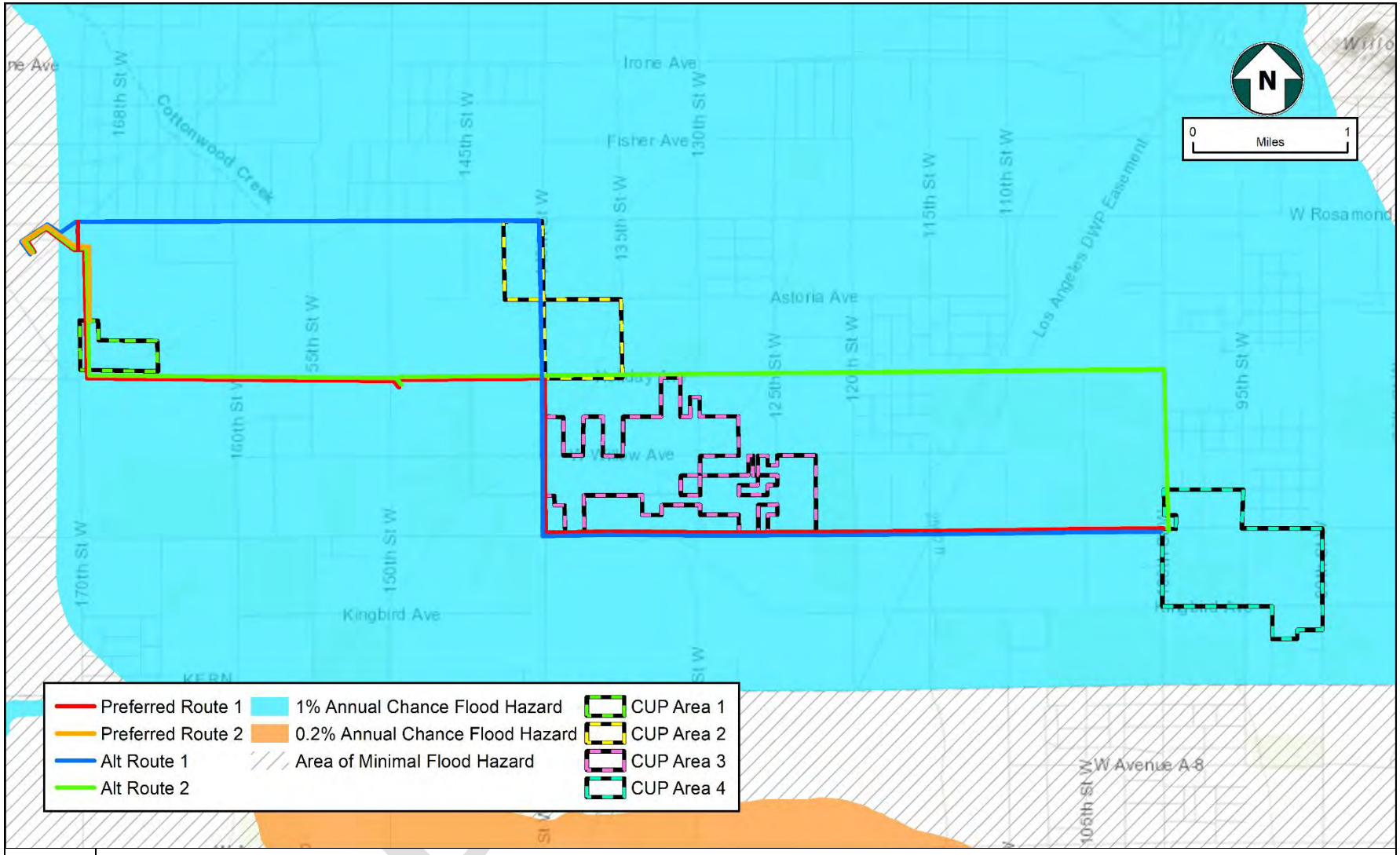

Figure 4-7
FEMA Map
Rosamond South Solar Project, Kern County, California

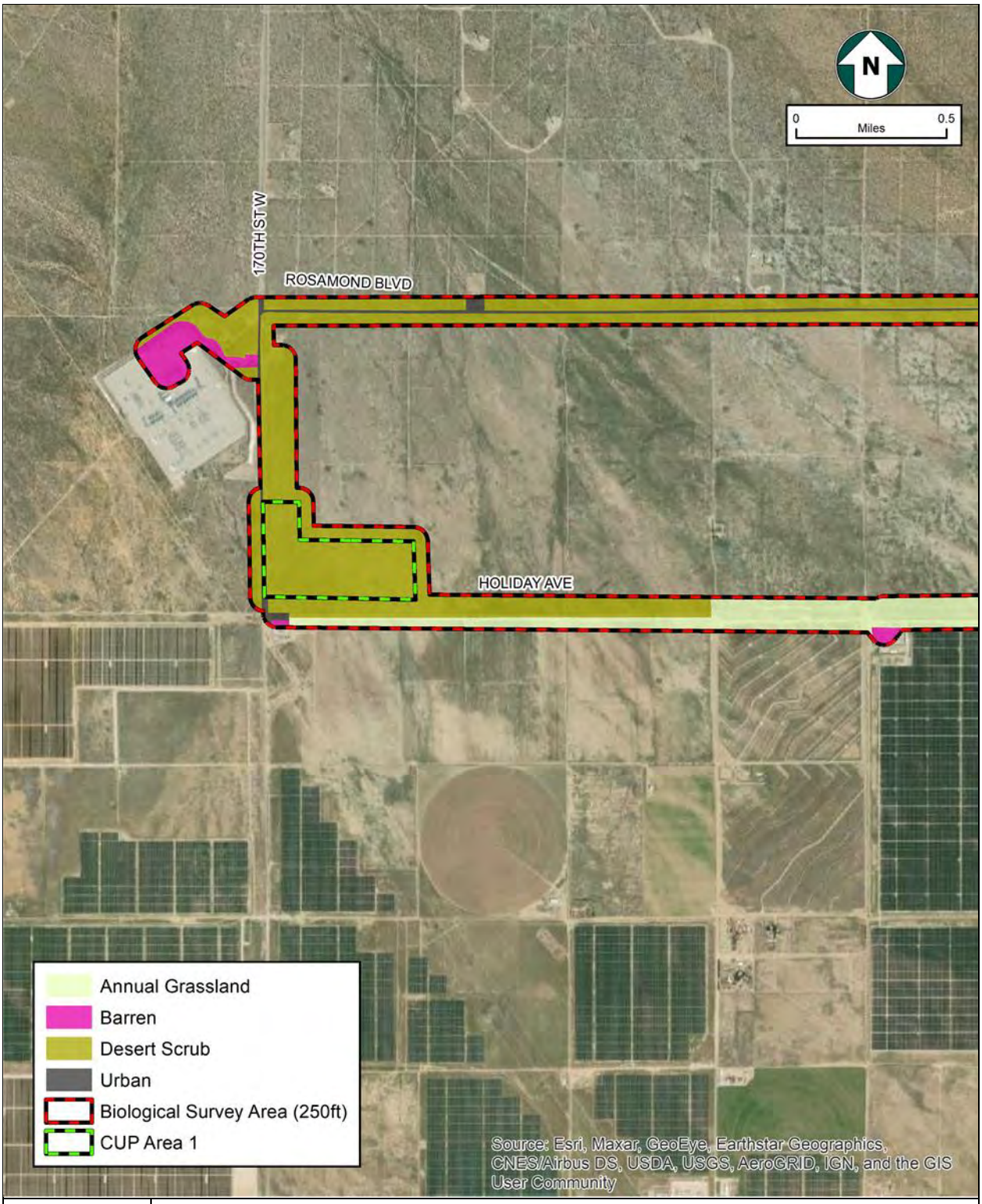

Figure 4-8
Vegetation Communities within the BSA
Rosamond South Solar Project
Kern County, California

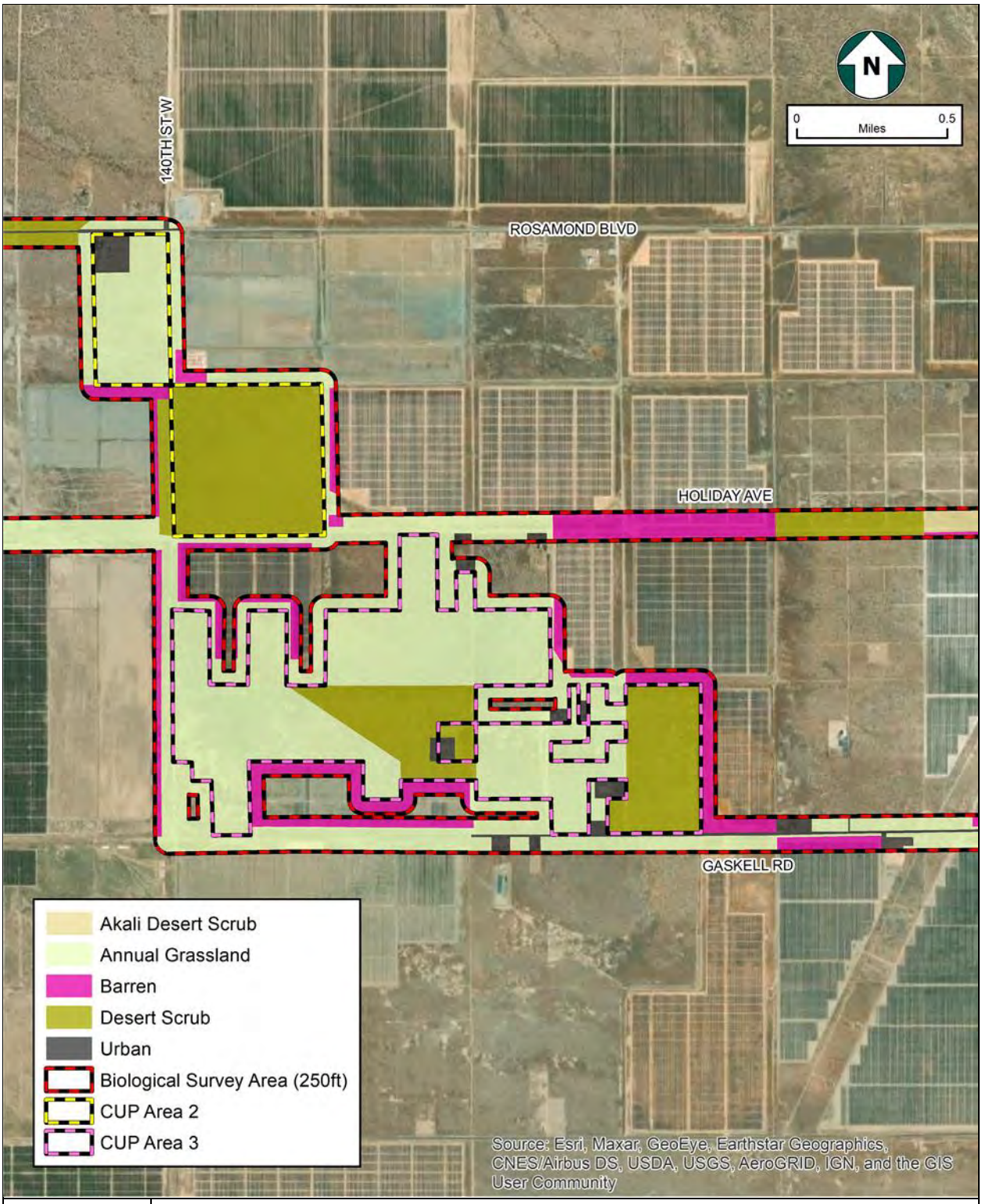

Figure 4-9
Vegetation Communities within the BSA
Rosamond South Solar Project
Kern County, California

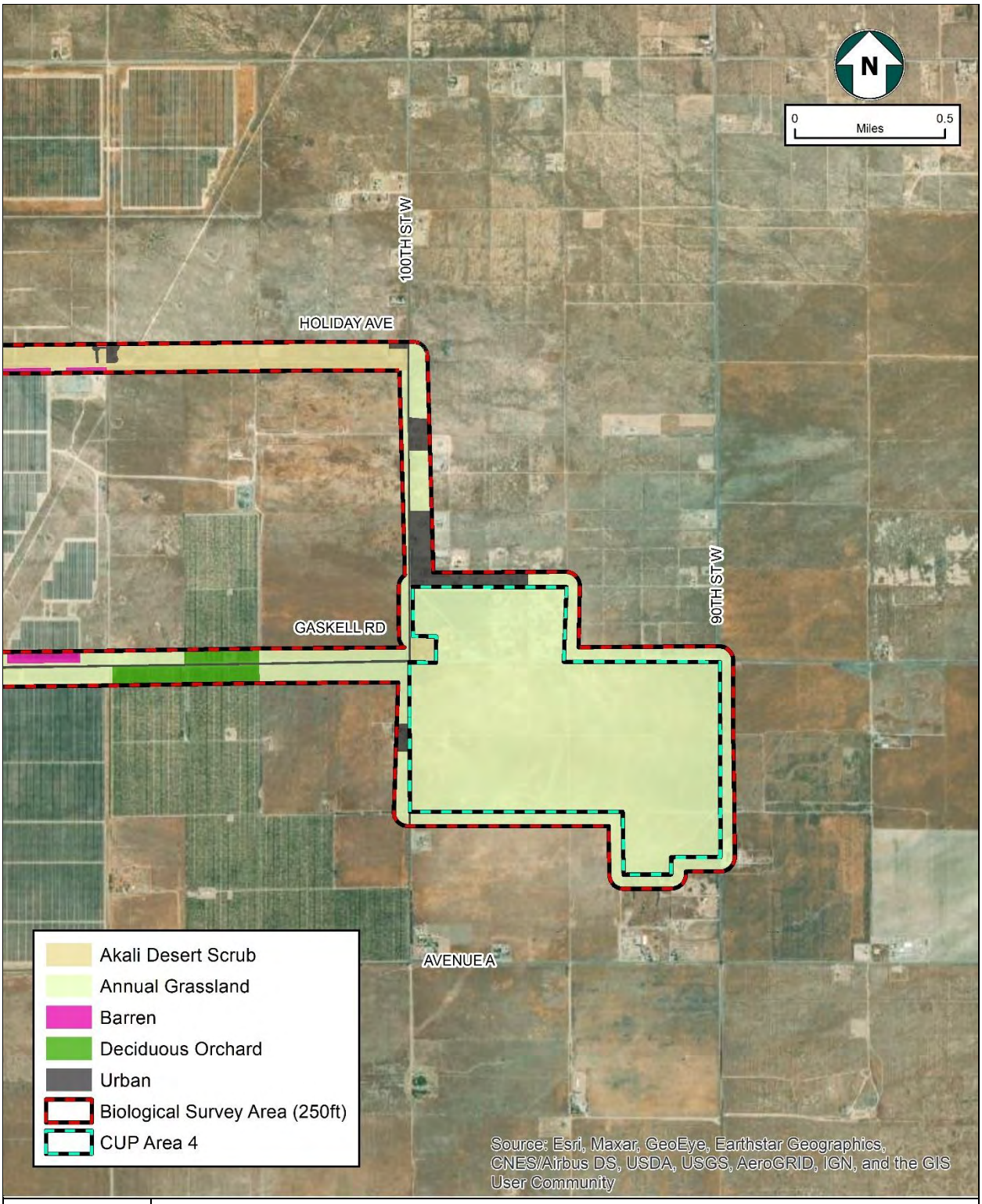

Figure 4-10
Vegetation Communities within the BSA
Rosamond South Solar Project
Kern County, California

Table 4-2
Habitat Acreages within the BSA and Project Footprint

Habitat Type	BSA*	Total Project Footprint	CUP Area 1	CUP Area 2	CUP Area 3	CUP Area 4
Annual Grassland	1618.07	896.40	0.0	70.07	380.92	445.41
Desert Scrub	742.77	384.35	71.03	160.70	152.62	0.0
Alkali Desert Scrub	87.53	0.0	0.0	0.0	0.0	0.0
Barren	238.77	0.0	0.0	0.0	0.0	0.0
Urban	118.29	11.28	0.0	9.87	1.41	0.0
Deciduous Orchard	26.62	0.0	0.0	0.0	0.0	0.0

*BSA acreages include habitat acreages within the buffer along the two preferred and two alternative gen-tie lines, along with Project footprint and the surrounding 250-foot buffer.

4.2.1 - ANNUAL GRASSLAND

Annual Grassland habitat is composed primarily of annual plant species, which also will occur as understory plants in some woodland and shrubland habitats. Structure is dependent largely on weather patterns and livestock grazing, and large quantities of dead organic material can accumulate in the summer months. Introduced annual grasses are generally the dominant plant species, but perennial grasses may also be present in this habitat. Many wildlife species use annual grassland habitat for foraging, but some require special habitat features such as cliffs, ponds, and woodlands for breeding and refuge. Characteristic species of annual grasslands include western fence lizard (*Sceloporus occidentalis*), Mojave green rattlesnake (*Crotalus scutulatus*), California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), turkey vulture (*Cathartes aura*), burrowing owl (*Athene cunicularia*), and horned lark (*Eremophila alpestris*).

Annual Grassland habitat was found on much of the BSA, especially on CUP Areas 3 and 4 (Figures 4-8 through 4-10). Annual Grassland was also present along the Holiday Avenue and Gaskell Road gen-tie routes. This habitat was not present on CUP Area 1 or along the Rosamond Boulevard gen-tie route. Non-native *Bromus* species were common; native grass species were rarely observed. Fiddleneck species (*Amsinckia tesselata* and *A. intermedia*) often competed for dominance with the non-native grasses. In some areas of the BSA, native shrubs such as rubber rabbitbrush (*Ericameria nauseosa*), creosote, and Joshua tree were scattered within the Annual Grassland habitat.

4.2.2 - DESERT SCRUB

In the western Mojave region, this shrub-dominated habitat typically consists of open, scattered assemblages of deciduous microphyll shrubs rarely exceeding 10 feet. Creosote bush is often a dominant species owing primarily to its tall stature rather than density. Other species occurring in this habitat include acacia (*Acacia* sp.), bladderpod (*Peritoma* sp.), brittlebush (*Encelia* sp.), cholla (*Cylindropuntia* sp.), and rubber rabbitbrush. This habitat supports a variety of wildlife species. Standing water in the winter and the growth of herbs in spring provide foraging areas and food for wildlife species, typically including Mojave green rattlesnake, desert tortoise (*Gopherus agassizii*), a variety of lizards and snakes

including the desert iguana (*Dipsosaurus dorsalis*), and common kingsnake (*Lampropeltis californiae*), black-throated sparrow (*Amphispiza bilineata*), various pocket mice and kangaroo rats (family Heteromyidae), desert kit fox (*Vulpes macrotis arsipus*), coyote, and bobcat (*Lynx rufus*). Soils are generally well-drained and coarse, and salt content in the soil ranges from low to high concentrations of calcium carbonate and other salts, forming a hardpan.

Desert Scrub habitat is found on much of the BSA, particularly in CUP Areas 1 through 3 and along proposed gen-tie routes (Figures 4-8 and 4-9). No Desert Scrub habitat was present on CUP Area 4. Desert Scrub habitat was present along portions of the Holiday Avenue and Rosamond Boulevard gen-tie routes.

Numerous perennial shrub species were present in this habitat type, including creosote, rubber rabbitbrush, cholla, Anderson thornbush (*Lycium andersonii*), Ephedra (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum*), and winterfat (*Krascheninnikovia lanata*). Joshua trees were also scattered throughout. Common understory species were fiddleneck, wildflowers like goldfields (*Lasthenia californica*) and blazing star (*Mentzelia veatchiana*), rattlesnake sandmat (*Euphorbia albomarginata*), non-native mustards and grasses, and some native grasses.

4.2.3 - ALKALI DESERT SCRUB

This habitat includes alkali scrub plant assemblages that can be subdivided into two phases: xerophytic and halophytic. Species composition in Alkali Desert Scrub habitats differs based on the two types of phases. Primary perennial plant species of the xerophytic phase include various species of shrubby saltbushes, especially allscale saltbush (*Atriplex polycarpa*), desert holly (*Atriplex hymenelytra*), fourwing saltbush (*A. canescens*), Nuttall's saltbush (*A. nuttalli*), and other species tolerant of alkali conditions. Primary perennial shrub and subshrub species of the halophytic phase include greasewood (*Sarcobatus* sp.), alkali goldenbush (*Isocoma acradenia*), and rubber rabbitbrush. Common wildlife species that inhabit Alkali Scrub habitats in the Mojave desert are the white-tailed antelope squirrel (*Ammospermophilus leucurus*), zebra-tailed lizard (*Callisaurus draconoides*), long-nosed leopard lizard (*Gambelia wislizenii*), black-tailed jackrabbit (*Lepus californicus*), coyote, and desert kit fox. Alkali Scrub vegetation occurs in California throughout the Mojave Desert, portions of the Colorado Desert, portions of northeastern California within the Great Basin, and in the southern San Joaquin Valley.

Alkali Desert Scrub occurs along the eastern end of the Holiday Avenue gen-tie route, a limited portion of the Gaskell gen-tie route, and within a remnant patch of Annual Grassland habitat on CUP Area 4 (Figures 4-9 and 4-10). Alkali Desert Scrub habitat was not present on CUP Areas 1, 2, or 3. Saltbush species occurred at a high density in this habitat (allscale saltbush and spiny saltbush [*A. confertifolia*]), with other scattered shrub species such as rubber rabbitbrush and Cooper's goldenbush (*Ericameria cooperi*). Understory species consisted mainly of non-native grasses, *Amsinckia* species, and red-stemmed filaree (*Erodium cicutarium*).

4.2.4 - BARREN

This non-vegetated habitat is defined by the absence of vegetation. Any habitat with <2 percent total vegetation cover by herbaceous, desert, or non-wildland species and <10 percent cover by tree or shrub species is defined this way. Barren habitat may be found in combination with many different habitats, depending on the region of the State. Where there is little or no vegetation, the structure of the non-vegetated substrate becomes a critical component of the habitat. Certain bird species nest on rock ledges and open ground covered with sand or gravel to construct scrape nests. Rocky canyon walls above open water are preferred foraging habitat for many bats. The physical settings for permanently barren habitat represent extreme environments for vegetation.

Barren habitat within the BSA is found in the buffer areas of CUP Areas 2 and 3, where solar facilities have been installed and in patches along the gen-tie routes. Still, this habitat type did not occur within the Project footprint (Figures 4-8 through 4-10).

4.2.5 - URBAN

Mayer and Laudenslayer (1988) describe urban habitat as a variable with five vegetative structures defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. These structures vary based on the associated urban development. Vegetation commonly associated with this habitat includes ornamental herbs (grass lawns, weeds, and flowers), shrubs, hedges, and trees, as well as ruderal species. Species composition within urban habitat varies with the type of ornamental plantings.

There are several rural residences within the BSA adjacent to CUP Areas 2, 3, and 4 and along the gen-tie routes (Figures 4-8 through 4-10). Vegetation within these urban areas consists mainly of non-native ornamental plant species, including larger trees like Siberian elm (*Ulmus pumila*), eucalyptus (*Eucalyptus* sp.), and various conifer species (*Pinus* sp.).

4.2.6 - DECIDUOUS ORCHARD

Deciduous orchards are typically monoculture operations with trees arranged in rows. Trees are spaced uniformly and trimmed to be low and bushy, so the fruit is reachable during harvest. Common species are almonds, apples, pomegranates, cherries, figs, plums, and pistachios. Trees range from 10 to 15 feet, with certain species being allowed to grow much higher. Some farmers allow grasses like rye or sorghum to grow between the rows, but mostly the rows are kept barren with small patches of non-native grasses and herbs scattered throughout. Small mammals are often found along orchard rows or adjacent to fence posts. Nests in orchard trees are uncommon, but birds may use orchards and vineyards for perching or hunting. Other animals may traverse these lands, but limited foraging, breeding, and sheltering occur here.

There is one deciduous orchard that intersects the BSA at the east end of the Gaskell Road gen-tie route (Figure 4-10). No deciduous orchard habitat is present on the CUP Areas or

along the other gen-tie routes. Non-native grasses and fiddleneck were present between the rows of planted pistachio trees (*Pistacio vera*).

4.3 - General Wildlife Observations

Wildlife occurring within the BSA was typical for partially undeveloped areas of the western Mojave Desert. Bird species included common raven (*Corvus corax*), turkey vulture (*Cathartes aura*), Swainson's hawk (*Buteo swainsoni*), mourning dove (*Zenaida macroura*), California quail (*Callipepla californica*), Bell's sparrow (*Artemesiopiza belli*), and horned lark (*Eremophila alpestris*). Mammal species included black-tailed jackrabbit, white-tailed antelope squirrel, desert kit fox, and kangaroo rat (*Dipodomys* sp.). Reptiles included common side-blotched lizard (*Uta stansburiana*), whiptail (*Aspidoscelis tigris*), desert spiny lizard (*Sceloporus magister*), and Mojave rattlesnake (*Crotalus scutulatus*). A complete list of wildlife observed is included in Appendix D.

SECTION 5 - SENSITIVE RESOURCES

Local, State, and federal agencies regulate special-status species and other sensitive biological resources and require an assessment of their presence or potential for presence to be on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed within the BSA and evaluates the potential for the Project to support other sensitive biological resources. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, IPaC, CNPS, eBird, and VertNet, species occurrence records from other sites in the vicinity of the survey area, and the results of the survey of the BSA.

5.1 - Special-Status Species

There were five special-status plant species and ten special-status animal species determined to have the potential to occur within the BSA and potentially be affected by the Project (Table 5-1). Each species is discussed in the subsections below. A complete list of species evaluated for this Project is included in Appendix A.

Table 5-1
Special-Status Species with Potential to Occur On-Site

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potential to Occur? Yes/No	Viability Threat? Yes/No
Plants			
Calochortus striatus alkali mariposa lily	-/- 1B.2/-	Yes	No
Caulanthus lemmoni Lemmon's jewelflower	-/- 1B.2/-	Yes	No
Cryptantha clokeyi Clokey's cryptantha	-/- 1B.2/-	Yes	No
Delphinium recurvatum recurved larkspur	-/- 1B.2/-	Yes	No
Yucca brevifolia Joshua tree	-/- -/-	Yes	No
Invertebrates			
Bombus crotchii *Crotch's bumblebee*	-/SC -/-	Yes	No
Reptiles			
Anniella pulchra northern legless lizard	-/- -/SSC	Yes	No
Gopherus agassizii desert tortoise	FT/ST -/-	Yes	No
Birds			
Athene cunicularia western burrowing owl	-/- -/SSC	Yes	No
Buteo swainsoni Swainson's hawk	-/ST -/-	Yes	No

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Potential to Occur? Yes/No	Viability Threat? Yes/No
Lanius ludovicianus loggerhead shrike	-/- -/SSC	Yes	No
Toxostoma lecontei LeConte's thrasher	-/- -/SSC	Yes	No
Mammals			
Corynorhinus townsendii Townsends's big-eared bat	-/- -/SSC	Yes	No
Taxidea taxus American badger	-/- -/SSC	Yes	No
Vulpes macrotis arsipus desert kit fox	-/- -/-	Yes	No

CRPR (California Rare Plant Rank:
1B Rare, Threatened, or Endangered in California and elsewhere
CRPR Threat Code Extension:
2 Fairly endangered in California (20-80% occurrences threatened)
FT Federally Threatened
ST State Threatened
SSC State Species of Special Concern

5.1.1 - SPECIAL-STATUS PLANT SPECIES

The literature and database review identified 20 special-status plant species known to occur or with potential to occur within the vicinity of the Project (see Appendix A). Five of these species have the potential to occur on-site (see Table 5-1) because the Project supports suitable habitat, because the BSA is located within the species' known range, and/or the species is documented in or near the BSA.

Alkali Mariposa Lily

CALOCHORTUS STRIATUS

Status: CRPR 1B.2

Alkali mariposa lily is a perennial bulbiferous herb with an erect stem 0.4 to 2.0 inches tall. Its flowers have three rounded petals, which may be slightly toothed. Each petal is 0.8 to 1.2 inches long and varies from light to very dark pink or purplish with darker pink or purple veining or mottling. The cup of the flower is somewhat hairy with anthers bright to dull pink; its pollen is pink. Each flower has pointed sepals around its base (Fiedler 2012). The alkali mariposa lily occurs in chaparral, chenopod scrub, Mojave Desert scrub, and meadows and seeps in alkaline and mesic soils at elevations between 200 and 5,300 feet. It blooms between April and June (CNPS 2021). In California, it occurs in the Sierra Nevada foothills and the western Mojave Desert, including Kern, Inyo, Tulare, Los Angeles, and San Bernardino Counties (CNPS 2021).

The nearest recorded CNDDB occurrence (EONDX 110362) is from 2016 and overlaps the Holiday Road gen-tie route west of its intersection with 100th Street (CDFW 2021a). The extent of this population was mapped within Alkali Desert Scrub habitat during the QK 2020

floristic surveys. There were approximately 1,425 individuals within this population occurring along the eastern end of Holiday Avenue gen-tie route. Figure 5-1 depicts three alkali mariposa lily clusters identified as Clusters A, B, and C. Cluster A had approximately 1,000 individuals, cluster B had approximately 270 individuals, and cluster C had approximately 54 individuals. These clusters combined with the 101 individual plant observations result in approximately 1,425 plants that occur along the Holiday Avenue gen-tie route. In addition to this population, one lone specimen was present within the Annual Grassland habitat, in CUP Area 4, southeast of the larger population (Figure 5-1). New occurrences of this species were not observed during QK's 2021 floristic surveys.

Other areas that could support the species are CUP Area 1 and the southern portion of CUP Area 2 and scattered undisturbed areas on CUP Area 3. These patches in CUP Area 3 are least likely to support this species due to disturbed habitat conditions.

Lemmon's Jewelflower

CAULANTHUS LEMMONII

Status: CRPR 1B.2

Lemmon's jewelflower is an annual herb in the Brassicaceae (mustard) family (CNPS 2021). This species is typically found in pinyon and juniper woodland and valley and foothill grasslands within Alameda, Fresno, Kings, Kern, Merced, Monterey, Santa Barbara, San Benito, San Joaquin, San Luis Obispo, Stanislaus, and Ventura Counties. It is less commonly found in Mojave Desert creosote scrub and San Joaquin Valley grasslands. It has been documented within several U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles within the 12 recorded counties. Lemon's jewelflower is found at elevations ranging from 262 to 5,183 feet and blooms between February and May (CNPS 2021).

There are no CNDDB records within 10 miles of the Project. However, QK biologists observed this species in 2017, near Oak Creek, approximately seven miles north of the Project, during a botanical survey for the AV Apollo Solar Project. Although the species was not found during the on-site surveys conducted in 2020, there is suitable habitat for the species in the Desert Scrub habitat within the BSA, and this species has the potential to occur. This species was not found but is most likely to occur within Desert Scrub habitat on CUP Areas 1 and 2 and the eastern portion of CUP Area 3, where the habitat has not been previously disturbed.

Clokey's Cryptantha

CRYPTANTHA CLOKEYI

Status: CRPR 1B.2

Clokey's cryptantha is an annual herb that grows to a height between 8 and 30 centimeters, with branched stems with rough hairs. Leaves are short and linear, and flowers are small and white. It is found in Mojavean Desert Scrub habitats, is endemic to California, and has been documented in Inyo, Kern, Los Angeles, and San Bernardino counties (CNPS 2021). It blooms in April and is found at elevations between 2,375 and 4,475 feet.

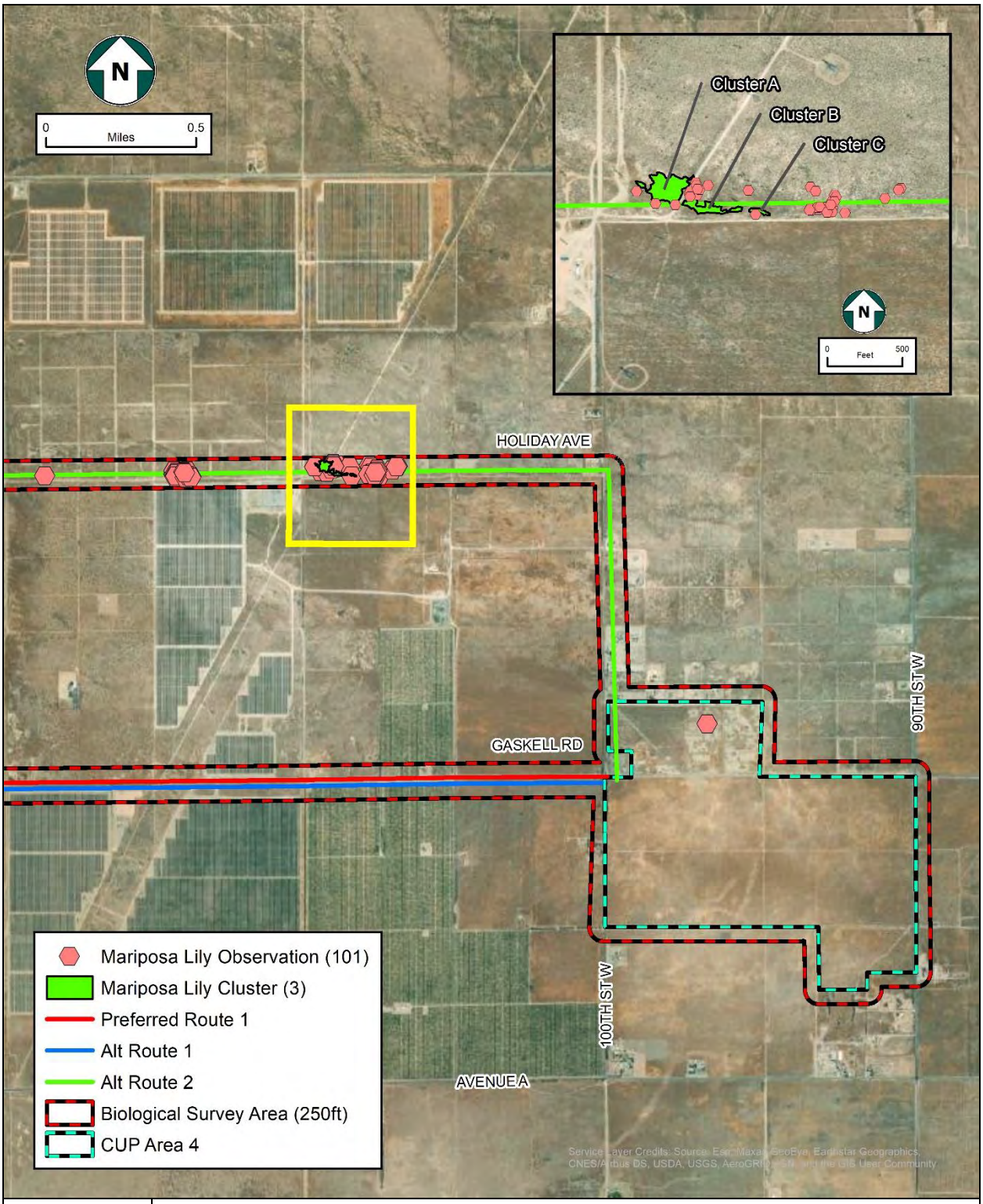

Figure 5-1
Alkali Mariposa Lily Observations
Rosamond South Solar Project
Kern County, California

The nearest recorded CNDDB occurrence (EONDX 79495) is approximately 5.7 miles south of the Project, within the California Antelope Valley Poppy Reserve (CDFW 2021a). The species was not observed within the BSA during floristic surveys in 2020 or 2021, but there is suitable habitat on-site, and the species could be present. This species was not found but is most likely to occur within Desert Scrub habitat on CUP Areas 1 and 2 and the eastern portion of CUP Area 3, where the habitat has not been previously disturbed.

Recurved Larkspur

DELPHINIUM RECURVATUM

Status: CRPR 1B.2

The recurved larkspur is a perennial herb up to about 19 inches tall. It has deeply lobed leaves, many of which are basal. The leaves located further up the dark purple stem are much smaller. Its flowers are generally blue, with its sepals and lower petals darker than its upper petals. Its sepals are usually curved back, the trait which gives the plant its name (Koontz and Warnock 2012). This species occurs in chenopod scrub, cismontane woodlands, and grassland habitats at elevations to 2,600 feet. The blooming period of this species is from March to June (CNPS 2021). The recurved larkspur is endemic to California and is historically known to occur in California's Great Valley, ranging from Butte County to Kern County. Most of the known occurrences of this species are in Kern, Tulare, and San Luis Obispo counties.

There are no CNDDB occurrences within 10 miles of the Project, and there are few records in the Mojave Desert. The species was not observed within the BSA during floristic surveys in 2020 or 2021, but there is suitable habitat on-site, and the species could be present. This species was not found but is most likely to occur within Desert Scrub habitat on CUP Areas 1 and 2 and the eastern portion of CUP Area 3, where the habitat has not been previously disturbed.

Joshua Tree

YUCCA BREVIFOLIA

Status: California Desert Native Plants Act; State Candidate

This slow-growing perennial plant is notable for its tall, tree-like stature and rosettes of evergreen, sword-shaped leaves (Hess 2012). It grows large panicles of creamy flowers that bloom from April to May. The species is found on desert flats and slopes within the Mojave Desert, at elevations between 1,300 and 6,650 feet.

The Joshua tree is a species that is protected by the CDNPA. Recently, a petition to list the species was submitted to and accepted by the CDFW. During this interim candidacy period, an Incidental Take Permit under Section 2081 of CFGC would be required to remove the species. A decision to list the Joshua tree is expected from CDFW by 2022.

Four hundred and fifty (450) individual Joshua trees were observed on the Project, mostly in the central portion of the Project (CUP areas 2 and 3) in Desert Scrub, Alkali Desert Scrub, and Annual Grassland habitats (Figures 5-2 through 5-4). Joshua trees were present within

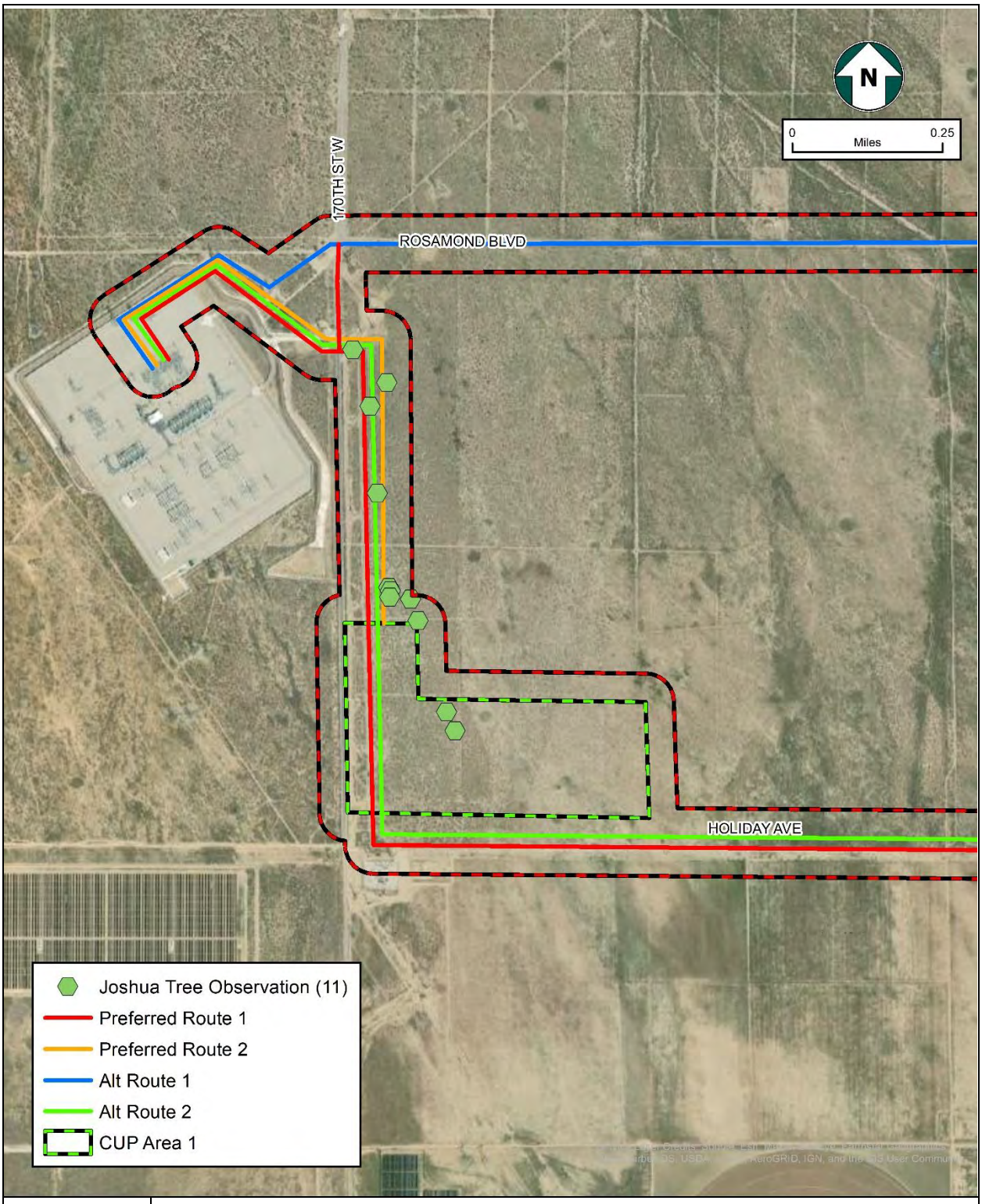

Figure 5-2
Joshua Tree Observations
Rosamond South Solar Project
Kern County, California

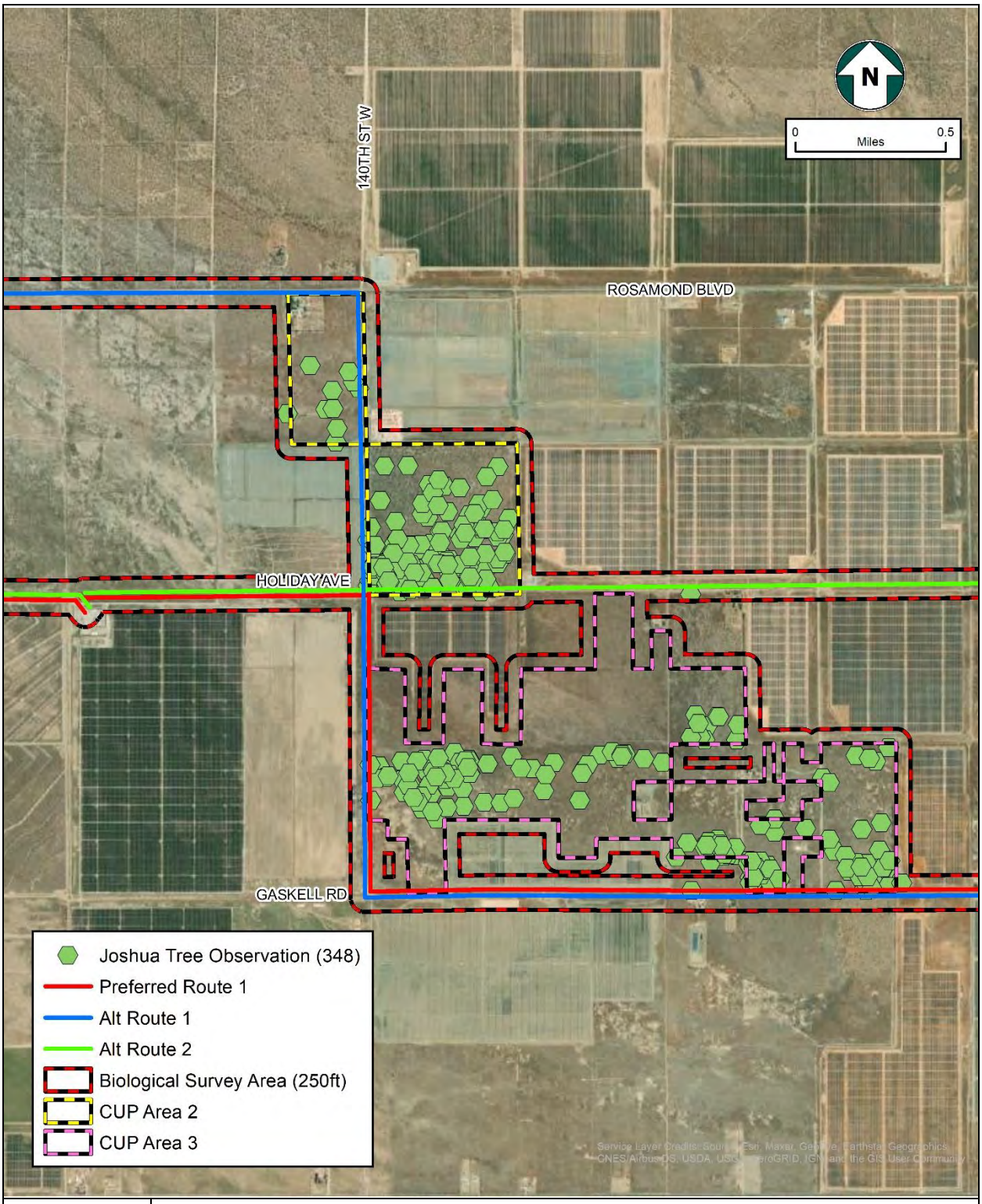

Figure 5-3
Joshua Tree Observations
Rosamond South Solar Project
Kern County, California

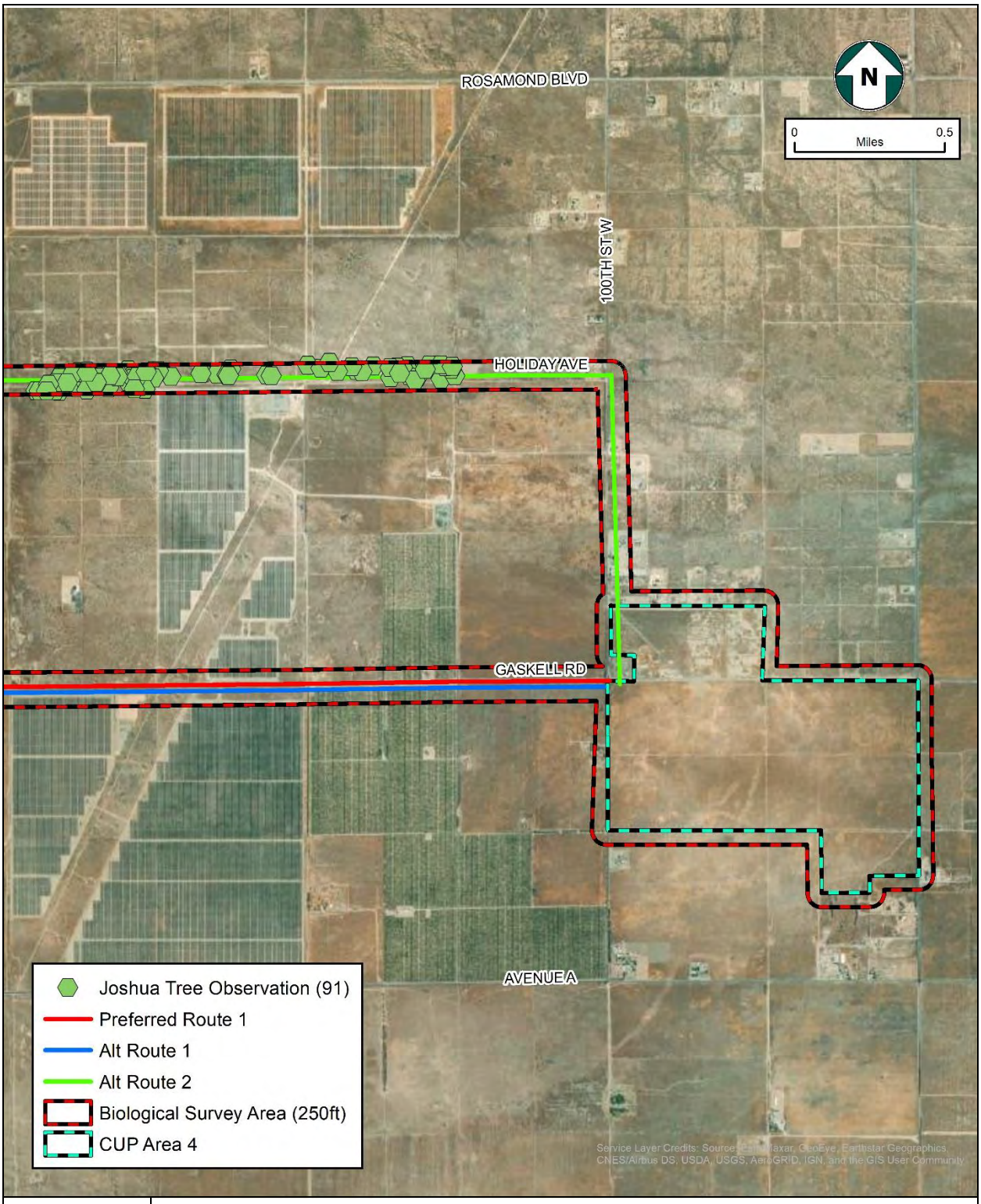

Figure 5-4
Joshua Tree Observations
Rosamond South Solar Project
Kern County, California

CUP Areas 1, 2, and 3. One hundred (100) individual Joshua trees were observed along portions of the three gen-tie routes. These 100 individual Joshua trees will be avoided and will not be impacted by the installation of any gen-ties.

Joshua Tree Woodland (*Yucca brevifolia* Woodland Alliance) is defined as areas where Joshua trees are evenly distributed at ≥ one percent cover, and *Juniperus* and/or *Pinus* spp. are less than one percent absolute cover in the tree canopy (Thomas et al. 2004). Only a single juniper tree and no native pine trees were present within the BSA. To estimate cover of Joshua trees on the Project site, each mapped Joshua tree point was assigned an estimated canopy size of two meters in diameter. The resulting canopy cover estimate was, therefore, approximately 3.14 square meters (m^2) per tree. This estimate is considered a maximum average size of the trees that were on-site because most of the trees were less than six feet in height, with a canopy much smaller than three m^2.

Percent Joshua tree coverage was then estimated by multiplying the maximum estimated canopy cover per tree of 3.14 m^2 by the number of trees mapped within a sample area and dividing by the total sample area. Based on these calculations, Joshua tree cover over the entire BSA is 0.01 percent. Joshua tree cover within Zone Map 232 is 0.04 percent, and cover in Zone Maps 233 and 231 is 0 percent. As viewed at these scales, the cover of Joshua trees on the overall project area and within each of the five Project sites does not meet the ≥ one percent cover criteria necessary to consider a designation as a Joshua Tree Woodland. The removal of individual Joshua trees would require mitigation under an Incidental Take Permit from the CDFW if the species remains listed.

5.1.2 - SPECIAL-STATUS ANIMAL SPECIES

The literature and database review identified 30 special-status animal species known to occur or with the potential to occur in the vicinity of the Project (see Appendix A). Nine of these special-status species have the potential to occur on-site (see Table 5-1) due to suitable habitat conditions because the BSA is located within the species' known range, and/or the species has been documented in or near the BSA.

Crotch's bumblebee

BOMBUS CROTCHII

Status: State Species of Special Concern

This bee occurs in relatively warm and dry sites, including the inner Coast Range of California and the margins of the Mojave Desert. It can be found in open grassland and scrub habitats. Nesting occurs underground. This species is classified as a short-tongued species whose food plants include *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia*. Though four of these species were found during the botanical surveys, individual plants were scattered and uncommon; therefore, this species is unlikely to be present on the Project site. As of this time, the Crotch bumblebee does not have protected status under CESA.

The nearest CNDDB record (EONDX 98913) of this species is from 1976 and is approximately 10 miles southwest of the Project. No VertNet occurrences of this species have been recorded in the vicinity of the BSA (VertNet 2021).

Northern Legless Lizard

ANNIELLA PULCHRA

Status: State Species of Special Concern

The northern legless lizard is a fossorial reptile that superficially resembles a snake. It is found in moist, sandy soils under sparse vegetation in chaparral, coastal dunes, pine-oak woodlands, desert scrub, sandy washes, and stream terraces (Nafis 2021). It is often found under surface objects such as rocks, boards, driftwood, and logs. This species is found from the southern edge of the San Joaquin River in northern Contra Costa County south to Ventura County, in scattered locations in the San Joaquin Valley and along the southern Sierra Nevada mountains. There is a disjunct population on the Mojave Desert side of the Tehachapi Mountains (Papenfuss and Parham 2013).

The nearest CNDDB record of this species is approximately 4.1 miles south of the Project, from 2017 (EONDX 112342). No VertNet occurrences of this species have been recorded in the vicinity of the BSA (VertNet 2021).

No legless lizards were found during the 2020 or 2021 surveys, but this species is rarely seen above ground, and it may be present in the Desert Scrub habitat on CUP Areas 1 and 2, in the central and eastern areas of CUP Area 3, and along Holiday Avenue and Rosamond Boulevard, and in Alkali Desert Scrub habitats along the eastern Holiday Avenue gen-tie route.

Western Burrowing Owl

ATHENE CUNICULARIA

Status: State Species of Special Concern

The burrowing owl is a broadly distributed, small ground-dwelling owl that can be found throughout western North America and Mexico (Shuford and Gardali 2008). Typically, this species can be found in a variety of habitat types, including grasslands, deserts, or other open habitats where food resources are available and contain treeless areas with low vegetation cover and gently sloping terrain (Poulin et al. 2020).

Burrowing owls utilize earthen burrows, typically relying on other fossorial mammals to construct their burrows, such as prairie dog (*Cynomys* ssp.), California ground squirrel (*Spermophilus beecheyi*), or American badger (USFWS 1998). They use a burrow throughout the year for temperature regulation, nesting, and shelter from predators. While burrows are most often earthen, owls have been documented using atypical burrows such as pipes, culverts, and other man-made structures as burrows (Shuford and Gardali 2008). Burrowing owls can have several burrows close to one other that they may frequently use to avoid predators.

The nearest recorded CNDDB occurrence of western burrowing owls is approximately 0.5 miles west of the Project, where in 2006, a family group of 11 individuals was using two burrows (EONDX 82056). No eBird sightings for burrowing owl were recorded in the vicinity of the Project site (eBird 2021). No VertNet occurrences of this species have been recorded in the vicinity of the BSA (VertNet 2021).

One burrowing owl and its active burrow were present during the 2020 reconnaissance survey on the west side of CUP Area 3 beneath a creosote plant within Annual Grassland habitat (Figure 5-6), although this individual was not sighted during the later floristic surveys. Burrowing owl sign (whitewash, pellets) was also present at an old den system in CUP Area 2 (Figure 5-6). Two individuals and their burrows were observed during the 2021 surveys, in Desert Scrub habitat in CUP Area 1 and in Annual Grassland habitat on the east side of CUP Area 3 (Figure 5-6). The more open areas of the BSA provide suitable habitat for this species, and it may be present at any time as a resident or transient. The open areas of the BSA that could provide suitable foraging and burrowing habitat for the species include all of CUP Area 1, the open areas in CUP Area 2, the Annual Grassland and Desert Scrub habitat CUP Area 3, all of CUP Area 4, and open areas along the gen-tie routes.

Swainson's Hawk

BUTEO SWAINSONI

Status: State Threatened

Swainson's hawks occur in grassland, desert, and agricultural landscapes throughout the Central Valley, and limited breeding pairs occur in the Antelope Valley (Bechard et al. 2010, Zeiner et al. 1990). Some hawks may be resident, especially in the southern portion of their range, while others may migrate between wintering habitat in Central and South America and summer breeding areas in North America. They prefer larger isolated trees or small woodlots for nesting, usually with grassland or dry-land grain fields nearby for foraging; They have been known to nest in large eucalyptus trees along heavily traveled freeway corridors. Swainson's hawks forage in grassland, open scrub, pasture, and dryland grain agricultural habitats, primarily for rodents. Swainson's hawks exhibit a moderate to high nest site fidelity at successful nest sites.

The nearest CNDDB occurrence (EONDX 84479) is from 2012 and documents a nest on the eastern side of the BSA. That nest was not present during any of the 2020 surveys. According to eBird several sightings of Swainson's hawk have been recorded in the vicinity of the Project footprint (eBird 2021). The most recent sighting was from July 2020 of three adults and two juveniles at a confirmed nest approximately 700-feet northwest of CUP Area 4. No VertNet occurrences of this species have been recorded in the vicinity of the BSA (VertNet 2021).

Surveys for Swainson's hawks have been conducted within the last five years for a number of solar projects in the vicinity of the Project. Protocol surveys were conducted for the nearby Big Beau Solar Project approximately three miles north of the Project in 2018, where three nests were observed in large trees adjacent to agricultural fields (County of Kern 2019a),

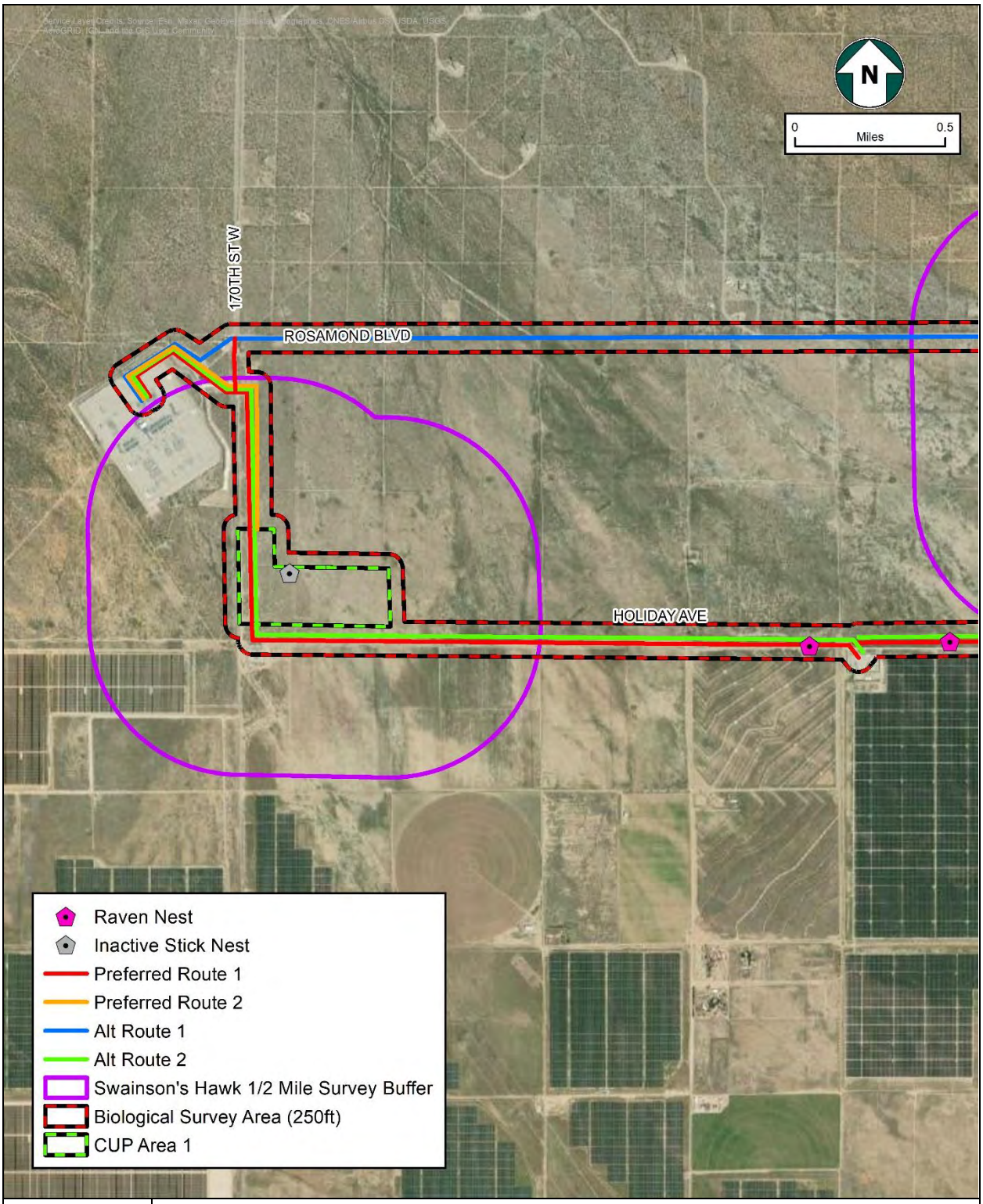

Figure 5-5
Special-Status Bird Species and Nest Observations
Rosamond South Solar Project
Kern County, California

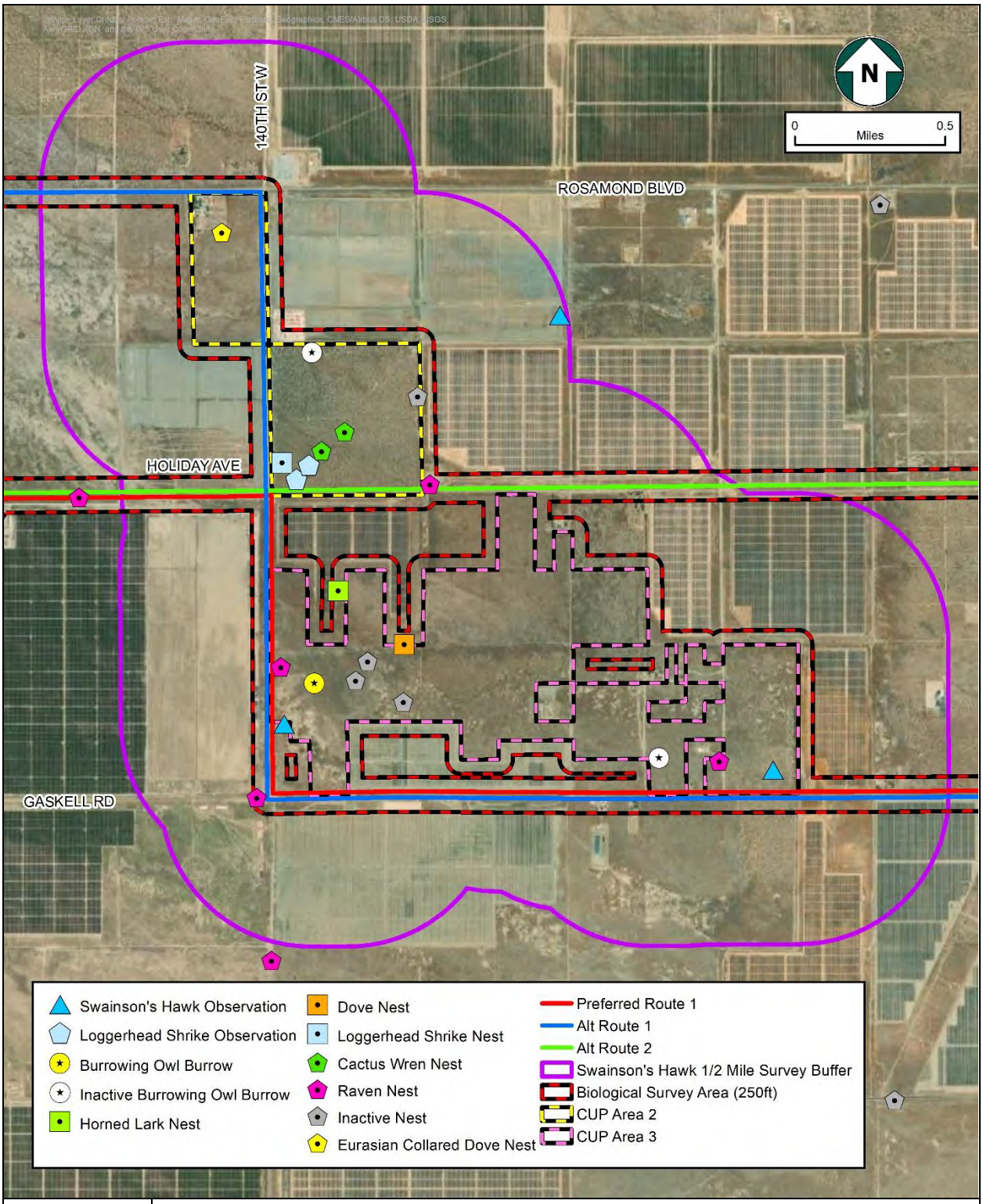

Figure 5-6
Special-Status Bird Species and Nest Observations
Rosamond South Solar Project
Kern County, California

and Raceway Solar is located adjacent to the CUP Area 4 to the east. Surveys for that project identified an active nest in 2020 approximately 0.5 miles from the boundary of CUP 4, which was documented on May 10, 2021, during a site visit, as no longer present. The AVEP Solar Project is located approximately one mile north of CUP Area 2 and adjacent to CUP Area 4. Surveys conducted for AVEP identified three active nests observed during 2017 surveys, one in a Joshua tree and two in non-native trees, although these nests were not active during subsequent surveys in 2018 and 2019 (County of Kern 2021). Focused Swainson's hawk surveys were conducted for the AV Apollo Solar Project approximately five miles northwest of the Project in 2017, and no Swainson's hawks or active nests were observed within five miles of that project (County of Kern 2019b). In a June 2020 comment letter submitted during the CEQA process for the AV Apollo Solar Project, CDFW claimed the presence of three known nests within one mile of AV Apollo; however, those nests were historic and not active at the time of the 2017 surveys. No other active Swainson's hawk nest sites were observed within one mile of the Project CUP Areas though several historical nests in the vicinity do occur within five miles of the Project CUP Areas (see Figure 6-1).

Swainson's hawks were seen soaring over CUP Area 3 and near CUP Area 4 during the 2020 reconnaissance surveys (Figures 5-5 and 5-6). A Swainson's hawk pair was perched in a transmission tower on the eastern portion of the BSA along the Gaskell Road gen-tie route between CUP Areas 3 and 4. An active nest was in a pine tree at a rural residence approximately 0.6 miles east of CUP Area 4 (Figure 5-6). On May 10, 2021, qualified biologists checked the previously active 2020 Swainson's hawk nest located at a rural residence approximately 0.6 miles east of CUP Area 4 and found that the nest was no longer present at this site (Figure 5-7). A compilation of known Swainson's hawk nests obtained from existing data collected by other solar company surveys is shown in Figure 6-1.

Suitable foraging habitat occurs over much of the Project site and survey buffer, ranging from low to moderate depending upon habitat types, size of available non-developed tracts of land, available prey base within these habitat types, and other variables. Swainson's hawks may nest in the trees of rural residences within the BSA near the Project footprint and larger Joshua trees that may be present near the Project. Most of the Joshua trees present within the Project footprint are not large enough to support Swainson's hawk nests.

Suitable foraging habitat of low to moderate quality is found on CUP Areas 1, 2, and 4, where large open areas and no existing or under-construction solar facilities are present. CUP Area 3 is adjacent to existing solar facilities or facilities that are under construction and of low quality. This reduces its suitability as a foraging area for Swainson's hawk.

Suitable nesting habitat is only found outside of the Project footprint. Suitable nesting trees occur near and survey area east of CUP Area 4, where a row of large ornamental trees is located, and in ornamental trees on nearby residences south of CUP Areas 3 and 4. This area had an active Swainson's hawk nest in 2020, although that nest is no longer present. Potential nesting sites within the vicinity of CUP Areas 1-3 are located along power poles. This species may nest in large planted trees surrounding rural residences along the four proposed gen-tie routes.

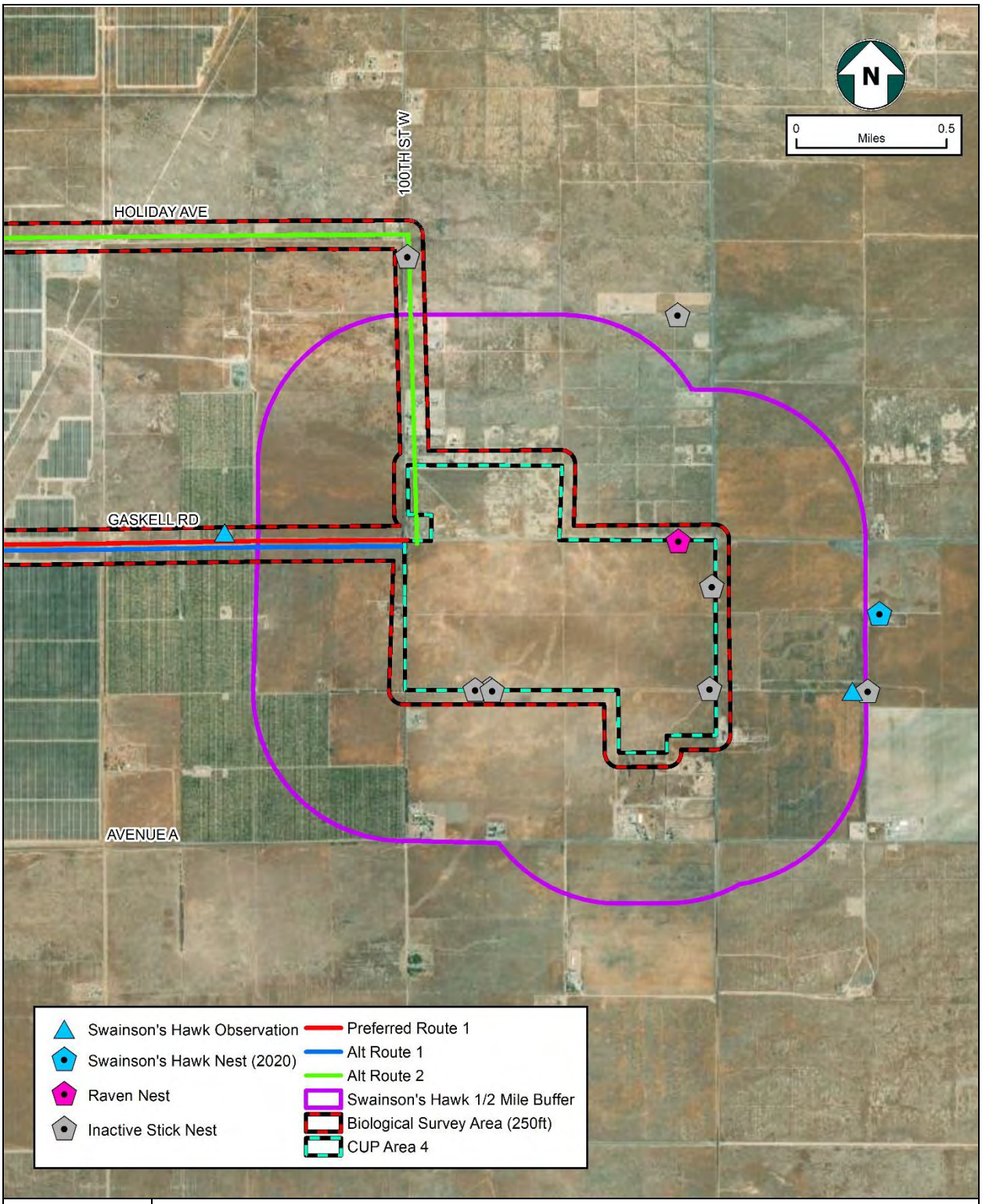

Figure 5-7
Special-Status Bird Species and Nest Observations
Rosamond South Solar Project
Kern County, California

Townsend's big-eared bat

CORYNORHINUS TOWNSENDII

Status: CDFW Species of Special Concern

The Townsend's big-eared bat can occur throughout California in all but alpine and subalpine habitats and may be found during any season. Suitable foraging habitat for Townsend's big-eared bats will likely be a heterogeneous mosaic of forested and edge habitats, including riparian zones, which are also used for commuting and drinking (Fellers and Pierson 2002). In California, both males and females forage along the edges of riparian vegetation dominated by Douglas-fir, California bay, and willow species, but they also avoid open grasslands both when traveling and foraging (Fellers and Pierson 2002). Townsend's big-eared bat roosting habitat is associated with areas containing caves and cave-like structures for roosting. Beyond the constraint for cavernous roosts, habitat associations become less well defined.

The nearest CNDDB occurrence is from 1942 in a mine approximately 4.2 miles northeast of the BSA (EONDX 93183). There is only one VertNet record for the species. This record is from 1942 and is approximately five miles east of the Project. This area has been developed for commercial use and no longer provides a suitable roosting or foraging habitat for the species.

No Townsend's big-eared bat or diagnostic sign of Townsend's big-eared bat was observed within the BSA during the surveys. There is no suitable roosting or nursery habitat within the BSA or the immediate vicinity, but the BSA and surrounding land may provide suitable foraging habitat, and the species could be present as a transient forager.

Desert Tortoise

GOPHERUS AGASSIZI

Status: Federally and State Threatened

The desert tortoise (*Gopherus agassizii*) is a large terrestrial reptile with a domed shell, elephantine hind legs, and stocky forelimbs covered in large conical scales (Nafis 2021, USFWS 2011a). The species is found in the Mojave Desert in California, extreme southern Nevada, extreme southwest Utah, and extreme northwest Arizona. Desert tortoises inhabit a range of habitats, including creosote bush scrub, blackbrush scrub, alluvial fans, and juniper woodlands (USFWS 2011a). They are most often found on gentle slopes with sandy-gravel soils and sparse covering of shrubs that contain herbaceous plants that the tortoise feed upon. Soils must be friable enough for tortoises to dig burrows and yet firm enough that burrows do not collapse. Tortoises remain in their burrows throughout the winter months, emerging in spring and remaining active through the fall, although activity decreases dramatically during the summer and is mainly restricted to cooler rainy periods. Tortoises feed on herbaceous vegetation, preferring grasses and flowers, and water is taken in opportunistically.

The nearest CNDDB occurrence is approximately 1.5 miles northwest of the Project, where multiple burrows were observed in 2010 (EONDX 93646). No VertNet occurrences for this

species have been recorded in the vicinity of the BSA (VertNet 2021). Although no tortoises or their diagnostic sign (i.e., burrows, scat) were observed during the surveys, the BSA does contain Desert Scrub habitat suitable for the species, and it is possible for the species to become established within the BSA or be present as a transient.

Loggerhead Shrike

LANIUS LUDOVICIANUS

Status: State Species of Special Concern

Loggerhead shrikes can be found throughout North America, extending north into Canada during the breeding season and as far south as Central America during the non-breeding season (Yosef 1996). Shrikes occurring in the southern regions reside year-round, usually living in pairs on permanent territories. Loggerhead shrikes that occupy southern California are primarily residents and breed between January and July (Shuford and Gardali 2008). Ecological requirements include tall shrubs or trees for use as hunting perches and nest placement and areas with short grass cover and bare ground for hunting. They also need impaling sites for prey manipulation or storage.

The nearest recorded CNDDB occurrence is approximately 1.1 miles north of the Project, where multiple observations were recorded in 2010 and 2011 (EONDX 93799). Several sightings of loggerhead shrike have been observed in the vicinity (eBird 2021). The most recent sighting was from July 2020. There is only one VertNet record for the species, which was from 1906, approximately four miles northeast of CUP Area 4 (VertNet 2021). This area has been partially developed for residential properties, but some of the area remains open habitat. Loggerhead shrikes were sighted several times during QK's on-site surveys, typically in the Desert Scrub and Joshua Tree habitats, and one active nest was present within CUP Area 2 in 2020 (see Figure 5-6). This species may be found within the BSA at any time.

American Badger

TAXIDEA TAXUS

Status: State Species of Special Concern

The American badger is an uncommon, permanent resident throughout California except in alpine habitats and in the northern North Coast (CDFG 1995). They can be found in grasslands, deserts, and drier habitats. Badgers are generally nocturnal and hunt or forage at night while spending daylight hours below ground. Normally, they have a single den entrance that is approximately 8 to 12 inches in width, in an elliptical or half-moon shape, similar to their body shape. Dens are usually found in friable soils, which are easier to dig in. American badgers spend most of their time near a den, and they may have multiple dens in an area that can be used interchangeably. American badgers are known to be able to dig a new den each night. During cooler nights, the entrance to the den may be partially plugged with soil to help regulate temperatures.

American badgers primarily feed on small mammals that they capture from digging out the prey's burrows. Prey may include pocket gophers, mice, chipmunks, and ground squirrels (CDFG 1995). Other prey may include birds, bird eggs, reptiles, invertebrates, and carrion.

The nearest CNDDB occurrences are approximately 2.5 miles north (EONDX 57489) and 6.7 miles south of the Project (EONDX 56863). Both records lack the dates of the observations. The date of the most recent occurrence near the Project site (EONDX 93542) is from 2011, but the record is over 10 miles west of the Project. No VertNet occurrences for this species have been recorded in the vicinity of the BSA (VertNet 2021).

No badgers or badger dens were identified during the on-site surveys, but the species is historically known to occur in the area, and the BSA provides suitable denning and foraging habitat. American badger could become established within the BSA or pass through as a transient at any time.

LeConte's Thrasher

TOXOSTOMA LECONTEI

Status: State Species of Special Concern (Federal Bird of Conservation Concern)

LeConte's thrasher is an uncommon, year-round resident in southern California deserts and the San Joaquin Valley, preferring sparsely vegetated desert flats, alluvial fans, or gently rolling hills, typically with a high proportion of saltbush or shadscale species or cholla cactus (Sheppard 2020). Shrubs are usually well scattered with contiguous or closed cover and typically eight feet or less in height. They rarely occur in a habitat where creosote is the sole shrub species. This species forages on the ground for insects, arthropods, seeds, small lizards, and other small vertebrates. They typically nest in shrubs or cacti in desert wash habitat. LeConte's thrasher is not migratory, and it mates in pairs for life (USFWS 1998). Nests are constructed on cholla or within dense, thorny shrubs, most frequently saltbush.

Only the San Joaquin Valley population of the LeConte's thrasher is considered a State Species of Special Concern, but the species is tracked in the CNDDB regardless of the location of the population. The species is a federal Bird of Conservation Concern.

The nearest CNDDB record for the species is from 1989, located 0.9 miles north of the Project (EONDX 24519). Several sightings of LeConte's thrasher have been observed in the vicinity along Rosamond Boulevard near the Whirlwind Substation in 2011 and 2014 (eBird 2021). This area is located near the proposed powerline alignment. The most recent sighting was from June 2018. There is only one relevant VertNet record for the species, which is from 1904 and is approximately seven miles southwest of Site 4. This area has been partially developed for residential property and agricultural fields, but some of the area remains open habitat that is suitable for this species.

One *Toxostoma* species was fleetingly observed in CUP Area 2, within creosote scrub, during the on-site reconnaissance survey in 2020. The sighting could either have been a LeConte's thrasher or a California thrasher (*T. redivivum*), both of which are similar in appearance and overlap in range in the vicinity of the Project. The Project supports suitable foraging and nesting habitat for LeConte's thrasher, particularly in the Alkali Desert Scrub and Desert Scrub habitats in CUP Areas 1 through 3. This species could also be present at any time in the suitable habitat along the Holiday Avenue and Rosamond Boulevard gen-tie routes.

Desert Kit Fox

VULPES MACROTIS ARSIPUS
Status: CFGC Protected

Desert kit foxes are found in the southeastern deserts of California and occur most often in the open desert, creosote bush flats, and sand dunes (NPS 2015). Desert kit foxes use subterranean dens year-round for shelter, pup-rearing, and protection from predators. They are nocturnal but may be visible above ground near their dens during the day. They have become well-adapted to desert life, obtaining water from their diet, and seldom needing to drink water. They feed primarily on Merriam's kangaroo rat (*Dipodomys merriami*), but also feed on black-tailed jackrabbits, desert cottontails (*Sylvilagus audubonii*), birds, lizards, and insects. Coyotes appear to be their only natural predator, although many suffer mortality due to vehicular strikes.

The CNDDB does not track this species because it is not listed as threatened or endangered by the federal government or by the State, and it is not a State Species of Concern or a Fully Protected species. However, as a fur-bearing mammal, the CDFW cannot issue a trapping permit for the desert kit fox because it is prohibited from "take" by the CFGC (§460). The CDFW has interpreted this as meaning that no "take" of any form can occur, and by default, categorized the species as Fully Protected even though it is not listed as a Fully Protected species in the CFGC. No VertNet occurrences have been recorded for this species within the vicinity of the BSA (VertNet 2021).

The remains of a desert kit fox pup were found in the central portion of CUP Area 3 during the 2020 late-season floristic survey, and a dead desert kit fox was found along Rosamond Boulevard during the 2021 mid-season floristic survey. A desert kit fox was observed in 2021 during floristic surveys along the Gaskell gen-tie route, running into an existing solar panel facility beneath its raised fence. Numerous potential desert kit fox dens were found within the BSA. Specifically, potential dens were found on the northeast corner of the BSA near CUP Area 1, in the southern half of CUP Area 2, on the east side of CUP Area 3, on the western boundary of CUP Area 4, and along Rosamond Boulevard (Figures 5-8 through 5-10). These dens were primarily in the open desert scrub habitat. This species is relatively wide-ranging and could potentially be present within the BSA at any time, either as a resident or a transient forager.

5.1.3 - OTHER PROTECTED SPECIES

Nesting Birds

Habitat within the BSA supports nesting native bird species, which are protected by the federal MBTA and the CFGC. The on-site surveys were conducted within the nesting bird season (February 1st to September 15th), and numerous nests were found (see Figures 5-5 through 5-7). Active nests present within the BSA included those of loggerhead shrike, cactus wren (*Campylorhynchus brunneicapillus*), mourning dove, Eurasian collared dove

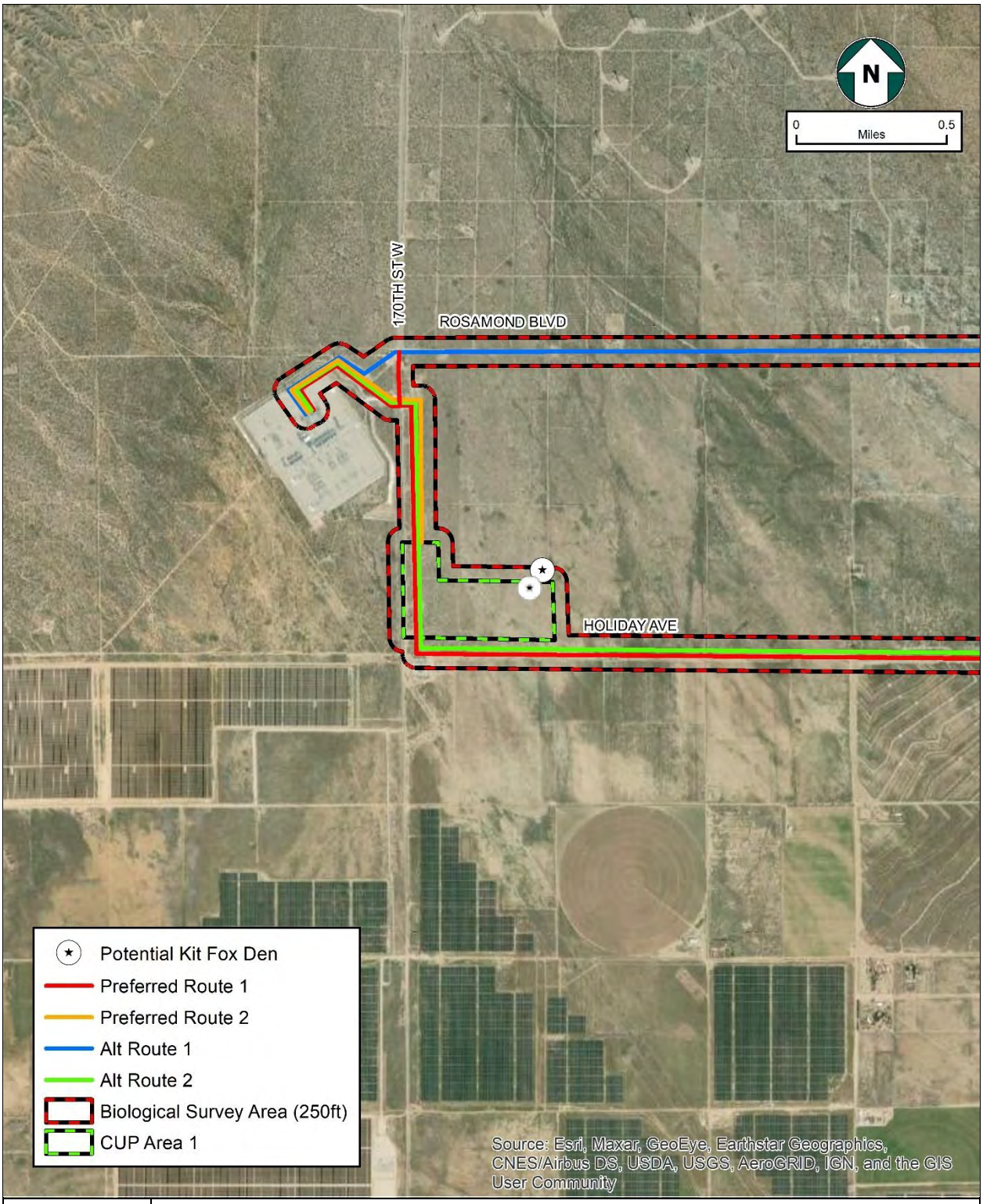

Figure 5-8
Desert Kit Fox Potential Dens
Rosamond South Solar Project
Kern County, California

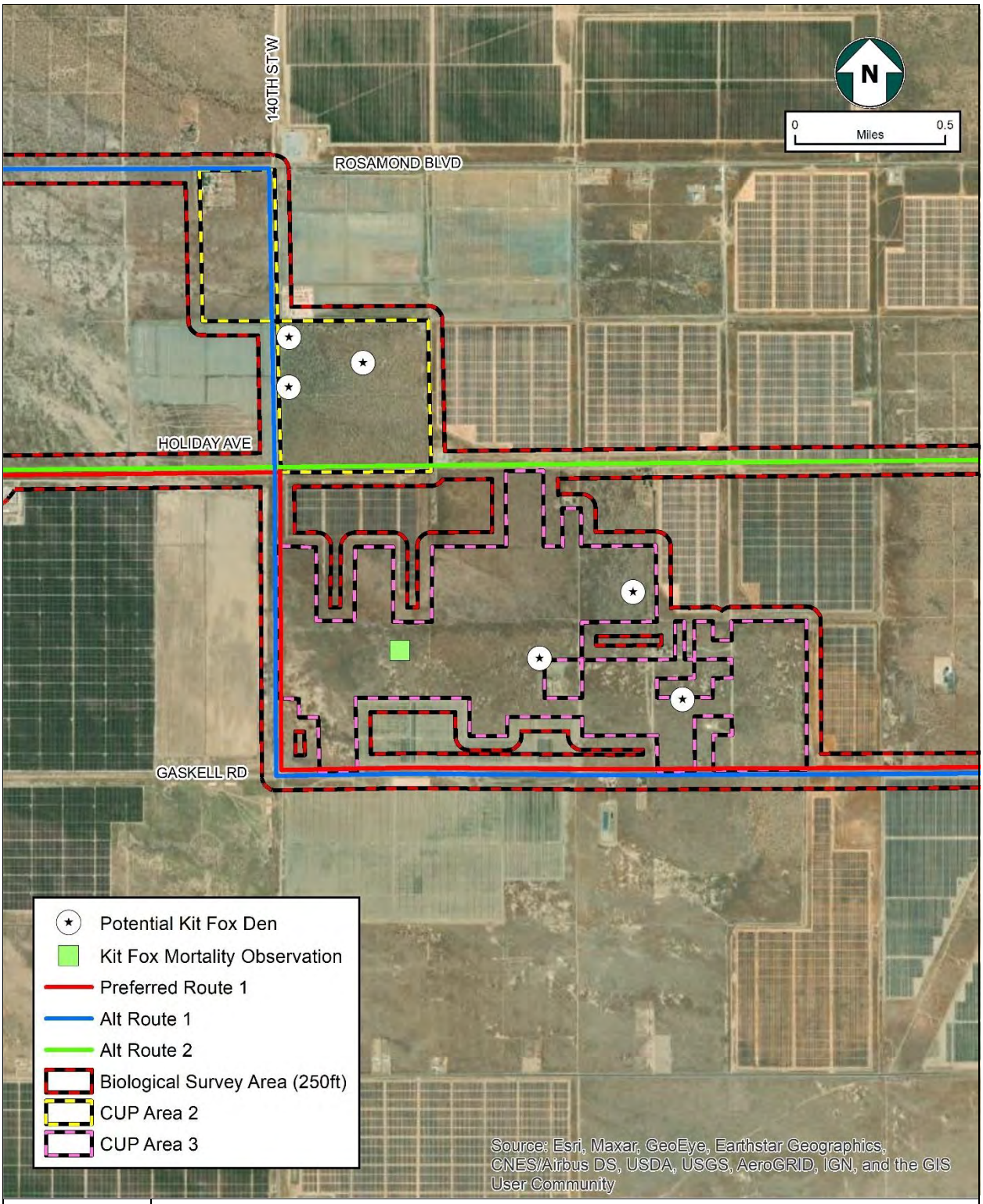

Figure 5-9
Desert Kit Fox Potential Dens and Remains
Rosamond South Solar Project
Kern County, California

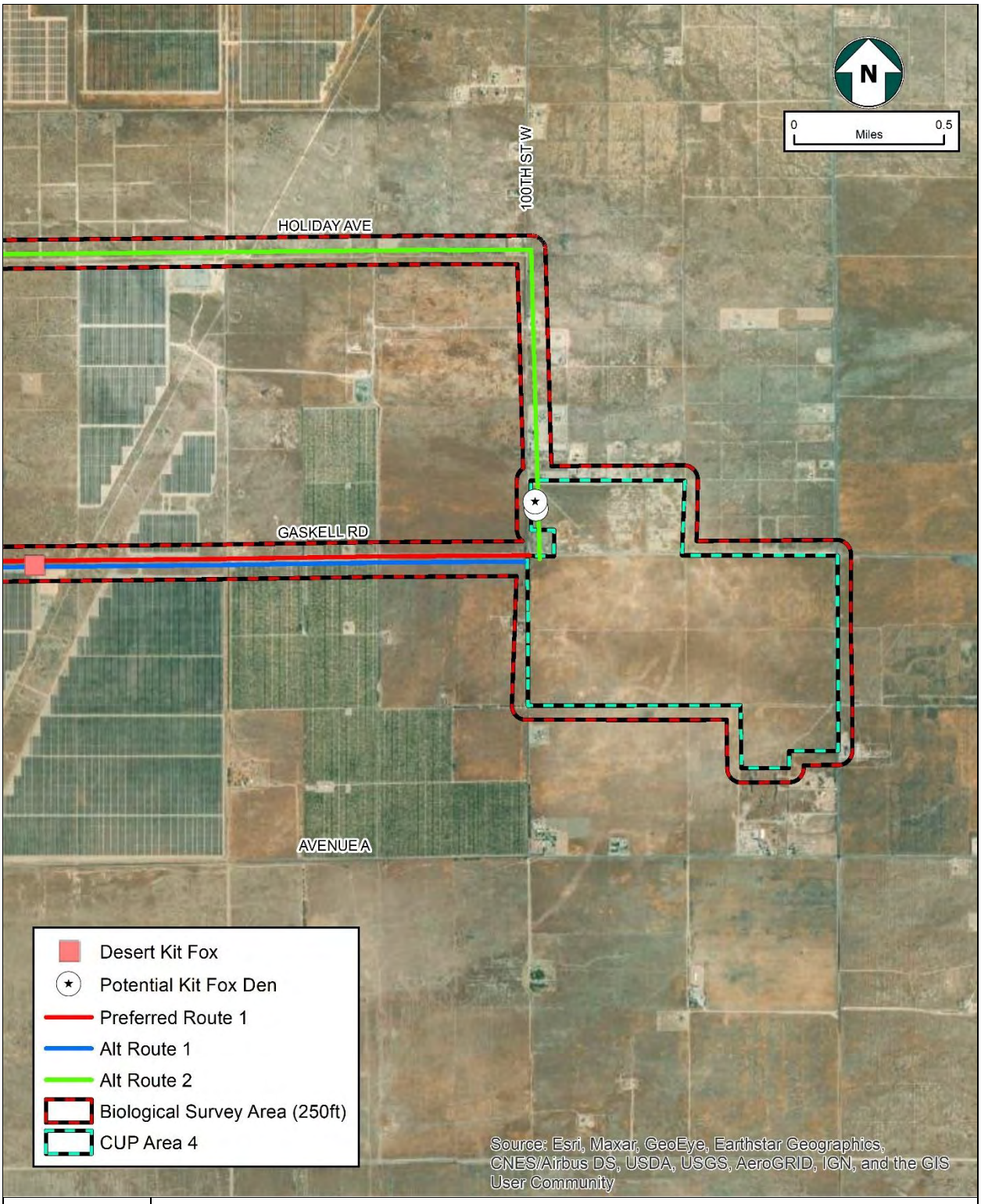

Figure 5-10
Desert Kit Fox Potential Dens
Rosamond South Solar Project
Kern County, California

(*Streptopelia decaocto*), horned lark, common raven, and Swainson's hawk. Various species of birds will construct nests in a variety of substrates and structures, and nests may be found in trees or shrubs, in man-made structures, and directly on the ground. The Project supports several types of habitats, substrates, and structures suitable for nesting birds, and it is likely that birds will nest on the Project during the breeding season.

Wintering Migratory Birds and Raptors

The reconnaissance survey was conducted at the end of the overwintering period and during the spring migration period. Long-billed curlew (*Numenius americanus*) and rufous hummingbird (*Selasphorus rufus*) were sighted during the reconnaissance survey. These are two species that would winter and migrate through the BSA but not breed on the Project site. Other potentially occurring winter migratory birds that could be present but that were not observed include whimbrel (*Numenius phaeopus*) and white-faced ibis (*Plegadis chihi*). Potentially occurring winter foraging raptors include ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), and prairie falcon (*Falco mexicanus*). All five sites and the gen-tie routes provide high-quality foraging habitat, and it is likely that wintering and migratory birds and raptors may be present from time to time as transient foragers during the winter and during the spring and fall migratory periods.

5.2 - Sensitive Natural Communities

5.2.1 - SENSITIVE PLANT COMMUNITIES

The database and literature review identified four sensitive plant communities occurring within 10 miles of the Project site: Southern Riparian Scrub, Southern Willow Scrub, Valley Needlegrass Grassland, and Wildflower Field (see Appendix A).

The nearest CNDDB occurrence of Southern Riparian Scrub is approximately 10 miles southwest of the Project in the Transverse Mountain Range (EONDX 15313). The nearest record for Southern Willow Scrub is approximately 9.3 miles southwest, also in the Transverse Range (EONDX 15274). There are no perennial waterways in or near the BSA to support either the Southern Riparian and Southern Willow Scrub communities, and no species characteristic of these communities was observed during the surveys. The nearest occurrences for Valley Needlegrass Grassland (EONDX 13582) and Wildflower Field (EONDX 7494) are approximately 5.3 miles south of the Project in the Antelope Valley California Poppy Reserve.

Two needlegrass (*Stipa*) species were observed during the surveys, Indian rice grass (*S. hymenoides*) and desert needlegrass (*S. speciosa*), but these bunchgrasses were scattered too sparsely across the BSA to be considered Valley Needlegrass Grassland. Indian rice grass was found on CUP Areas 1 through 3 and along the gen-tie routes. Desert needlegrass was found on CUP Area 3 and along Holiday Avenue gen-tie route. Most of the grasses encountered within the BSA were non-native *Hordeum* and *Bromus* species. Numerous wildflower species were encountered within the BSA in 2020, especially on CUP Areas 1 and 2 and the eastern side of CUP Area 3. Wildflowers were mostly scattered between shrubs

amongst grasses and other forbs within scrub habitat. Wildflowers did not occur in a conspicuous uninterrupted plain, which is the definition of the Wildflower Field community.

No sensitive natural plant communities were present within the BSA.

5.2.2 - CRITICAL HABITATS

The Project does not overlap with any federally designated critical habitats. Critical habitat for California condor (*Gymnogyps californianus*) is present in the Sierra Nevada mountain range approximately 6.8 miles northwest of the Project (Figure 5-11; USFWS 2021b).

5.3 - Jurisdictional Aquatic Resources

This section describes the results of the database queries and focused delineations of waters and wetlands for the Project (Figures 5-12 and 5-13).

A query of the NHD and NWI databases indicated that several water features are potentially located in CUP Areas 2, and 3 and no water features are within CUP Areas 1 and 4 (Figures 4-4 through 4-6; USGS 2021a, USFWS 2021c). These include a lacustrine feature within CUP Area 2, 10 freshwater pond features within CUP Area 3, and an intermittent riverine feature within CUP Area 2 (QK 2021, USFWS 2021c, USGS 2021a). QK environmental scientists conducted a delineation of these features as described in Section 2.6.

An aquatic resources delineation survey was conducted for features that were present on the Project site, and an Aquatic Resources Delineation Report (ADRD) was prepared (QK 2021). The following is a summary of the ARDR findings.

The lacustrine and freshwater pond features did not qualify as wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) or the Regional Water Quality Control Board ([RWQCB]; QK 2021). The intermittent riverine feature in CUP Area 2 qualifies as waters of the State and would likely be under the regulatory authority of the RWQCB (Lahontan Region) and CDFW, the latter of which takes jurisdiction over the bed, bank, and channel of water features and associated riparian habitat (Figure 5-13). The drainage did not contain a defined bed or bank or ordinary high-water mark. Therefore it is unlikely that CDFW and the RWQCB would take jurisdiction over the entire watercourse boundary as delineated. The drainage has been isolated from its upstream source. It is currently dormant; thus, it is unlikely CDFW would assert regulatory authority over the entire feature. Based on current designs, the Project may result in a maximum of 1.826 acres of disturbance to this feature. The final disturbance area would depend upon the final design and layout of the solar facilities.

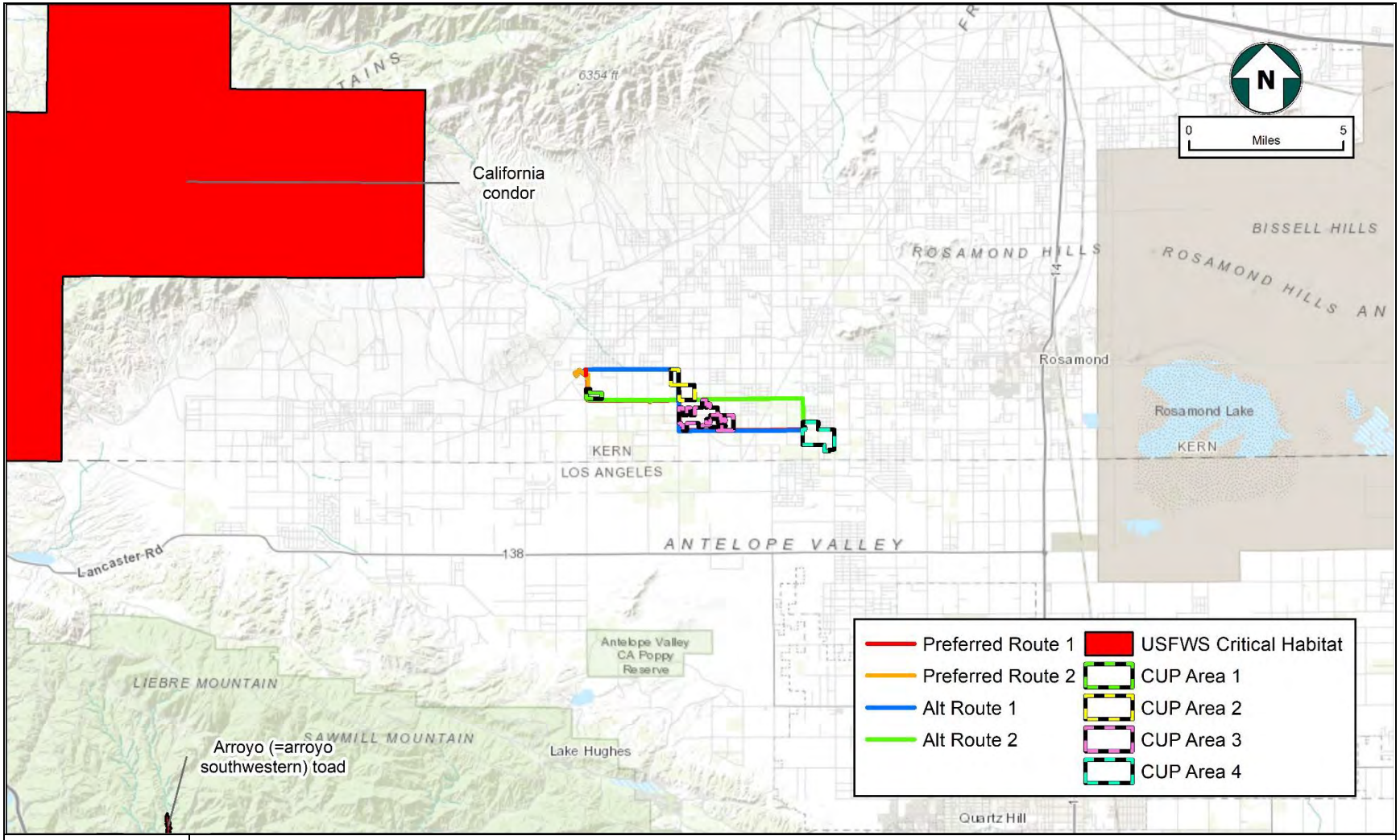

Figure 5-11
Critical Habitat in the Project Vicinity
Rosamond South Solar Project
Kern County, California

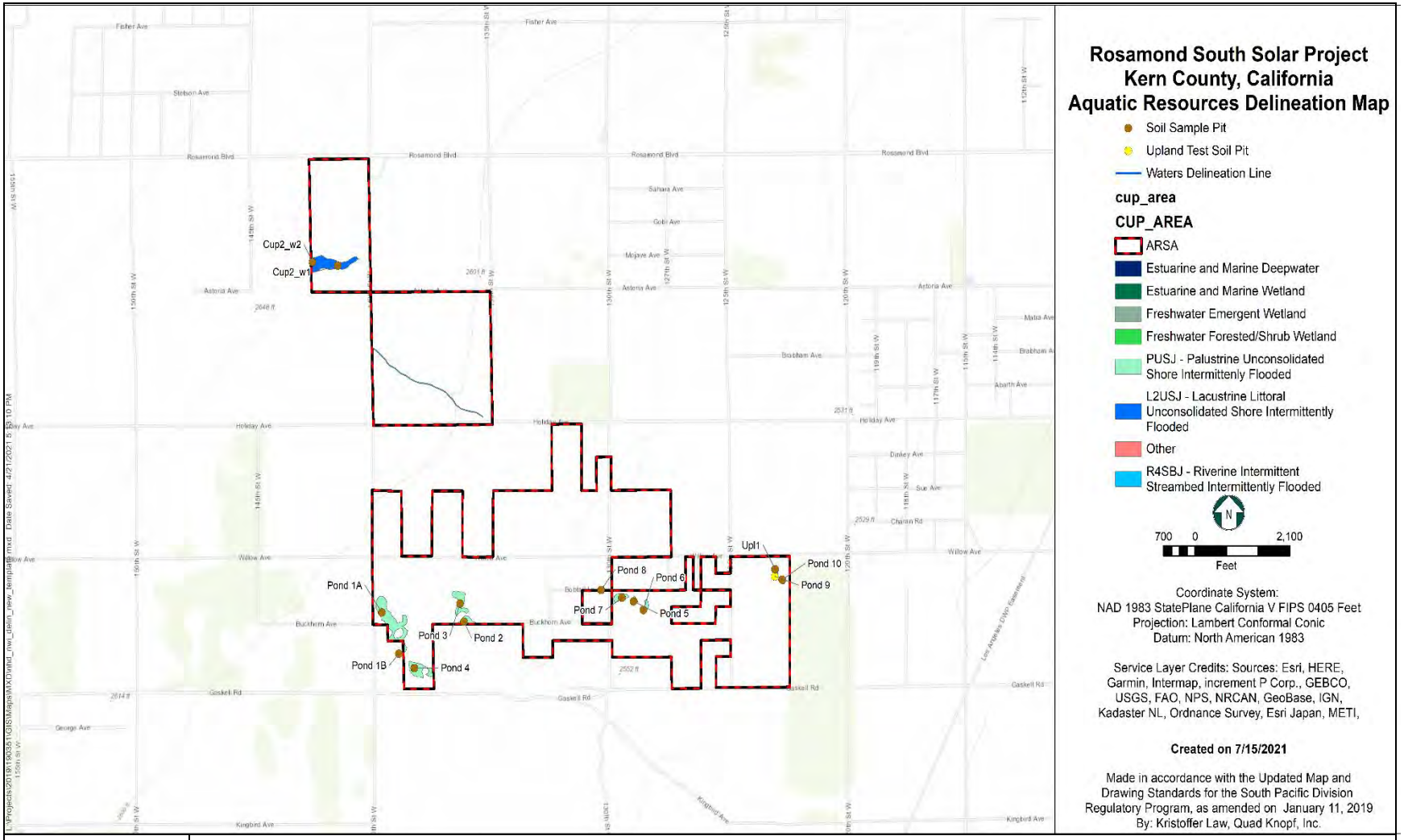

Figure 5-12
Aquatic Resources Delineation Soil Pit Map
Rosamond South Solar Project
Kern County, California

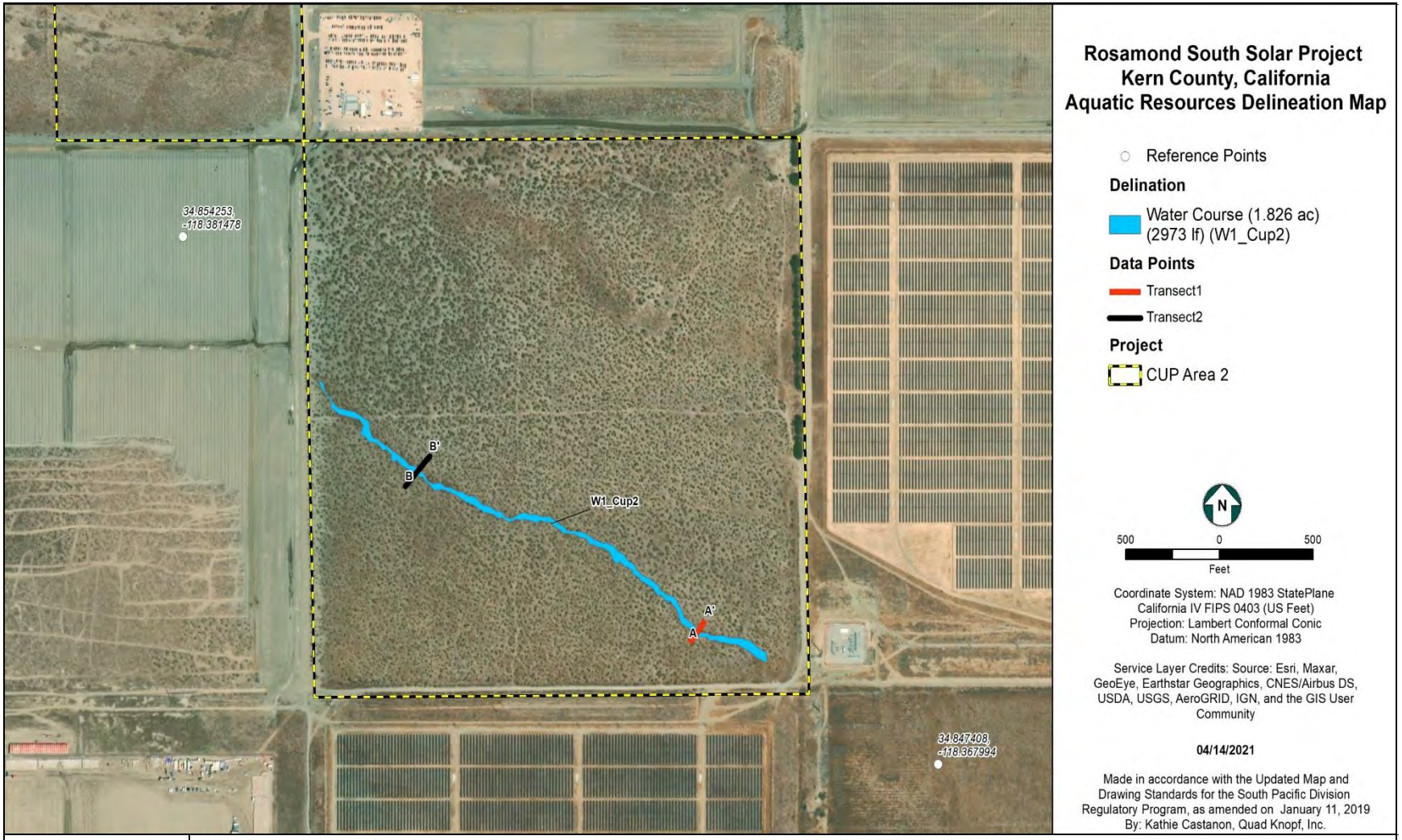

Figure 5-13
Aquatic Resources Delineation Detail Map
Rosamond South Solar Project
Kern County, California

5.4 - Wildlife Movement

Wildlife movement corridors also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. The project site lies within a recognized wildlife connectivity area identified by the California Essential Habitat Connectivity Project (Figure 5-14, Spencer, et al. 2010). This corridor is not based upon any specific wildlife species but instead has been added as an overall pathway to ensure connectivity throughout California. The corridor in its entirety is approximately 24 miles wide and connects the Tehachapi Mountains in the north to the San Gabriel Mountains to the south.

The project is situated within the Pacific Flyway, which is a significant avian migration route that covers a wide swath of land along the western Americas from Patagonia to Alaska. Migratory bird species were present on the Project, including long-billed curlew, rufous hummingbird, and lark sparrow (*Chondestes grammacus*).

5.5 - Resources Protected by Local Policies and Ordinances

The Kern County General Plan contains policies aimed at the preservation of biological resources and promotes coordination with federal and State resource agencies (Kern County 2009). These policies are listed in Appendix B. The Kern County General Plan also outlines implementation measures by which to uphold these policies, including a biological resource review for proposed projects and cooperation with wildlife agencies regarding projects.

5.6 - Habitat Conservation Plans

The Project is within the planning areas of the draft West Mojave Plan and the Desert Renewable Energy Conservation Plan (DRECP). The West Mojave Habitat Conservation Plan (HCP) outlines conservation planning for BLM land in the Mojave Desert and does not apply to the Project, which is located on private lands. The DRECP was finalized in 2016, and this first Phase of the DRECP concerns only BLM-managed lands within the planning area. As such, DRECP requirements do not apply to the Project.

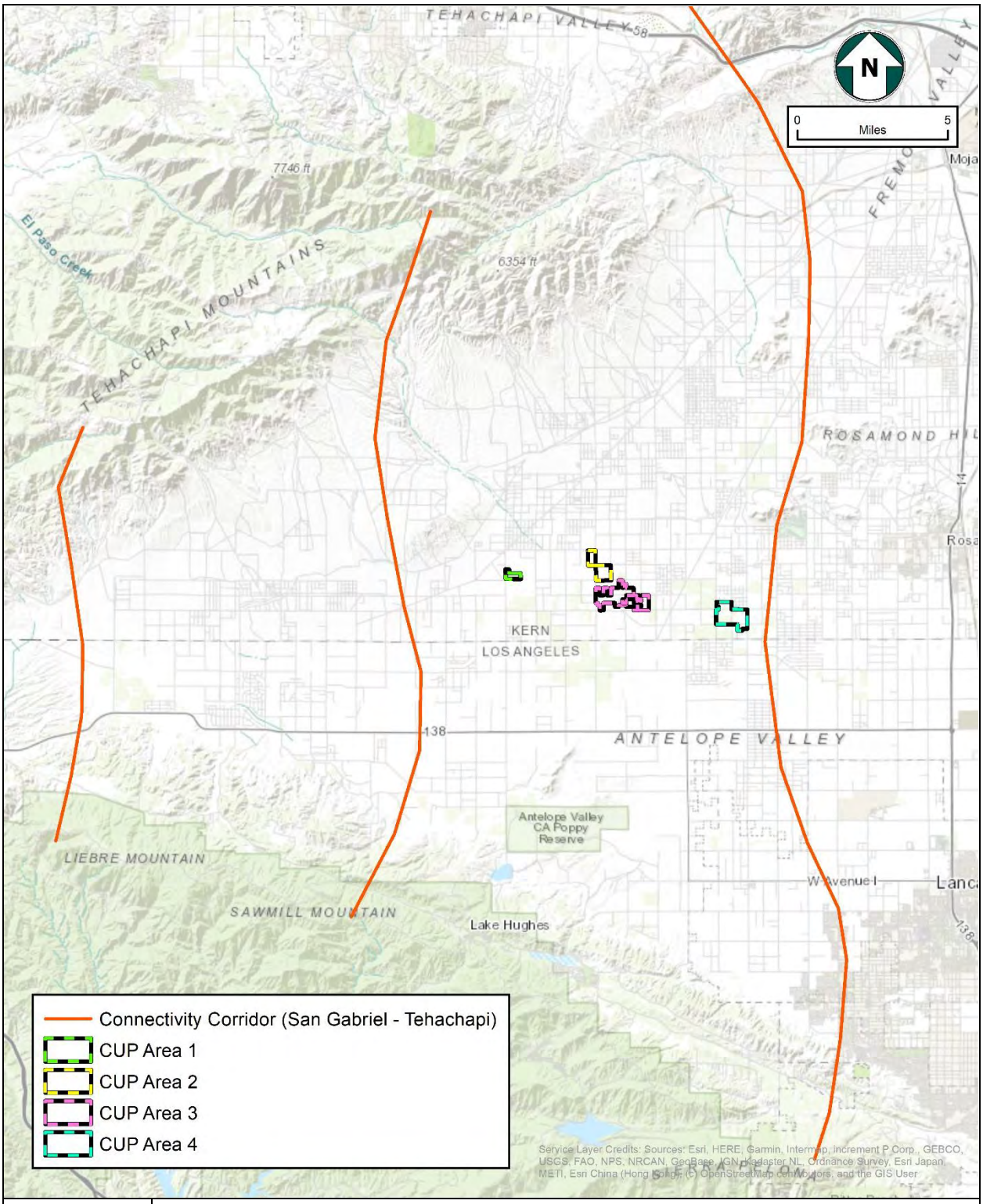

Figure 5-14
Wildlife Corridors and Habitat Linkages in the Project Vicinity
Rosamond South Solar Project
Kern County, California

SECTION 6 - IMPACT ANALYSIS AND AVOIDANCE AND MINIMIZATION MEASURES

This section provides an analysis of the potential for sensitive biological resources to be impacted by the Project. The analysis was developed using the CEQA Appendix G questions. This section also provides avoidance and minimization measures to prevent and/or reduce Project impacts to sensitive biological resources. The impact analysis focuses on the construction phase and operations phase of the Project. Because of the long life of the Project and the possibility for retrofitting as new technologies are developed, it is assumed that the presence of biological resources present on the site in the future cannot be accurately predicted, an analysis of impacts during decommissioning cannot be accurately determined, and thus is not included.

6.1 - Special-Status Species

The proposed project would have a significant effect on biological resources if it would:

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

6.1.1 - PROJECT IMPACTS TO SPECIAL-STATUS PLANT SPECIES

One special-status plant species, alkali mariposa lily, was found within the BSA, and three other special-status species have the potential to occur within the BSA: Lemmon's jewelflower, Clokey's cryptantha, and recurved larkspur. The botanical surveys in the 2021 survey season did not provide optimal conditions due to lack of rainfall. Special-status species may be present but were not identified during surveys, and surveys prior to construction may be warranted. Joshua trees, which are protected by the Desert Native Plants Act and protected during the interim candidacy for State listing, were also present on portions of the Project site. These species are discussed below.

Alkali Mariposa Lily

This species was present within the BSA (see Figure 5-1), mainly within alkali scrub habitat along the Holiday Avenue gen-tie route, although one individual was observed within Annual Grassland southeast of the primary population. There was one individual observed within CUP Area 4, but all other populations were along the gen-tie route.

Direct impacts could include the destruction or injury of individual alkali mariposa lilies. The species is dormant underground for much of the year, but during the growth and blooming period, the spread of dust during construction could cause an indirect impact on the species, as could the spread of non-native or invasive species caused by Project activities. Competition with invasive plants would have an indirect impact on this species.

Most of the populations and individuals present along the gen-tie route could be avoided by judicious placement of workspaces for upgrades of the transmission lines. The Project might eliminate the small population occurring within CUP Area 4. Impacts on the species could be significant if substantial portions of the populations are eliminated. With an overall population count of approximately 1,425 individuals, the removal of up to 140 individuals (10 percent) would not significantly impact the population. Implementation of Measures BIO-1 through BIO-3, listed below, would reduce impacts to this species. It is anticipated that this species would not colonize the Project sites during the operational phase of the Project, and it is assumed that there would be no impacts to this species during the operational phase.

Lemmon's Jewelflower

The Lemmon's jewelflower was not found during any of the surveys, but it could occur within the BSA in Desert Scrub and Annual Grassland habitats. Specifically, this species is most likely to occur within Desert Scrub habitat in CUP Areas 1 and 2, the Holiday Avenue and Rosamond Boulevard gen-tie routes, and the eastern portion of CUP Area 3, where the habitat has not been disturbed.

Direct impacts could include the destruction or injury of individual plants if present. During the growth and blooming period, the spread of dust during construction could cause an indirect impact on the species, as could the spread of non-native or invasive species caused by Project activities. Competition with invasive plants would have an indirect impact on this species.

There is no evidence that this species is present on the Project site, and it is likely that the Project will not result in impacts to this species. If present, implementation of Measures BIO-1 through BIO-3, listed below, would reduce impacts to this species to a less than significant level. It is anticipated that this species would not colonize the Project sites during the operational phase of the Project, and it is assumed that there would be no impacts to this species during the operational phase.

Clokey's Cryptantha

Clokey's cryptantha was not found within the BSA during the floristic surveys, but it could potentially be present in the Alkali Desert Scrub and Desert Scrub habitats that are found on-site. Although not observed, this species would most likely be present within Desert Scrub habitat in CUP Areas 1 and 2, the Holiday Avenue and Rosamond Boulevard gen-tie routes, and the eastern portion of CUP Area 3, where the habitat has not been disturbed. QK biologists also found this species in 2017, approximately seven miles north of the Project near Oak Creek, during botanical surveys for the AV Apollo Solar Project.

Direct impacts could include the destruction or injury of individual plants if present. During the growth and blooming period, the spread of dust during construction could cause an indirect impact on the species, as could the spread of non-native or invasive species caused by Project activities. Competition with invasive plants would have an indirect impact on this species.

There is no evidence that this species is present on the Project site, and it is likely that the Project will not result in impacts to this species. If present, implementation of Measures BIO-1 through BIO-3, listed below, would reduce impacts to this species to a less than significant level. It is anticipated that this species would not colonize the Project sites during the Project's operational phase, and it is assumed that there would be no impacts to this species during the operational phase.

Recurved Larkspur

Recurved larkspur was not found during the 2020 floristic surveys within the BSA, but it could potentially be present in the alkali desert scrub and annual grassland habitats that are found on-site. Although not observed, this species would most likely be present within Desert Scrub habitat in CUP Areas 1 and 2, the Holiday Avenue and Rosamond Boulevard gen-tie routes, and the eastern portion of CUP Area 3, where the habitat has not been disturbed.

Direct impacts could include the destruction or injury of individual plants if present. During the growth and blooming period, the spread of dust during construction could cause an indirect impact on the species, as could the spread of non-native or invasive species caused by Project activities. Competition with invasive plants would have an indirect impact on this species.

There is no evidence that this species is present on the Project site, and it is likely that the Project will not result in impacts to this species. If present, implementation of Measures BIO-1 through BIO-3, listed below, would reduce impacts to this species to a less than significant level. It is anticipated that this species would not colonize the Project sites during the operational phase of the Project, and it is assumed that there would be no impacts to this species during the operational phase.

Joshua Tree

Approximately 450 individual Joshua trees were identified during a Joshua tree census survey conducted in 2021. These trees mainly occur on CUP Areas 2 and 3 and along the Holiday Avenue and Rosamond Boulevard gen-tie routes, but also occur in the northwestern corner of CUP Area 1 (see Figures 5-2 through 5-4). It is anticipated that most, if not all, of the 100 Joshua trees along the gen tie routes will not be impacted by the power pole installation activities; the poles can be sited to avoid individual trees and their seedbank. However, a CDFW 2081 Incidental Take Permit will be required for impacts to the seedbank or the removal of individual trees if they cannot be avoided. Approximately three hundred and fifty trees would be directly impacted by the Project and would require a CDFW 2081 Incidental Take Permit issued for the Project.. Although Joshua trees do not qualify as a Joshua Tree Woodland, individual plants are still a protected resource under the CDNPA and as a State candidate species.

Implementation of Measure BIO-4, listed below, would reduce impacts. It is anticipated that this species would not colonize the Project areas during the operational phase of the Project,

and it is assumed that there would be no additional impacts to this species during the operational phase.

Avoidance and Minimization Measures

Implementation of the avoidance and minimization listed below would reduce Project impacts to special-status plant species to a level that would be less than significant. The following measures are recommended to avoid and minimize impacts to alkali mariposa lily, Lemmon's jewelflower, Clokey's cryptantha, recurved larkspur, and Joshua tree.

BIO-1 **Special-Status Plant Surveys.** A qualified biologist knowledgeable on the identification of plant species should conduct a pedestrian survey of areas of the Project disturbance footprint plus a 100-foot buffer to determine if Alkali mariposa lily, Lemmon's jewelflower, or recurved larkspur are present. These surveys should be floristic in nature and should be conducted during the blooming periods of the target species (see Table 6-1) immediately prior to the start of construction activities at each site in accordance with USFWS and CDFW protocols. Locations of any special-status plant species observed should be mapped and described in a Biological Site Review Report. If special-status plants are not identified during the survey(s), no further action is required.

Table 6-1
Blooming Period of Special-status Plants

Special-Status Plant Species	Optimal Blooming Period
Calochortus striatus Alkali mariposa lily	April – June
Caulanthus lemmonii Lemmon's jewelflower	February - May
Cryptantha clokeyi Clokey's cryptantha	April
Delphinium recurvatum recurved larkspur	March – May

BIO-2 **Avoidance of Known Special-Status Plants.** If special-status plant species are found during the Special-Status Plant Surveys (BIO-1) then Ecologically Sensitive Area (ESA) fencing should be established at a 50-foot radius around these populations and individuals to ensure that they are not impacted during Project activities. If Project activities cannot avoid those areas, then CDFW will be notified and provided the opportunity to salvage any of these plants that would be removed.

The salvage activities may include salvage topsoil and relocation of seed bank within a 50-foot radius of any plants destroyed during project activities and reestablishing the topsoil and seed bank in an undisturbed portion of the site,

if feasible. The Project would notify CDFW within 10 days prior to salvage any Alkali mariposa lily, Lemmon's jewelflower, or recurved larkspur plants that would be destroyed. All final correspondence and confirmation with CDFW shall be submitted to Kern County Planning and Natural Resources Department.

BIO-3 **Invasive Species and Dust Control.** The introduction and spread of invasive and non-native plant species should be avoided and controlled wherever possible during construction, on both the Project footprint and surrounding areas. This may be achieved through measures such as utilizing stabilized construction entrance/exits before they enter construction areas, removing invasive species that exist on the site and disposing of the removed debris in a manner that prohibits their spread on- and off-site, and applying chemical deterrents or implementing appropriate revegetation actions to disturbed areas to prevent growth.

BIO-4 **Joshua Tree Preservation Plan.** The Project proponent should prepare a Joshua Tree Preservation Plan prior to construction to protect Joshua trees within the development footprint. The Project proponent should obtain a CDFW 2081 Incidental Take Permit and provide compensation under such permit if required. Although it would not be possible to avoid trees occurring within the development footprint, the work areas along the gen-tie routes should be spaced to avoid Joshua trees to the extent feasible. All trees removed may be salvaged to the extent possible, as required by the issued permits. All trees should be individually identified, evaluated, and included in a preservation/removal plan that will be prepared prior to tree removal.

6.1.2 - PROJECT IMPACTS TO SPECIAL-STATUS ANIMAL SPECIES

Northern Legless Lizard

Although the northern legless lizard was not found during the on-site surveys of the Project, there is a potential for this species to occur within those areas containing Desert Scrub habitat. It is possible that, if present, this species could persist during the operations phase once the solar facilities are installed.

Direct impacts to this species could include mortality or injury to individuals during construction activities, and indirect impacts could occur due to general disturbance caused by increased human activity. Construction of the project could lead to the loss of suitable habitat. Implementation of Measures BIO-12 and BIO-13, listed below, should be implemented during the construction and operations phase to reduce impacts to the species.

Western Burrowing Owl

The western burrowing owl is present in the region year-round, and three individuals were observed on the Project site during the 2020 and 2021 biological surveys. It is possible for a

transient burrowing owl to inhabit any portion of the Project site at any time, including during the operational phase of the Project.

Direct and/or indirect impacts to burrowing owl could occur if there is an active burrow within the BSA during the period of construction activities. Construction activities could result in crushing or destroying a burrow, with or without a burrowing owl inside. Noise, vibration, and increased human activity resulting from Project construction activities could alter the daily behaviors of individual owls and affect foraging success, displace owls from their burrows, or lead to nest failure. Operational activities have the potential to impact burrowing owls in the same way but to a lesser degree than construction activities. Suitable nesting and foraging habitat would be lost as a result of the Project. Implementation of Measures BIO-5, BIO-7, BIO-8, BIO-12, and BIO-13 listed below, would reduce impacts to the species.

Swainson's Hawk

POTENTIAL IMPACTS TO NESTING SWAINSON'S HAWKS

Swainson's hawks were observed near the east side of the Project footprint in 2021, and a nest site was recorded in 2020 by QK biologists approximately 0.6 miles east of the Project footprint. This nest was no longer present in 2021. Another known nest is located approximately 0.2 miles south of CUP 4 but was not active in 2021. According to the database search, no nesting sites occur within the Project footprint, but there are potential nesting sites within 0.5 miles of the Project footprint. No mature ornamental nest trees were identified within the Project footprint, and no potential Joshua trees with nests that can support Swainson's hawks were observed during the 2021 surveys. Any gen-tie routes where pole placement occurs, whether co-locating on existing or new poles, would be surveyed prior to construction as detailed in BIO 9 and BIO 10. Impacts to individual nesting Swainson's hawks outside of the Project footprint could occur if construction activities occur near an active nest. Noise and vibration from the construction of the Project, and the presence of construction workers, could alter the normal behaviors of nesting adults and affect reproductive success within 0.5 miles.

Implementation of Measures BIO-9, BIO-10, BIO-12, and BIO-13 listed below, would reduce any impacts of the Project on nesting Swainson's hawks.

POTENTIAL IMPACTS TO THE SWAINSON'S HAWK FROM LOSS OF FORAGING HABITAT

Available records indicate there are at least ten known nesting Swainson's hawk pairs occurring within 10 miles of the Project footprint. All nest sites surround the Project footprint (Figure 6-1), the closest of which is approximately 0.2 miles to the south of the Project footprint (not active and no longer present during the 2021 season). The loss of foraging habitat for Swainson's hawks was evaluated using the standard assumption that Swainson's hawks typically forage within 10 miles of a nest site.

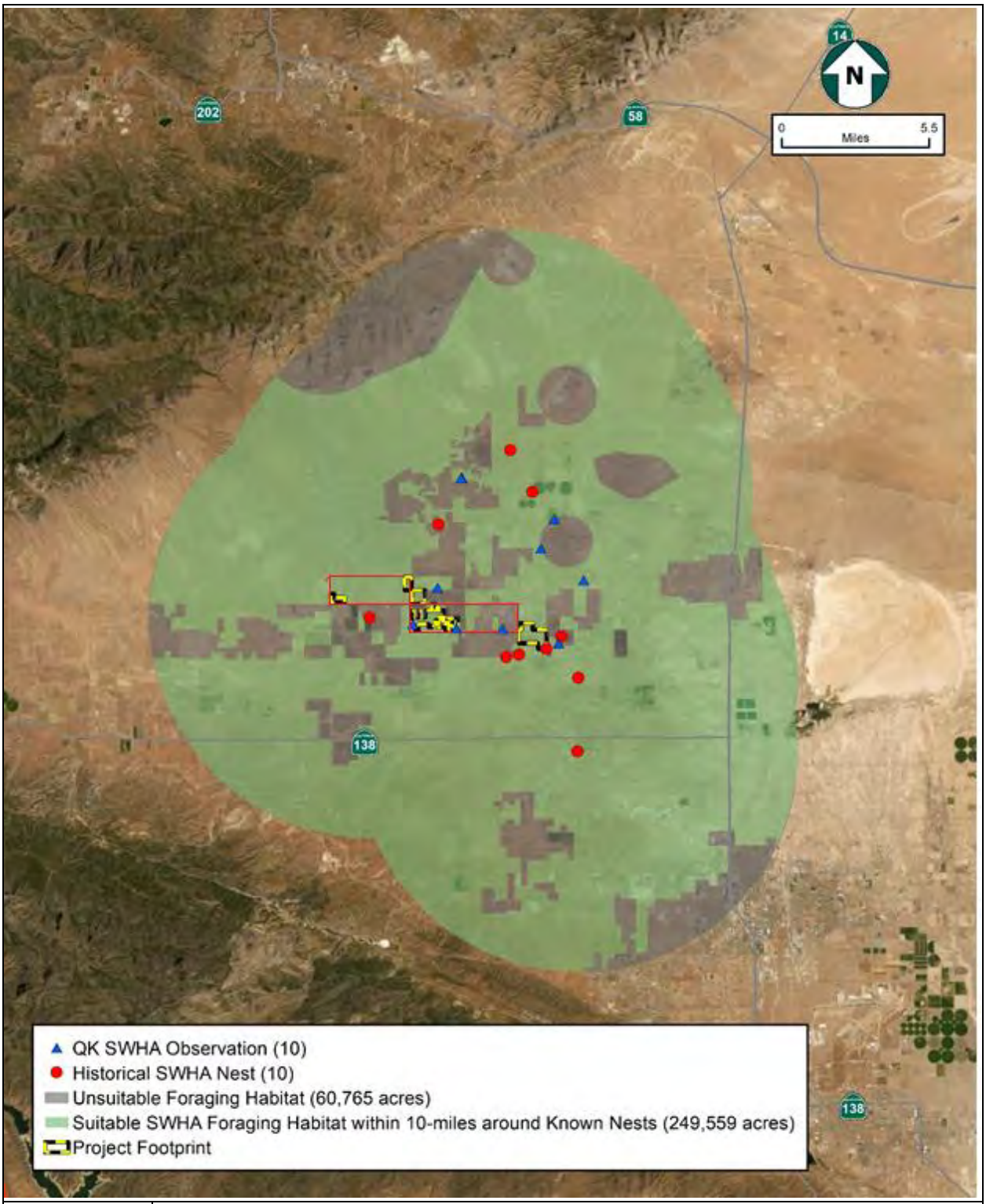

Figure 6-1
Potential Swainson's Hawk Foraging Habitat
Rosamond South Solar Project
Kern County, California

A method of evaluating the loss of foraging habitat is to assume that the 10-mile foraging area is centered on the Project footprint plus around existing known nest sites. There are approximately 249,599 acres of foraging habitat within a 10-mile distance around the Project footprint plus around existing known nest sites that would be available for nesting Swainson's hawks (Figure 6-1). Existing solar facilities, mountains, urban landscape, and other unsuitable habitat was eliminated from potential foraging habitat acreage. The Project footprint of 1,292 acres represents approximately 0.5 percent of available foraging habitat for those known occurrences of nesting Swainson's hawks within 10 miles of the Project footprint plus around existing known nest sites. The Project footprint contains several types of vegetation types that are most prevalent, Desert Scrub (approximately 384 acres) and Annual Grassland (approximately 896 acres). Based upon observations during site surveys, much of the Annual Grassland habitat is covered in non-native plant species, and much of this habitat has been previously disturbed, providing low to moderate foraging habitat. Current conditions are moderately favorable for the small mammal prey base utilized by foraging Swainson's hawks. However, because the Project footprint is either adjacent to or "filling in" gaps between existing solar facilities and there are no large expanses of open grassland, irrigated farm land or Desert Scrub on the Project areas that provide high-value foraging habitat, the Project lands provide a low to moderate foraging habitat with a reduced potential for foraging Swainson's hawks.

A robust study for foraging suitability and cumulative effects for nesting and foraging Swainson's hawks was prepared for this Project and is included in Appendix E.

Townsend's big-eared bat

There is no suitable roosting habitat for the Townsend's big-eared bat on or near the Project site, but it could be present on the site as a transient forager. Direct or indirect impacts to individuals are not expected to occur, and no measures are warranted.

Desert Tortoise

No desert tortoises or positive signs of the species (burrows, scat) were present during the on-site surveys, although there is a CNDDB record documenting tortoise burrows approximately 1.5 miles north to the north of the Project. The Desert Scrub habitats within the BSA provide suitable burrowing and foraging habitat for this species, and it is possible that the species could become established in these areas or be present as a transient forager anywhere within the Project site. However, it is unlikely that tortoises would be present because of the lack of sign of the species, disturbed nature of much of the habitat on-site, and because there are existing solar panel arrays bordering many parcels of the Project which would deter tortoises from moving into the BSA.

Direct impacts to desert tortoise could include mortality or injury caused by Project construction activities. Noise, vibration, and increased human activity could alter the normal behaviors of tortoises, affecting overall fitness and reproductive success, making them more vulnerable to predation, or causing them to void their water stores. The project could also

result in loss of suitable habitat if the species is determined to be present. Implementation of Measures BIO-5, BIO-6, BIO-12, and BIO-13 would reduce impacts to the species

Loggerhead Shrike

The Desert Scrub habitat within the BSA provides suitable nesting and foraging habitat for loggerhead shrike, and they may also forage in the grassland habitats where there are suitable perching structures. Two individuals and an active loggerhead shrike nest were present on the northern side of the Project.

Direct impacts to this species could include the destruction of active nests resulting from Project construction activities. Noise, vibration, and increased human activity could alter normal behaviors resulting in nest failure, reducing foraging success, and displacing individuals from established territories. Loss of suitable habitat could impact the species. Implementation of Measures BIO-11 through BIO-13 would reduce impacts to the species.

American Badger

No badgers, badger dens, or other signs of the species were present, but there is suitable denning and foraging habitat over the majority of the BSA, and the species is known to occur in the area historically. The species is highly mobile and could become established within the BSA or pass through as a transient forager at any time.

Direct impacts to this species could include mortality or injury caused by entrapment or crushing individuals within dens and vehicle strikes. Indirect impacts to the species could be caused by noise, vibration, and the presence of construction workers that could alter normal behaviors, which could affect reproductive success, foraging success, or displacement from active dens. Operational activities could impact the species in many of these same ways because it is assumed that this species could be present from time to time during the operational phase of the Project. Loss of foraging habitat could impact the species. Implementation of Measures BIO-5, BIO-7, BIO-8, BIO-12, and BIO-13 listed below, would reduce impacts to the species.

LeConte's Thrasher

The Desert Scrub habitat within the BSA provides suitable nesting and foraging habitat for LeConte's thrashers, and they may also forage in grassland habitats where there are suitable perching structures. Two individuals and an active nest were present on the northern side of the Project.

Direct impacts to this species could include the destruction of active nests resulting from Project construction activities. Indirect impacts could be caused by noise, vibration, and increased human activity that could alter normal behaviors, resulting in nest failure, decreased foraging success and displacing individuals from established territories. Loss of suitable habitat could impact the species. Implementation of Measures BIO-11 through BIO-13 would reduce impacts to this species.

Desert Kit Fox

Suitable habitat to support the desert kit fox occurs throughout most of the BSA, particularly in the Desert Scrub habitat. The remains of a kit fox were found in the annual grassland habitat in the central portion of the Project and as vehicle strikes along Rosamond Boulevard (Figures 5-8 through 5-10). Multiple potential kit fox dens were found, some with several entrances, scattered throughout the BSA, particularly in the more open Desert Scrub habitats. This species could be present anywhere within the BSA at any time, including during the operational phase of the Project, either as a resident or transient forager.

Direct impacts to this species could include mortality or injury caused by entrapment or crushing individuals within dens or from vehicle strikes. Indirect impacts caused by noise, vibration, and the presence of construction workers could alter the normal behaviors of desert kit foxes, which could affect reproductive success, foraging success, or displacement from active dens. Loss of foraging habitat could impact the species. The use of herbicides and pesticides can impact desert kit foxes due to prey being killed off from the herbicides and pesticides. Impacts to this species during the operational phase will be minimal or less than significant since limited operational and maintenance employees. BIO Measure 8 limits or eliminates the use of herbicides and pesticides on the Project site during the construction, operational, and decommissioning phases of the Project. Implementation of Measures BIO-5, BIO-7, BIO-8, BIO-12, and BIO-13 listed below, would reduce impacts to the species.

Nesting Birds

The entire BSA contains a habitat suitable to support a wide variety of nesting native bird species. Nests of multiple species were present within the BSA, including loggerhead shrike, Swainson's hawk, horned lark, and cactus wren. Different species will nest on different substrates, such as in Joshua trees, ornamental trees, shrubs, man-made structures, utility poles, and directly on the ground. If nesting occurs on the Project site during construction, an Environmentally Sensitive Area (ESA) may be established to reduce or eliminate potential impacts to nesting birds, eggs, and nestlings, as described in BIO-11. The size of the ESA will be determined by a qualified biologist based on the bird species.

Direct impacts could include the destruction of active nests as a result of Project construction activities. Noise, vibration, and increased human activity could alter normal behaviors, resulting in nest failure. Loss of suitable habitat could cause indirect impacts on the species. Implementation of Measures BIO-11 through BIO-13 would reduce impacts.

Wintering Migratory Birds and Raptors

The BSA contains suitable foraging habitat for a variety of wintering migratory birds and raptors that would not nest within the BSA. Rufous hummingbird and long-billed curlew are two such species that were observed on the Project sites. It is likely that migratory birds and raptors would be present from time to time as transient foragers during the winter and during the spring and fall migratory periods. Project activities could affect foraging behavior but are unlikely to result in mortality or injury or decrease reproductive success.

It has been hypothesized that avian mortalities could occur during the operational phase of PV solar projects from a phenomenon known as the "fake lake effect." This impact on birds is thought to be more pronounced near water sources and within the migratory pathways of migrating waterfowl. Several studies have attempted to quantify bird mortalities caused by the "false lake effect," but the science is still in its infancy.

Solar panels have elements thought to mimic water or suitable related habitat, at least to the human eye. As a result, some have theorized that solar panels may attract species that mistake the panels for bodies of water, potentially leading to increased collision-related and other risks commonly referred to as the "fake lake effect." A report commissioned by the U.S. Department of Energy analyzed available avian mortality data from utility-scale solar energy facilities and concluded that, though it is apparent that solar energy facilities present a risk of fatality for birds, additional standardized and systematic fatality data would be needed to better understand and quantify the risks (County of Kern 2020). That report further noted that, based on available data, there was no consistent pattern to support or refute the hypothesis that water-dependent species were more susceptible to mortality at solar facilities.

A report on avian mortalities *Background Avian Mortality across the California Desert Region: A Pilot Study* (Fesnock et al. 2015) references all projected acreage slated for development by 2030. This report focuses on determining background avian mortalities and does not provide original data specifically to solar projects. Instead, it relied on data gathered by others on three specific solar projects that were not identified. The report does not identify whether the avian mortalities at solar projects that were cited were for solar thermal projects or PV solar projects, or a combination of both. The trials that were conducted in this background mortality study found only three bird carcasses and three feather spots in greater than 35 square miles. The calculated background mortality rate across the region was determined to be 0.024 birds/acre. It is likely that the background avian mortalities are much higher than this number because of the very short time span that a carcass can be found and identified before it is scavenged or removed. This study did not focus on determining impacts caused by the "fake lake effect."

One study found that utility scale-solar projects resulted in avian mortalities that were nearly identical to mortalities from wind energy projects but orders of magnitude lower than all other forms of mortality (including vehicle strikes, collisions with buildings and windows, collisions with communications towers, fossil fuel power plants; Walston et al. 2016). The report lumped data for PV solar and Solar thermal projects but did provide data for each type of solar facility. The study acknowledged that there was a great difference in mortality rates associated with the size and locations of various sites.

Another study (Kosciuch et al. 2020) that focused on PV solar projects estimated avian mortalities ranging from 1.82 to 2.49 mortalities per megawatt per year. Applying these values to the Rosamond South Solar Project results in an estimated annual avian mortality rate of 182 to 249 mortalities per year. This would be a minuscule mortality rate compared to the thousands of birds that would die of natural causes in the region each year from

natural and other anthropogenic causes. The loss of migratory birds due to the "fake lake effect" is less than significant, and there are no recommended avoidance measures.

Avoidance and Minimization Measures

Implementation of the avoidance and minimization listed below would reduce Project impacts to special-status wildlife species to levels that would be less than significant. The following measures are recommended to avoid and minimize impacts to northern legless lizard, western burrowing owl, Swainson's hawk, desert tortoise, loggerhead shrike, American badger, LeConte's thrasher, desert kit fox, and migratory and nesting birds.

BIO-5 **Pre-activity Surveys for Desert Tortoise, American Badger, Burrowing Owl, and Desert Kit Fox.** Within 14 days of the start of Project activities, a pre-activity survey should be conducted by a qualified biologist knowledgeable in the identification of these species. The timing of the pre-activity surveys may need to be phased to ensure appropriate timing before project activities begin. If greater than 14 days elapse between the survey and the start of activities, an additional survey would be required. The pre-activity survey shall include walking transects to identify the presence of burrowing owls and their burrows, desert tortoise and their burrows, American badgers and their dens, and desert kit foxes and their dens. The pre-activity survey shall be walked using transects spaced at intervals of not greater than 30 feet, which will provide 100 percent coverage of the Project site and a 250-foot buffer for desert tortoise, American badger, and desert kit fox, and a 500-foot buffer for burrowing owl. Some areas of the buffer may not be accessible, so transects within the buffer will only be walked where feasible. If no evidence of these special-status species is detected, no further action is required.

BIO-6 **Desert Tortoise Protocol Surveys and Avoidance**. To avoid construction-level impacts to desert tortoise, not more than 45 days prior to ground-disturbing activities for the construction and/or decommissioning phase(s), qualified personnel shall perform a preconstruction clearance survey for desert tortoise in accordance with the US Fish and Wildlife Service (USFWS)_*Preparing for any Action that May Occur within the Range of the Mojave Desert Tortoise* (USFWS 2019). If the species is present on-site, individual(s) shall be allowed to leave the site on their own, and in consultation with the California Department of Fish and Wildlife (CDFW), the applicant may be required to install exclusionary/perimeter fencing, with mesh attached to the fence fabric extending from approximately 12 inches below grade to approximately 24 inches above grade to ensure no tortoises re-enter the work limits. No person(s) shall be allowed to touch a tortoise without authorization from the USFWS and CDFW.

Environmental awareness training shall be provided for all construction personnel to educate them on desert tortoise, protective status, and avoidance measures to be implemented by all personnel, including looking under

vehicles and equipment prior to moving. If tortoises are encountered, such vehicles shall not be moved until the tortoises have voluntarily moved away from them or a qualified biologist has moved the tortoises out of harm's way.

If a tortoise is present, a biological monitor shall be present during all disturbance activities in the vicinity of exclusionary fencing (if required) and shall have the authority to stop work as needed to avoid direct impacts to tortoises. Periodic biological inspections and maintenance shall be conducted during the construction period to ensure the integrity of exclusionary fencing (if required). Work may proceed within the excluded area when the biologist confirms all tortoises have left the excluded area. Should tortoises be found during construction activities, the biological monitor shall have the authority to stop work as needed to avoid direct impacts to tortoises, and further consultations with the USFWS and CDFW shall take place. Trash and food items shall be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators of desert tortoise (e.g., ravens, coyotes, feral dogs).

BIO-7 **Avoidance of American Badger and Desert Kit Fox Dens and Burrowing Owl Burrows**. If dens or burrows that could support any of these species are discovered during the pre-activity survey conducted under Measure BIO-5, the avoidance buffers outlined below should be established, and den or burrow monitoring will be conducted in accordance with the California Department of Fish and Game (CDFG) *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) and USFWS *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011b). No work would occur within these buffers unless the biologist approves and monitors the activity.

Burrowing Owl (active burrows only)

- Non-breeding season (September 1 – January 31): 160 feet
- Breeding season (February 1 – August 31): 250 feet

American Badger and Desert Kit Fox Natal/Pupping Season

- American Badger
  - Breeding Season: Late Summer – Early Fall
  - Pregnancy (Delayed Implantation): December through February
  - Pups are Born: March through April
  - Pup Dispersal: June through August
- Desert Kit Fox
  - Mate Pairing: October through November
  - Mating: December through January (possibly into February)
  - Pups are Born: February or March
  - Pup Dispersal: July

American Badger and Desert Kit Fox

- Potential or Atypical den: 50 feet
- Known den: 100 feet
- Natal or pupping den: 200 feet

Burrows and dens may be excavated by a qualified biologist once it is determined that the burrow or den is not occupied. To determine occupation, each den should be monitored for three consecutive days/nights using tracking medium and/or remote cameras fitted with a motion detector and/or infra-red triggering system. In addition, prior to excavation of burrows or dens, one-way doors may be installed (only in non-breeding season), and the burrows or dens will be scoped with optic cameras to ensure no occupation of wildlife are present. All excavations would be accomplished by hand or backhoe under the direct supervision of a qualified biologist.

BIO-8 **Avoidance and Minimization Measures for American Badger, Desert Kit Fox, and Burrowing Owl.** The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impacts. These are modified from the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011b), but they can be applied equally to protect all three species.

- Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all Project areas, except on County roads and State and federal highways.
- All Project activities should occur during daylight hours, but if work must be conducted at night, then a night-time construction speed limit of 10-mph should be established.
- Off-road traffic outside of designated Project areas should be prohibited.
- To prevent inadvertent entrapment of kit foxes or other animals during construction of the project, all excavated, steep-walled holes or trenches more than two feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps spaced at a minimum distance of 100 feet and constructed of earthen-fill or wooden planks should be installed.
- Before holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the CDFW should be contacted before proceeding with the work.
- In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape.
- All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes, American badgers, and burrowing owls before the pipe is subsequently buried,

capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the animal vacates the pipe of its own accord. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity until the fox, badger, or burrowing owl has escaped.

- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.
- No pets, such as dogs or cats, should be permitted on the Project site unless permitted in accordance with the American Disabilities Act.
- Project-related use of rodenticides and herbicides should be restricted.
- A representative should be appointed by the Project proponent, who will be the contact source for any employee or contractor who might inadvertently kill or injure one of these species or who finds a dead, injured, or entrapped animal. The representative should be identified during the employee education program, and their name and telephone number should be provided to the CDFW.
- Upon completion of the Project, all areas subject to temporary ground disturbances (including storage and staging areas, temporary roads, pipeline corridors, etc.) should be recontoured and revegetated to promote restoration of the area to pre-project conditions following a revegetation plan approved by the County. An area subject to "temporary" disturbance means any area that is disturbed during the Project, but after Project completion, will not be subject to further disturbance and has the potential to be revegetated.
- Any Project personnel who are responsible for inadvertently killing or injuring one of these species should immediately report the incident to their representative. This representative should contact the CDFW immediately in the case of a dead, injured, or entrapped kit fox, American badger, or western burrowing owl.
- New sightings of American badger or western burrowing owl shall be reported to the CNDDB.

BIO-9 **Pre-activity Surveys for Swainson's Hawk Nests**. If Project activities must occur during the Swainson's hawk nesting season (February 15 to September 31), pre-activity surveys should be conducted for Swainson's hawk nests in accordance with the *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CDFW 2010). The surveys would be conducted on the Project site plus a 0.5-mile buffer. To meet the minimum level of protection for the species, surveys should be conducted during at least two survey periods prior to the start of construction. The survey will be conducted in accordance with the methodology outlined in existing protocols and should be phased with the construction of the Project.

If no Swainson's hawk nests are found, no further action is required.

BIO-10 **Swainson's Hawk Nest Avoidance.** If an active Swainson's hawk nest is discovered at any time within 0.5 miles of active construction, a qualified biologist should complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this Project. Based on this assessment, the biologist will determine if construction activities can proceed and the level of nest monitoring required. Construction activities should not occur within 500 feet of an active nest, but depending upon conditions at the site, this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist should have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

BIO-11 **Pre-activity Surveys for Nesting Birds.** If Project activities must occur during the nesting season (February 1 to September 15), pre-activity nesting bird surveys should be conducted 14 days prior to the start of construction at the construction site plus a 250-foot buffer (avoidance buffer) for songbirds and a 500-foot buffer for raptors (other than Swainson's hawk). The surveys should be phased with the construction of the Project. If no active nests are found, no further action is required. However, existing nests may become active, and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress. If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 250 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. Full-time monitoring of an active nest may be needed when activities are occurring at the fringe of a buffer to determine whether activities are affecting nesting birds. Results of the monitoring may indicate a need to expand the size of avoidance buffer areas. The avoidance buffer will remain in place until the biologist has determined that the young are no longer reliant on the adults or the nest. Work may occur within the avoidance buffer under the approval and guidance of the biologist, but full-time monitoring may be required. The biologist should have the ability to stop construction if nesting adults show any sign of distress.

BIO-12 **Biological Monitoring**. A qualified biologist should monitor all ground-disturbing and vegetation removal activities occurring during all construction activities. The qualified biologist should be present at all times during ground-disturbing activities (including drilling holes and trenching) within and

adjacent to habitat with the potential to support special-status wildlife species, including northern legless lizard, desert tortoise, burrowing owl, American badger, desert kit fox, and nesting birds. If a special-status species is found within the construction area, all construction shall cease immediately and the animal will be allowed to leave the area of its own accord or relocated by an authorized biologist to suitable habitat outside of the Project area.

BIO-13 **Worker Environmental Awareness Training.** Prior to the initiation of construction activities, all personnel should attend a Worker Environmental Awareness Training program developed by a qualified biologist. The program should include information on the life histories of special-status species with the potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. All attendees at WEATs should signify that they have received and understand the training material by signing an attendance sheet, which will be maintained on-site. All attendees will be provided with summary training materials that they can carry while on the job and can reference while working on the Project.

Significance After Mitigation. Implementation of the avoidance, minimization, and mitigation measures above will reduce impacts to special-status wildlife species to a less than significant level.

6.2 - Sensitive Natural Communities and Critical Habitat

The proposed project would have a significant effect on biological resources if it would:

b) Have a substantial adverse impact 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 US Fish and Wildlife Service.

The Project does not support any riparian or other sensitive natural communities, nor does it overlap with any designated critical habitat. The Project would have no impacts on these resources, and no measures are warranted.

6.3 - Jurisdictional Aquatic Resources

The proposed project would have a significant effect on biological resources if it would:

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.

There are no wetlands on the Project. The intermittent riverine feature in CUP Area 2 is potentially under the jurisdiction of the Lahontan RWQCB and/or CDFW. The Project may result in a maximum of 1.826 acres of disturbance to this feature. The final disturbance area

would depend upon the final design and layout of the solar facilities. The elimination of this water feature may be considered a significant impact. If the Project design avoids direct impacts to the riverine feature, there would be no significant impact.

To minimize impact to waters of the State and fulfill the regulatory requirements associated with discharges to waters of the State, the following measures should be implemented should the Project design impact the riverine feature. These measures address impacts resulting from construction and compensation for the loss of wetland and water resources. If the riverine feature is not determined to be a water of the State or under the jurisdiction of any agency, the following measures would not be warranted.

Avoidance and Minimization Measures

BIO-14 The Project should be designed to avoid direct impacts to the jurisdictional waters within the Project site to the extent feasible by implementing the following:

- Any material/spoils from Project activities should be located away from jurisdictional areas. Jurisdictional areas should be protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and/or straw bale barriers, as appropriate. Protection measures should follow Project-specific criteria as developed in a Stormwater Pollution Prevention and Protection Plan (SWPPP).
- Prior to the start of construction activities, the Project proponent should provide evidence that all fueling, hazardous materials storage areas, and operations and maintenance activities will be sited at least 100 feet away from on-site drainages and other water features, as identified in the Project-specific delineation of wetlands and waters.
- The Project proponent should prepare a Hazardous Materials Business Plan in accordance with the California Health and Safety Code and Kern County regulations. This Plan should provide for hazardous material and hazardous waste storage areas; describe proper handling, storage, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies.
- Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned, and any contaminated materials will be properly disposed of. The Project foreman or designated environmental representative will be notified of all spills.

BIO-15 The Project proponent should obtain a Lake and Streambed Alteration Agreement from the CDFW and from the RWQCB, if required, prior to impacting any State waters. In addition, the following should be implemented:

- The project proponent/operator should file a complete Report of Waste Discharge with the RWQCB to obtain Waste Discharge Requirements and should also contact the California Department of Fish and Wildlife (CDFW) on the need for a streambed alteration agreement. Copies of reports shall be submitted to the County.
- Based on consultation with RWQCB and CDFW, if permits are required for the project site, appropriate permits should be obtained prior to disturbance of jurisdictional resources.
- Compensatory mitigation for impacts to unvegetated streambeds/washes should be identified prior to disturbance of the features, as approved by the RWQCB or CDFW either through onsite or offsite mitigation or purchasing credits from an approved mitigation bank.
- The project proponent/operator should comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, which shall be provided to the County.
- A Habitat Mitigation and Monitoring Plan (HMMP) should be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW.
    - If onsite mitigation is proposed, the HMMP should identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on a comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site).
    - The HMMP should include remedial measures in the event that performance criteria are not met.
    - If mitigation is implemented off-site, mitigation lands should be comprised of similar or higher quality and preferably located in Kern County. Offsite land shall be preserved through a deed restriction or conservation easement, and the HMMP should identify an approach for funding assurance for the long-term management of the conserved land. Alternatively, the applicant may purchase credits from an approved mitigation bank.
    - Copies of any coordination, permits, etc., with RWQCB and CDFW, should be provided to the County.

6.4 - Wildlife Movement

The proposed project would have a significant effect on biological resources if it would:

d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors or impede the use of wildlife nursery sites.

The BSA occurs within a 24-mile wide wildlife connectivity area identified by the Essential Habitat Connectivity Project (Spencer et al. 2010, Figure 5-12). The BSA represents a small area in comparison to the expanses of open habitat contained within this area. The Project would not block or substantially alter the ability of species to use the corridor. Animals would still be able to disperse through fenced areas of the BSA because of the wildlife-friendly perimeter fence design that would be installed post-construction. Wildlife would be expected to traverse the BSA, as well as low-disturbance areas surrounding the BSA, unimpeded during foraging and dispersal. Although the Project is located within the Pacific Flyway, the Project is low-laying and is not expected to impact avian migratory movements within the flyway. The Project would not have any impacts on wildlife movement corridors, and no mitigation measures are warranted.

6.5 - Local Policies and Ordinances

The proposed project would have a significant effect on biological resources if it would:

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

The Project does not conflict with the Kern County General Plan and is not subject to any local ordinances. Therefore, there are no impacts with respect to local policies and ordinances, and no measures are warranted.

6.6 - Adopted or Approved Plans

The proposed project would have a significant effect on biological resources if it would:

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

The Project is within the boundaries of the draft West Mojave Plan and DRECP. Because the Project is composed entirely of privately owned parcels, it is not subject to the jurisdiction of the draft West Mojave Plan or to Phase I of the DRECP, which both apply only to BLM-managed lands. Therefore, the Project would not conflict with any adopted HCP or NCCP, there will be no impacts, and no measures are warranted.

SECTION 7 - LIMITATIONS, ASSUMPTIONS, AND USE RELIANCE

This Biological Analysis Report was performed in accordance with professionally accepted biological investigation practices conducted at the time of preparation and in this geographic area. The findings and opinions conveyed in this report are based on findings derived from on-site biological examinations, jurisdictional areas, and specified historical literature sources. The biological investigation is limited by the scope of work performed. Biological surveys for certain taxa conducted as part of this assessment may not have been performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected, and therefore, cannot be considered definitive. The biological surveys are also limited by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee that the organisms are not present and would not be discovered in the future within the site. In particular, mobile animal species could occupy the site on a transient basis or re-establish populations in the future. No other guarantees or warranties, expressed or implied, are provided.

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APPENDIX A

SPECIAL-STATUS SPECIES DATABASE SEARCH RESULTS FOR THE ROSAMOND SOUTH SOLAR PROJECT

Table A-1
Special-Status Species in the Regional Vicinity of the Rosamond South Solar Project, Kern County, California

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Sensitive Natural Communities				
Southern Riparian Scrub	G3, S3.2	This community consists of a scrubby streamside thicket, varying from open to impenetrable, dominated by any of several willow species (*Salix*). This early-stage community may yield to a variety of woodland types. Associated with perennial and intermittent waterways.	No	There are no perennial water sources to support riparian habitat, and no riparian species were observed during the surveys. The nearest CNDDB occurrence (EONDX 15313) is approximately 10 miles southwest of the Project in the Transverse Mountain Range.
Southern Willow Scrub	G3, S2.1	This community is characterized by dense, broadleafed, winter-deciduous riparian thickets dominated by willow species, with scattered cottonwood (*Populus fremontii*) and sycamore (*Platenus racemose*). These species occur along perennial waterways that experience repeated flooding.	No	There are no perennial water sources to support willow species, and no suitable habitat was observed during the surveys. The nearest CNDDB occurrence (EONDX 15274) is approximately 9.3 miles southwest of the Project in the Transverse Mountain Range.
Valley Needlegrass Grassland	G3, S3.1	This community consists of a mid-height (2 feet) grassland dominated by purple needlegrass (*Stipa pulchra* [=*Nasella pulchra*]), a perennial, tussock-forming grass. Native and introduced annuals occur between the bunchgrasses, and this community is usually found on fine-textured soils, moist or even waterlogged in winter, but very dry in summer.	No	Two species of *Stipa, S. hymenoides* and *S. speciosa*, were observed on the Project, but these were rarely encountered. Most grasses on-site are non-native *Hordeum* and *Bromus* species. Nearest CNDDB occurrence (EONDX 13582) is approximately 5.3 miles south of the Project, within the Antelope Valley California Poppy Reserve.
Wildflower Field	G2, S2.2	An unstructured variety of herb-dominated species noted for conspicuous annual wildflower displays. Species dominance will vary year by	No	Wildflower species do occur on-site but not in any sort of uninterrupted plain. Nearest CNDDB occurrence (EONDX 7494) is approximately 5.3

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		year and by site. Found in valley and foothill grasslands and oak woodlands.		miles south of the Project, within the Antelope Valley California Poppy Reserve.
Plants				
Astragalus hornii var. *hornii* Horn's milk-vetch	-/- 1B.1/-	Found in meadows and seeps, playas, or lake margins. Prefers alkaline soils. Occurs between 200 and 2,790 feet. Blooms between May and October.	No	Suitable habitat absent and the species was not observed during surveys. The nearest CNDDB occurrence is approximately 1.4 miles north of the Project (EONDX 70405), from 1931.
Astragalus preussii var. *laxiflorus* Lancaster milk-vetch	-/- 1B.1/-	This perennial herb is found in chenopod scrub; elevation range has not been established because, so few specimens have been reported. Blooms between March and May.	No	Suitable habitat present in the less disturbed areas of the Project, but the perennial species was not observed during surveys. There are no CNDDB records within 10 miles of the Project.
Calochortus clavatus var. *gracilis* slender mariposa lily	-/- 1B.2/-	Perennial herb (bulb) that is found in chaparral, coastal scrub, and valley and foothill grassland. Occurs at elevations between 950 and 2,295 feet and blooms between March and June.	No	Suitable habitat absent and the species was not observed during surveys. There are no CNDDB records within 10 miles of the Project.
Calochortus striatus alkali mariposa lily	-/- 1B.2/-	Perennial herb found in alkaline meadows and ephemeral washes within chaparral, chenopod scrub, and Mojavean desert scrub. Occurs between 230 and 5,230 feet. Blooms between April and June.	Yes	This species was observed during surveys on the east side of the Project and along the eastern end of Holiday Road. The nearest CNDDB occurrence is from 2016 and overlaps the Holiday Road Gen-tie route just west of its intersection with 100th St. (EONDX 110362).
Caulanthus lemmonii Lemmon's jewelflower	-/- 1B.2/-	This annual herb is endemic to California and is found in the foothills of the Coast range in pinyon and juniper woodland habitat, although it uncommonly occurs in grasslands of the San Joaquin Valley and creosote scrub in the Mojave Desert. It is found at elevations between 260 and 5285 feet, and blooms between February and May.	Yes	There is suitable habitat in the less disturbed areas of the Project, but the species was not observed during surveys and there are no CNDDB records within 10 miles. The species was observed by QK biologists in 2017, near Oak Creek approximately 7 miles north of the Project.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	FC/CE 1B.1/-	This annual herb is found in sandy coastal scrub and valley and foothill grasslands at elevations between 490 and 4,000 feet. Most historical habitat has been urbanized. It blooms between April and July.	No	Suitable habitat absent and this species was not observed during surveys. There are no CNDDB records within 10 miles of the Project.
Chorizanthe parryi var. parryi Parry's spineflower	-/- 1B.1/-	Annual herb found on sandy or rocky soils in openings in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Occurs at elevations between 1,640 and 2,165 feet and blooms from April to June.	No	Suitable habitat absent and this species was not observed during surveys. There are no CNDDB records within 10 miles of the Project.
Cryptanthe clokeyi Clokey's cryptantha	-/- 1B.2/-	Occurs in rocky, sandy, or gravelly soils in Mojavean desert scrub in the northwestern Mojave Desert. Occurs between 1,970 to 4,265 feet. Blooms in April.	Yes	Suitable habitat present in the less disturbed areas of the Project, although the species was not observed during surveys. The nearest CNDDB occurrence is approximately 5.7 miles south of the Project, within the California Antelope Valley Poppy Reserve (EONDX 79495). This species was also observed by QK biologists in 2017, near Oak Creek approximately 7 miles north of the Project.
Delphinium recurvatum recurved larkspur	-/- 1B.2/-	This perennial plant is commonly found in chenopod scrub, valley and foothill grassland and cismontane woodland. It is most common on sandy or clay alkaline soils. It flowers from March to May, and it ranges in elevation from 10 to 2,590 feet.	Yes	There is suitable habitat present in the less disturbed areas of the Project, but this species was not observed during surveys. There are no CNDDB records within 10 miles of the Project.
Eriastrum rosamondense Rosamond eriastrum	-/- 1B.1/-	This annual herb occurs in alkaline, often sandy hummocks. Around chenopod scrub openings, vernal pool edges, and cryptogramic soil. The blooming period is between April and May and it ranges in elevation from 2,296 to 2,345 feet.	No	Suitable habitat absent. Nearest CNDDB occurrence is approximately 6 miles southeast of the Project, where there were dried alkaline ponds (EONDX 93860).
Eschscholzia lemmonii ssp. *kernensis* Tejon poppy	-/- 1B.1/-	Annual plant found in open valley and foothill grasslands and chenopod scrub at elevations between 450 and 4,500 feet. Blooms between March and May.	No	Although suitable habitat is present in the less disturbed areas on the Project, it is outside the known range and the species was not observed

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
				during surveys. There are no CNDDB records within 10 miles of the Project.
Leptosiphon serrulatus Madera leptosiphon	-/- 1B.2/-	Annual herb found in cismontane woodland and lower montane coniferous forest; dry slopes; often on decomposed granite in woodland. Occurs at elevations between 985 and 4,265 feet and blooms April to May.	No	Suitable habitat absent. The nearest CNDDB occurrence is from 1935 and is approximately 9.9 miles northwest of the Project within the Tehachapi Mountain range (EONDX 75589).
Loeflingia squarossa var. *artemisiarum* sagebrush loeflingia	-/- 2B.2/-	Found in desert dunes, Great Basin scrub, and sandy Sonoran Desert scrub. Occurs between 2,295 and 5,300 feet. Blooms between April and May.	No	Suitable habitat absent. There are no CNDDB records within 10 miles of the Project.
Monardella linoides ssp. *oblonga* Tehachapi monardella	-/- 1B.3/-	Found in upper and lower montane coniferous forest, pinyon, and juniper woodland. Occurs between 2,950 and 8,105 feet. Blooms between June and August.	No	Suitable habitat absent. There are no CNDDB records within 10 miles of the Project.
Muhlenbergia utilis aparejo grass	-/- 2B.2/-	Perennial grass found in meadows and seeps, marshes and swamps, chaparral, coastal scrub, and cismontane woodland, typically on alkaline or serpentine soils. Occurs at elevations between 80 and 7,630 feet, and blooms between October and March.	No	Suitable habitat absent. The nearest CNDDB occurrence is from 2016 approximately 8.4 miles northwest of the Project (EONDX 116940).
Navarretia fossalis spreading navarretia	FT/- 1B.1/-	This annual herb is found in chenopod scrub, marshes and swamps, playas, and vernal pools. It occurs at elevations between 100 and 2,150 feet, and blooms between April and June.	No	Suitable habitat absent. The nearest CNDDB occurrence is from 2011 where specimens were found surrounding a vernal pool approximately 6.9 miles southwest of the Project (EONDX 94679).
Opuntia basilaris var. *brachyclada* short-joint beavertail	-/- 1B.2/-	This perennial plant succulent is found in chaparral, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland. Occurs at elevations between 1,395 and 5,905 feet and blooms between April and June, sometimes as late as August.	No	Suitable habitat present in the less developed areas of the Project, but this species is conspicuous year-round, and no beavertail cacti were observed during the surveys. There are no CNDDB records within 10 miles of the Project.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Sidalcea neomexicana salt spring checkerbloom	-/- 2B.2/-	This perennial plant is commonly found in alkaline and mesic habitats within chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas. It flowers from March to May, and it ranges in elevation from 50 to 5,020 feet.	No	Suitable habitat absent. There are no CNDDB records within 10 miles of the Project.
Streptanthus campestris southern jewelflower	-/- 1B.3/-	This perennial plant is found on rocky soils in chaparral, lower montane coniferous forest, and pinyon and juniper woodland. It occurs at elevations between 2,955and 7,545 feet and blooms between May and July.	No	Suitable habitat absent and the Project is outside of the typical elevation range for the species. There are no CNDDB records within 10 miles of the Project.
Symphyotrichum greatae Greata's aster	-/- 1B.3/-	This perennial rhizomatous herb is found in mesic habitats within broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and riparian woodland. It is found within an elevation range between 985 and 6,595 feet and blooms between June and October.	No	Suitable habitat absent. There are no CNDDB records within 10 miles of the Project.
Invertebrates				
Bombus crotchii Crotch's bumblebee	-/SC -/-	This bee occurs in relatively warm and dry sites, including the inner Coast Range of California and the margins of the Mojave Desert. It can be found in open grassland and scrub habitats. Nesting occurs underground. This species is classified as a short-tongued species, whose food plants include *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia*.	Yes	Suitable habitat present, although preferred food sources are scarce. Nearest CNDDB occurrence is approximately 9.7 miles south of the Project (EONDX 98913). Insect species are not given protective status under CESA.
Helminthoglypta greggi Mohave shoulderband	-/- -/-	This terrestrial snail is found on talus slopes, rock outcrops, and rockslide areas in the vicinity of Soledad Mountain in the western Mojave Desert.	No	Suitable habitat absent. Nearest CNDDB occurrence is 9.7 miles northeast of the Project (EONDX 106607).
Reptiles				
Anniella pulchra northern legless lizard	-/- -/SSC	This species occurs in moist warm loose soils with vegetative cover. Is found in beach dunes, chaparral, pine-oak woodlands, desert scrub,	Yes	Suitable habitat present in less disturbed areas of the Project with shrub cover. Nearest CNDDB

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		sandy washes, and stream terraces. This species requires moisture in the soil. It is found		occurrence is approximately 4.1 miles south of the Project (EONDX 112342).
Gopherus agassizii desert tortoise	FT/ST -/-	Prefers creosote bush habitat with annual wildflower blooms. Requires friable soils for burrow and nest construction. Occurs in most desert habitats.	Yes	Suitable habitat present in native scrub habitat No sign observed during surveys. Nearest CNDDB occurrence is approximately 1.5 miles northwest of the Project (EONDX 93646).
Phrynosoma blainvillii coast horned lizard	-/- -/SSC	Prefers sandy/loose soils in grassland, forests, woodlands, and open chaparral; often found along sand washes and dirt roads with scattered shrubs for refuge; specialized in consuming ants; distribution includes coastal California from Baja California north to the Bay Area, southeastern desert regions, southern Central Valley flats and foothills and surrounding mounts on drier, warmer slopes; threatened by habitat loss/fragmentation and spread of invasive ant species displacing native prey; elevation from sea level to 8,000 feet.	No	This species is not found in the Mojave Desert. No sign observed during surveys. Nearest CNDDB occurrence is approximately 7.5 miles southwest of the Project (EONDX 28059).
Birds				
Agelaius tricolor *tricolored blackbird*	-/ST -/SSC	Colonial breeder that prefers freshwater, emergent wetlands with tall, dense cattails or tules, but also thickets of willow, blackberry, wild rose, and tall herbs; breeding colonies are minimum ~50 pairs; forages in pastures, grain fields, and similar habitats near breeding areas. Occurs in densely vegetation valley and foothill grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes; favors native grasslands with a mix of grasses, forbs and scattered shrubs; loosely colonial when nesting; summer resident and breeding in west of Cascade-Sierra Nevada crest from Mendocino to Trinity counties, south to San Diego County; largely insectivorous.	No	Suitable habitat absent. Nearest CNDDB occurrence is approximately 4 miles east of the Project (EONDX 101011).

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Aquila chrysaetos golden eagle	-/- -/FP	Species typically nests in canyons on cliffs and large trees in open habitats, although it has been observed nesting on transmission towers in the Central Valley. Forages for mammalian prey in grasslands and over open areas.	Yes: foraging No: nesting	Foraging habitat present. May nest in transmission towers in the Project vicinity but none present on-site. The nearest CNDDB occurrence overlaps the eastern portion of the Project (EONDX 88699).
Athene cunicularia burrowing owl	BCC/- -/SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Yes	This species was observed during surveys and may be present in the less disturbed areas of the Project. Nearest CNDDB occurrence is approximately 0.5 miles west of the eastern portion of the Project (EONDX 82056).
Buteo regalis ferruginous hawk	BCC/- -/SSC	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, and agricultural areas; requires adjacent suitable foraging habitat such as grasslands, alfalfa or grain fields supporting rodent populations.	Yes: winter foraging No: nesting	Suitable foraging habitat present but this species does not nest in Southern California. Nearest CNDDB occurrence is approximately 0.1 miles northwest of the Project (EONDX 84505).
Buteo swainsoni Swainson's hawk	-/ST -/-	Occurs in grassland, desert and agricultural landscapes in the Central Valley and Antelope Valley; hawks may be resident or migrant; breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; also observed breeding in large eucalyptus trees along freeways and in trees over rural residences surrounded by agriculture; may nest on ground if no suitable trees are available; nests are platform of sticks, bark, and fresh leaves at or near top of trees; breeds from late March to late August; forages in grassland, open scrub, and grain fields, primarily for rodents.	Yes	Suitable nesting and foraging habitat present and individuals were observed overhead during the surveys. The nearest CNDDB occurrence documents a 2012 nest on the eastern side of the Project (EONDX 84479), which was not observed during the surveys. QK Biologists incidentally observed an active nest approximately 0.6 miles east of the Project in June 2020, after surveys were completed.
Charadrius alexandrines nivosus western snowy plover	FT/- -/SSC	This species occurs along sandy beaches, salt pond levees and shores of large alkali lakes. Frequent habitats include standing waters in the	No	Suitable habitat absent. There are no CNDDB occurrences within 10 miles of the Project.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		Great Basin, sandy beach shores, and wetlands. It needs sandy, gravelly, or friable soils for nesting.		
Charadrius montanus mountain plover	BCC/- -/-	Species occurs in short grasslands, freshly plowed fields, newly sprouting grain fields and sod farms. Prefers short vegetation, bare ground, flat topography, grazed areas, and areas with burrowing rodents. The species does not breed in California.	No	Suitable habitat absent, vegetation relatively dense throughout Project. The nearest CNDDB occurrence overlaps the western portion of the Project (EONDX 85833).
Falco columbarius Merlin	-/- -/WL	Species typically nests in forests adjacent to open habitats. Occurs within California primarily as a migrant. Typically forages in open forests and grasslands.	Yes: winter foraging No: nesting	The species does not breed in California, but the Project supports suitable foraging habitat and the species may occur as a transient. The nearest CNDDB occurrence is 0.1 miles west of the Project (EONDX 84531).
Falco mexicanus prairie falcon	-/- -/WL	Occurs in open plains, grasslands, shrub-steppe, deserts, and other open areas of the West. In winter, may forage in cultivated fields and desert scrub. Usually nests on cliffs, though trees, or transmission line support structures may be used.	Yes	Suitable foraging habitat present in the Project area, and the species will appropriate stick nests of other species that may be in trees or electrical structures in the BSA. The nearest CNDDB occurrence is 2.5 miles north of the Project, from 1978 (EONDX 26021).
Gymnogyps californianus California condor	FE/SE -/FP	Species inhabits rocky shrublands, coniferous forests, and oak savannas, often near cliffs or large trees, used as nesting sites. Forages in open grasslands, potentially far from nesting sites. Nests in cliff cavities and large trees, typically at elevations between 2,000 and 6,500 feet in elevation.	No	May disperse through the Project area but no suitable foraging or nesting habitat. No CNDDB records within 10 miles of the Project.
Lanius ludovicianus loggerhead shrike	-/- -/SSC	Common resident in lowlands and foothills throughout California; prefers open grassland/pasture habitats with scattered trees,	Yes	Suitable foraging and nesting habitat present in the Project area. Individuals and nest observed during

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		fence posts, utility lines, shrubs, and other perches; primarily consumes large insects but will predator other small animals; nests in densely-foliaged shrub or tree less than 50 feet above ground.		surveys. Nearest CNDDB record is approximately 1.1 miles north of the Project (EONDX 93799).
Limosa fedoa Marbled godwit	BCC/- -/-	This migratory species is a rare winter visitor to inland California, typically remaining on the coasts and associated riverine systems. They will occasionally roost at salt ponds during migration and in overwintering range.	No	Suitable habitat absent from the Project. This species does not breed in California. The CNDDB does not track this species.
Numenius americanus Long-billed curlew	BCC/- -/-	Winter visitor to coastal California, Central Valley, Imperial Valley, and other scattered areas in the state. Breeds in shortgrass or mixed grass prairie and winters on sandy beaches, coastal mudflats, estuaries, inland wetlands, grasslands, flooded row crop fields, and large ponds. Feeds on invertebrates, fish or bird eggs, and nestlings.	Yes: winter foraging No: nesting	Marginal overwintering habitat present in the Project area. Individuals observed flocking over east end of Project during early April survey. The CNDDB does not track this species.
Numenius phaeopus whimbrel	BCC/- -/-	Winter visitor to coastal California and may migrate through interior California in the spring. During migration, will stopover and forage in meadows, fields, sandy beaches, estuaries, etc., typically roosting at night in shallow water. Overwintering habitat typically consists of tidal mudflats and more terrestrial habitats during high tide. Main foods are aquatic invertebrates, fish, some insects, and berries.	Yes: winter foraging No: nesting	Marginal overwintering habitat present in the Project area, the species may travel through during migration. The CNDDB does not track this species.
Plegadis chihi white-faced ibis	-/- -/WL	Migratory wading bird that does not regularly breed in California any longer and is more often an uncommon summer resident at some Southern California localities. Is more widespread during migration. Forages in emergent wetlands, wet meadows, and flooded	No	Suitable habitat absent from the Project. The nearest CNDDB occurrence is at some ponds approximately 9.8 miles east of the Project in August 1998 (EONDX 65966).

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
		pastures and croplands. Nests colonially in dense fresh emergent wetland.		
Selasphorus rufus rufous hummingbird	BCC/- -/-	This species migrates through California between its wintering grounds in Mexico and breeding grounds in the Pacific northwest. Found in a wide variety of habitats that provide nectar-producing flowers, including valley foothill woodlands, riparian, chaparral, and planted gardens.	Yes: foraging No: nesting	Suitable foraging habitat is present on the Project, but the species does not breed in Southern California. The CNDDB does not track this species, but an individual was observed during the reconnaissance survey.
Spinus lawrencei Lawrence's goldfinch	BCC/- -/-	Semi-migratory in California, in the foothills surrounding the Central Valley and along the southern Coast Range. Preferred habitat is open oak or other arid woodland and chaparral near a water source. Will also use riparian woodland, chaparral, and rural residential areas near weedy fields and water sources. Nests are built in forks of oaks, conifers, or other deciduous trees. Diet consists almost exclusively of seeds and grains.	No	Suitable habitat absent from the Project. The CNDDB does not track this species.
Toxostoma lecontei LeConte's thrasher	BCC/- -/SSC	Non-migratory species that occurs in the southwestern U.S. and northwestern Mexico; has been observed in the Central Valley from Fresno to Kern County and west to San Luis Obispo County, but range largely restricted to Kern County by land development. Typical habitat is desert scrub, alkali desert scrub, and desert washes, and nests are built in dense spiny shrubs or branched cacti.	Yes	Suitable habitat present in the Project area and a *Toxostoma* species was observed, although species could not be determined. The nearest CNDDB occurrence is 0.9 miles north of the Project (EONDX 24519).
Mammals				
Corynorhinus townsendii Townsend's big-eared bat	-/- -/SSC	Species utilizes a wide variety of habitats including desert scrub. Most common in mesic habitats. Roosts in mines, caves, hollow trees, or abandoned buildings. Extremely sensitive to roost disturbance.	Yes: foraging No: roosting	The species may forage on the Project but there is no suitable roosting habitat. Nearest CNDDB occurrence is from a mine approximately 4.2 miles

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
				northeast of the Project (EONDX 93183).
Onychomys torridus tularensis Tulare grasshopper mouse	-/- -/SSC	This species occurs in hot, arid valleys and scrub deserts in the southern San Joaquin Valley, typically in shrubland communities. This includes blue oak woodlands, upper Sonoran subshrub scrub, alkali sink and mesquite associations, and grasslands associations on the margins of the San Joaquin Valley and Carrizo Plain region. Its diet is almost exclusively composed of arthropods, so habitat must supply an abundance of insects.	No	Marginal habitat present but the Project is outside of the recognized range. Nearest CNDDB occurrence is approximately 5.1 miles north of the Project (EONDX 94160).
Perognathus alticola inexpectatus Tehachapi pocket mouse	-/- -/SSC	Species is not well studied. Species generally found in grasslands, chaparral and sage scrub, Joshua tree woodland, and pinyon-juniper woodland from the Tehachapi pass and westward toward Mount Pinos, south to Quail Lake, at elevations between 3,400 and 6,000 feet.	No	Suitable habitat present but the Project is outside of the recognized geographic and elevation range. Nearest CNDDB occurrence is approximately 5 miles north of the Project (EONDX 93837).
Perognathus inornatus San Joaquin pocket mouse	-/- -/-	Occurs in dry, open grasslands or scrublands on fine-textured soils in the Central (mostly west side) and Salinas valleys; elevation from 1,100 to 2,000 feet; feeds primarily on seeds; digs burrows for cover and breeding; nocturnal.	No	Suitable habitat absent and Project is outside of the recognized range. Nearest CNDDB occurrence is approximately 2.5 miles north of the Project (EONDX 93993).
Taxidea taxus American badger	-/- -/SSC	Occurs mostly in open, drier stages of shrub, forest, and herbaceous habitats, with friable soils; feeds mostly on fossorial rodents; digs burrows for cover and reproduction; can dig new den each night; litters born mostly in March and April; somewhat tolerant of human activities but avoids cultivated agricultural habitats.	Yes	Suitable habitat is present on the Project. Nearest CNDDB occurrence is approximately 2.5 miles north of the Project (EONDX 57489).
Vulpes macrotis arsipus desert kit fox	-/- -/-	This species occurs on open desert, creosote bush flats, and sand dunes. Species preys on kangaroo rats, black-tailed jackrabbits, birds, reptiles, and insects. They are nocturnal and will forage near the den during the evening.	Yes	There is suitable habitat on the Project and several potential dens were found during the surveys. The CNDDB does not track this species.

Scientific Name Common Name	Status Fed/State ESA CRPR/CDFW	Habitat Requirements	Potential to Occur	Rationale
Xerospermophilus mohavensis Mohave ground squirrel	-/ST -/-	Endemic to the Mojave Desert, this species inhabits open desert scrub, alkali scrub, and Joshua tree woodland, and annual grassland. Prefers sandy to gravelly soils, where it digs burrow systems at the base of shrubs for cover. Active during the day in the spring and early summer and aestivates for the remainder of the year. Preferred food sources include Joshua trees, shrubs of Chenopodaciacae, and native forbs. Populations west of State Route 14 appear to be extirpated.	No	Suitable habitat is present, but the Project is outside of the species occurrence range. Nearest CNDDB occurrence is approximately 7.5 miles northeast of the Project (EONDX 7874).

CRPR (California Rare Plant Rank):
- 1A Presumed Extinct in California
- 1B Rare, Threatened, or Endangered in California and elsewhere
- 2A Plants presumed extirpated in California, but more common elsewhere
- 2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:
- .1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 Fairly endangered in California (20-80% occurrences threatened)
- .3 Not very endangered in California (<20% of occurrences threatened)

- FE Federally Endangered
- FT Federally Threatened
- FC Federal Candidate Species
- BCC Federal Bird of Conservation Concern
- SE State Endangered
- ST State Threatened
- SC State Candidate
- SS State Sensitive
- SSC State Species of Special Concern
- SFP State Fully Protected
- WL Watch List

APPENDIX B

REGULATORY SETTING
ROSAMOND SOUTH SOLAR PROJECT

Regulatory Setting

Federal Laws and Regulations

Federal Endangered Species Act of 1973 (USC, Title 16, Sections 1531 -1543)

The federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA provides a program for the conservation and recovery of threatened and endangered species as well as the protection of designated critical habitat that USFWS determines is required for the survival and recovery of listed species.

Section 9 lists actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction of adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. If an activity could result in "take" of a listed species as an incident of an otherwise lawful activity, then a biological opinion can be issued with an incidental take statement that exempts the activity from FESA's take prohibitions.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at CFR Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS. Section 10 would apply to the Project if take of a species (as defined in Section 9) were determined to occur.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA: 1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special

management consideration or protection; and 2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act (USC, Title 16, Sections 703 - 711)

The MBTA, first enacted in 1918, is a series of treaties that the United State has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The MBTA currently includes several hundred species and includes all native birds.

BALD AND GOLDEN EAGLE PROTECTION ACT OF 1940 (USC, TITLE 16, SECTION 668)

The Bald and Golden Eagle Protection Act of 1940 protects bald eagles (*Haliaeetus leucoephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species and established civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." To 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 inferring with normal breeding, feeding, or sheltering behavior. (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).

Federal Clean Water Act (USC, Title 33, Sections 1521 - 1376)

The Federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires that a Project applicant that is pursuing a federal license or permit allowing a discharge to waters of the U.S. to obtain State Certification of Water Quality, thereby ensuring that the discharge will comply with provisions of the CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by the United States Army Corps of Engineers (USACE) that regulates the discharge of the dredged or fill material into waters of the U.S., including wetlands. The USACA implementing regulations are found in CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency (EPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Applicable State Laws and Regulations

California Environmental Quality Act (California Public Resources Code, Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections 15000 - 15387)

The California Environmental Quality Act (CEQA) is California's broadest environmental law. CEQA helps guide the issuance of permits and approval of projects. Courts have interpreted CEQA to afford the fullest protection of the environment within the reasonable scope of the statutes. CEQA applies to all discretionary projects proposed to be conducted or approved by a State, County, or City agency, including private projects requiring discretionary government approval.

The purpose of CEQA is to disclose to the public the significant environmental effects of a proposed discretionary project; prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring; disclose to the public the agency decision making process to approve discretionary projects; enhance public participation in the environmental review process; and improve interagency coordination.

State CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or State list of protected species nonetheless may be considered rare or endangered for purposed of CEQA if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of CFGC dealing with rare or endangered plants or animals.

California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For Projects that would result in take of a species listed under the CESA, a project proponent would need to obtain a take permit under Section 2081(b). Alternatively, the CDFW has the option of issuing a Consistency Determination (Section 2080.1) for Projects that would affect a species listed under both the CESA and the FESA, as long as compliance with the FESA would satisfy the "fully mitigate" standard of CESA, and other applicable conditions.

Porter-Cologne Water Quality Control Act

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCB regulates waters of the State under the authority of the Porter-Cologne Water Quality Control Act (Porter Cologne Act). The RWQCB requires Projects to avoid impacts to wetlands whenever feasible and requires that Projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for

impacts to wetlands and/or waters of the State. The RWQCB has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County (SWANCC) decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste into waters of the State, and such discharges are authorized through an Order of Waste Discharge (or waiver of discharge) from the RWQCB.

Various Sections of the California State and Fish and Game Code

SECTION 460 AND SECTIONS 4000-4003

Chapter 5 of the California Fish and Game Code (CFGC) describes regulations concerning the take of furbearing mammals, including defining methods of take, seasons of take, bag and possession limits, and areas of the State where take is allowed. Section 4000-4003 defines furbearing mammals, and the issuance of permits by the Department. Sections 460 and 4000 identifies fisher, marten, river otter, desert kit fox and red fox as furbearing mammals, and Section 460 prohibits take of these species at any time. This section of the CFGC has historically been interpreted to apply to restriction on furbearer trapping permit but has recently been expanded by CDFW to apply to any forms of take and treated as if these species were listed under CESA.

SECTIONS 1600 THROUGH 1616

Under these sections of the FGC, a Project operator is required to notify CDFW prior to any Project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the California Code of Regulations, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports of has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and Project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable Project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement.

SECTIONS 3511, 4700, 5050, AND 5515

The protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the FGC. These statues prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species, except as allowed for in an approved Natural Communities Conservation Plan (NCCP), or through direct legislative action.

SECTIONS 1900 THROUGH 1913 - NATIVE PLANT PROTECTION ACT

California's Native Plant Protection Act (NPPA) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provision of the NPPA prohibit that taking of listed plants from the wild and require notification of CDFW at least ten days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. A Project proponent is required to conduct floristic inventories and consult with CDFW during Project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

Local and Regional Laws, Regulations, and Policies

COUNTY OF KERN GENERAL PLAN

The County of Kern General Plan identifies the federal, State, and local statutes, ordinances, and 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 states that the element provides for a variety of land uses for future economic growth while also ensuring the conservation of the County's agricultural, natural, and resource attributes. Section 1.10, "General Provisions," provides goals, policies, and implementation measures that apply to all types of discretionary Projects. In addition, the Kern County General Plan includes specific policies for threatened and endangered species.

Table 1
Chapter 1 – Land Use, Open Space, and Conservation Element

Goal	
Goal 1:	Ensure that the County can accommodate anticipated growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.
Policies	
Policy 27:	Threatened or endangered plant and wildlife species should be protected in accordance with State and Federal laws. Threatened or endangered plant and wildlife species should be protected in accordance with State and Federal laws.
Policy 28:	The County should work closely with State and Federal agencies to assure that discretionary Projects avoid or minimize impacts on fish, wildlife, and floristic resources.
Policy 29:	The County will seek cooperative efforts with local, State, and Federal agencies to protect listed threatened and

	endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.
Policy 30:	The 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 provision of CEQA, the County, as leady agency, will solicit comments from the CDFW and 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 the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological recreational, and other beneficial uses while acknowledging existing land use patterns.
Implementation Measures	
Measure Q:	Discretionary Project shall consider effects to biological resources as required by CEQA.
Measure R:	Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary Project subject to CEQA. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary Project subject to CEQA.
Measure S:	Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlines endangered species mitigation programs.
1.10.5 Threatened and Endangered Species	
Policy COS. 27:	Threatened or endangered plant and wildlife species should be protected in accordance with state and federal laws.
Policy COS. 28:	The County should work closely with state and federal agencies to assume that discretionary Projects avoid or minimize impacts on fish, wildlife, and floristic resources.
Policy COS. 29	The County will seek cooperative efforts with local, state, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.
Policy COS. 30:	The 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 COS. 31:	Under the provisions of CEQA, the County, as lead agency, will solicit comments from the CDFG and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or EIR) is prepared.
Policy COS. 32:	Riparian areas will be managed in accordance with the USACE and the CDFG rules and regulations to enhance the drainage, flood control, biological recreational, and other beneficial uses while acknowledging existing land use patterns.
Implementation Measures	
Measure Q:	Discretionary Projects shall consider effects to biological resources as required by CEQA.
Measure R:	Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary Project subject to CEQA.

Source: (Kern County, 2009) (Kern County, 2009)

DRAFT WEST MOJAVE HABITAT CONSERVATION PLAN

The Rosamond South Solar Project is within the planning area of the West Mojave Habitat Conservation Plan (WMP), which drives land use decisions on Bureau of Land Management (BLM) land in the Mojave Desert even though the plan has not yet been officially adopted. The Rosamond South Solar Project is located on private land and is not subject to the jurisdiction of the BLM or the West Mojave Plan.

DESERT RENEWABLE ENERGY CONSERVATION PLAN

The California Energy Commission (CEC), CDFW, BLM, and USFWS prepared the Desert Renewable Energy Conservation Plan (DRECP), which was finalized in 2016. The DRECP plan area encompasses the Mojave and Colorado Desert regions in California, including all or a portion of Kern, Los Angeles, San Bernardino, Inyo, Riverside, Imperial, and San Diego counties.

The DRECP is a joint State and federal NCCP and part of one or more HCPs that are intended to provide for effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy Projects. It is anticipated to provide long-term endangered species permit assurances to renewable energy developers and provide a process for conservation funding to implement the DRECP. It would also serve as the basis for one or more HCPs under the FESA. The final plan is still in the development stage and has not been adopted by any agency.

CALIFORNIA DESERT NATIVE PLANTS ACT

The California Native Desert Native Plants Act protects certain species of native desert plants from unlawful harvesting on both public and private lands within the Counties of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego. In order to harvest, transport, or possess any of the protected species a person must possess a valid permit and required tags.

APPENDIX C

REPRESENTATIVE PHOTOGRAPHS OF THE ROSAMOND SOUTH SOLAR PROJECT SITE

Photograph 1: Gen-tie route near Whirlwind substation looking south along 170th Street; desert scrub.
GPS Coordinates: 34.859941˚N, -118.431687˚W
Photograph taken by Karissa Denney on March 30, 2020.

Photograph 2: Center of western Project parcels, looking north; desert scrub habitat.
GPS Coordinates: 34.849634˚N, -118.428723˚W
Photograph taken by Karissa Denney on June 2, 2020.

Photograph 3: Holiday Avenue gen-tie route between western and central arrays, looking west; alkali desert scrub.
GPS Coordinates: 34.848168 ˚N, -118.406034˚W
Photograph taken by Karissa Denney on March 30, 2020.

Photograph 4: Center of northernmost parcel looking west, desert scrub mixed with annual grassland.
GPS Coordinates: 34.858875˚N, -118.381701˚W
Photograph taken by Erica Pena on May 19, 2020.

Photograph 5: Center of parcel north of Holiday Avenue, looking south; desert scrub habitat.
GPS Coordinates: 34.852281˚N, -118.37522˚W
Photograph taken by Karissa Denney on May 20, 2020.

Photograph 6: Southwestern side of central portion of Project, facing east; annual grassland habitat.
GPS Coordinates: 34.837593˚N, -118.375600˚W
Photograph taken by Karissa Denney on March 20, 2020.

Photograph 7: Annual grassland habitat in central portion of Project, looking south.
GPS Coordinates: 34.843029˚N, -118.377710˚W
Photograph taken by Karissa Denney on June 1, 2020.

Photograph 8: Desert scrub habitat in central portion of Project, looking south.
GPS Coordinates: 34.839701˚N, -118.367726˚W
Photograph taken by Shannon Gleason on March 24, 2020.

Photograph 9: Desert scrub habitat in central portion of Project, looking south.
GPS Coordinates: 34.838513˚N, -118.366829˚W
Photograph taken by Karissa Denney on May 20, 2020.

Photograph 10: Eastern side of central Project area, desert scrub habitat, facing west.
GPS Coordinates: 34.835774˚N, -118.351146˚W
Photograph taken by Karissa Denney on June 2, 2020.

Photograph 11: Alkali scrub habitat along Holiday Avenue gen-tie route, looking west.
GPS Coordinates: 34.849370˚N, -118.325272˚W
Photograph taken by Karissa Denney on May 11, 2020

Photograph 12: Annual grassland habitat along Gaskell Avenue gen-tie route, facing west.
GPS Coordinates: 34.834112˚N, -118.334957˚W
Photograph taken by Karissa Denney on April 2, 2020.

Photograph 13: Annual grassland habitat on eastern Project parcels, looking south.
GPS Coordinates: 34.831792˚N, -118.303555˚W
Photograph taken by Shannon Gleason on March 23, 2020.

Photograph 14: Annual grassland habitat on eastern Project parcels, looking south.
GPS Coordinates: 34.832307˚N, -118.293925˚W
Photograph taken by Shannon Gleason on June 3, 2020.

Photograph 15: Lone alkali mariposa lily specimen found on eastern side of Project in annual grassland.
GPS Coordinates: 34.837107˚N, -118.302797˚W
Photograph taken by Shannon Gleason on May 9, 2020.

Photograph 16: Alkali mariposa lily population within alkali sink scrub along Holiday Avenue gen-tie, facing east.
GPS Coordinates: 34.849370˚N, -118.325272˚W
Photograph taken by Shannon Gleason on May 11, 2020.

Photograph 17: Alkali mariposa lily specimen from Holiday Avenue population.
GPS Coordinates: 34.849370˚N, -118.325272˚W
Photograph taken by Shannon Gleason on May 11, 2020.

Photograph 18: Active Swainson's hawk nest observed about 0.6 miles east of Project at rural residence. Adult on nest and light-morph adult observed soaring overhead.
GPS Coordinates: 34.848613˚N, -118.281949˚W
Photograph taken by Eric Madueno on June 16, 2020.

Photograph 19: Active burrowing owl burrow with observed burrowing owl, within annual grassland in central portion of Project.
GPS Coordinates: 34.839258˚N, -118.376581˚W
Photograph taken by Laura Schneider on March 20, 2020.

Photograph 20: Fresh burrowing owl sign (pellets, whitewash) at inactive kit fox den on western parcels.
GPS Coordinates: 34.852103˚N, -118.423922˚W
Photograph taken by Shannon Gleason on March 23, 2020

Photograph 21: Active horned lark nest within annual grassland in central portion of Project.
GPS Coordinates: 34.843693˚N, -118.375200˚W
Photograph taken by Julie Hausknecht on March 24, 2020.

Photograph 22: Active mourning dove nest within annual grassland in central portion of Project.
GPS Coordinates: 34.841126˚N, -118.371336˚W
Photograph taken by Shannon Gleason on June 1, 2020.

Photograph 23: Active cactus wren nest within Joshua tree in central portion of Project north of Holiday Ave.
GPS Coordinates: 34.850408˚N, -118.376200˚W
Photograph taken by Julie Hausknecht on March 20, 2020.

Photograph 24: Large inactive stick nest in tamarisk tree on east side of Project.
GPS Coordinates: 34.827425˚N, -118.303742˚W
Photograph taken by Shannon Gleason on March 23, 2020.

Photograph 23: Raven nest in transmission tower in central stretch of Holiday Avenue gen-tie.
GPS Coordinates: 34.848831˚N, -118.369847˚W
Photograph taken by Eric Madueno on May 13, 2020.

Photograph 24: Remains of desert kit fox in central portion of Project.
GPS Coordinates: 34.839714˚N, -118.372075˚W
Photograph taken by Karissa Denney on June 1, 2020.

APPENDIX D

PLANT AND ANIMAL SPECIES OBSERVED WITHIN THE BIOLOGICAL STUDY AREA
ROSAMOND SOUTH SOLAR PROJECT

Table D-1
Plant Species Observed within the Biological Study Area During 2020 and 2021 Surveys
Rosamond South Solar Project, Kern County, California

Scientific Name	Common Name	Native or Introduced
Trees		
Eucalyptus sp.	eucalyptus	Introduced
Juniperus occidentalis	juniper	Native
Oleyna tesota	desert ironwood	Native
Pinus sp.	pine	-
Tamarix parviflora	tamarisk	Introduced; Cal-IPC High
Ulmus pumila	Siberian elm	Introduced
Yucca brevifolia	Joshua tree	Native – CDNPA
Shrubs		
Acamptopappus shockleyi	Shockley's goldenhead	Native
Acamptopappus sphaerocephalus	rayless goldenhead	Native
Ambrosia dumosa	white bursage	Native
Ambrosia salsola	cheesebush	Native
Asclepias sp.		
Atriplex confertifolia	spiny saltbush	Native
Atriplex polycarpa	allscale saltbush	Native
Caesalpinia gilliesii	bird of paradise	Introduced
Cylindropuntia sp.	cholla	Native – CDNPA
Encelia actoni	Acton encelia	Native
Ephedra nevadensis	ephedra	Native
Ericameria cooperi	Cooper's goldenbush	Native
Ericameria linearifolia	interior goldenbush	Native
Ericameria nauseosa	rubber rabbitbrush	Native
Eriogonum fasciculatum	California buckwheat	Native
Grayia spinosa	spiny hopsage	Native
Gutierrezia microcephela	sticky snakeweed	Native
Krascheninnikovia lanata	winterfat	Native
Larrea tridentata	creosote bush	Native
Lycium andersonii	Anderson's thornbush	Native
Lycium cooperi	Cooper's boxthorn	Native
Opuntia polyacantha var. *erinacea*	grizzly bear prickly pear	Native – CDNPA
Peritoma arborea	bladderpod	Native
Tetradymia stenolepis	Mojave cottonthorn	Native
Herbs		
Abronia pogonatha	sand verbena	Native
Ambrosia acanthicarpa	annual burweed	Native
Amsinckia intermedia	common fiddleneck	Native
Amsinckia tesselata	devil's lettuce	Native
Anisocoma acaulis	scalebud dandelion	Native
Astragalus lentiginosus	freckled milk vetch	Native

Scientific Name	Common Name	Native or Introduced
Brassica nigra	black mustard	Introduced; Cal-IPC Moderate
Calochortus striatus	alkali mariposa lily	Native – Rare
Camissonia campestris	field primrose	Native
Centaurea stoebe	spotted knapweed	Introduced
Chaenactis fremontii	Fremont's pincushion	Native
Chylismia claviformis	brown-eyed primrose	Native
Convolvulus arvensis	field bindweed	Introduced
Croton setiger	doveweed	Native
Datura wrightii	Jimson weed	Native
Descurainia sophia	flixweed	Introduced; Cal-IPC Limited
Dichelostemma capitatum	blue dicks	Native
Eremalche exilis	white mallow	Native
Eremothera boothii ssp. *desertorum*	Booth's desert primrose	Native
Eriastrum eremicum	desert woollystar	Native
Eriogonum baileyi var. *baileyi*	Bailey's buckwheat	Native
Eriogonum mohavense	western mojave buckwheat	Native
Eriogonum pusillum	yellow turban	Native
Erodium cicutarium	red-stemmed filaree	Introduced; Cal-IPC Limited
Eschscholzia californica	California poppy	Native
Eschscholzia glyptosperma	desert gold poppy	Native
Euphorbia albomarginata	rattlesnake weed	Native
Gilia tenuiflora	slender flowered gilia	Native
Heliotropium curassavicum	heliotrope	Native
Hemizonia kellogii	Kellogg's tarweed	Native
Helianthus annuus	common sunflower	Native
Lactuca serriola	prickly lettuce	Introduced
Lasthenia californica	goldfields	Native
Layia glandulosa	white layia	Native
Lepidium fremontii	desert pepperweed	Native
Leptosyne bigloveii	Bigelow's tickseed	Native
Loeseliastrum matthewsii	desert calico	Native
Loeseliastrum schottii	Schott gilia	Native
Lupinus microcarpus	chick lupine	Native
Malacothrix coulteri	snake's head	Native
Malacothrix glabrata	desert dandelion	Native
Marah fabacea	California man-root	Native
Marrubium vulgare	white horehound	Introduced
Matricaria discoidea	pineapple weed	Native
Mentzelia veatchiana	blazing star	Native
Mucronea perfoliata	perfoliate spineflower	Native
Pectocarya penicillata	winged pectocarya	Native

Scientific Name	Common Name	Native or Introduced
Phacelia fremontii	Fremont's phacelia	Native
Phacelia tanacetifolia	tansy-leafed phacelia	Native
Plagiobothrys arizonicus	Arizona popcornflower	Native
Rhaponticum repens	Russian knapweed	Introduced
Rumex hymenosepalus	wild rhubarb	Native
Salsola tragus	Russian thistle	Introduced; Cal-IPC Limited
Salvia columbariae	chia sage	Native
Sisymbrium altissimum	tumble mustard	Introduced
Solanum elaeagnifolium	silver leaf nightshade	Introduced
Stephanomeria exigua	small wirelettuce	Native
Tetrapteron palmeri	Palmer's sun cup	Native
Uropappus lineleyi	silverpuffs	Native
Xylorhiza tortifolia var. *tortifolia*	Mojave aster	Native
Grasses		
Agropyron cristatum	crested wheatgrass	Introduced
Arundo donax	giant reed	Introduced; Cal-IPC High
Avena sp.	wild oat	Introduced; Cal-IPC Moderate
Bromus diandrus	ripgut brome	Introduced; Cal-IPC Moderate
Bromus madritensis ssp. *rubens*	red brome	Introduced; Cal-IPC High
Bromus tectorum	downy brome	Introduced; Cal-IPC High
Cynodon dactylon	Bermuda grass	Introduced; Cal-IPC Moderate
Elymus elymoides	squirrel tail grass	Native
Hordeum murinum	foxtail barley	Introduced; Cal-IPC Moderate
Schismus arabicus	Arabian schismus	Introduced; Cal-IPC Limited
Stipa hymenoides	Indian rice grass	Native
Stipa speciosa	Desert needle grass	Native

CDNPA: California Desert Native Plants Act protected species
Rare: California Rare Plant Rank 1B.2

Table D-2
Animal Species Observed within the Biological Study Area during 2020 and 2021 Surveys
Rosamond South Solar Project, Kern County, California

Scientific Name	Common Name	Native or Introduced
Amphibians and Reptiles		
Arizona elegans candida	Mojave glossy snake	Native
Aspidoscelis tigris	whiptail	Native
Crotalus scutulatus	Mojave rattlesnake	Native
Pituophis catenifer	gopher snake	Native
Sceloporus magister	desert spiny lizard	Native
Uta stansburiana	side-blotched lizard	Native
Birds		
Artemesiospiza belli	Bell's sparrow	Native
Athene cunicularia	burrowing owl	Native – SSC
Buteo swainsonii	Swainson's hawk	Native – ST
Callipepla californica	California quail	Native
Campylorhynchus brunneicapillus	cactus wren	Native
Cathartes aura	turkey vulture	Native
Chondestes grammacus	lark sparrow	Native
Chordeiles acutipennis	lesser nighthawk	Native
Columba livia	rock pigeon	Introduced
Corvus brachyrhynchos	American crow	Native
Corvus corax	common raven	Native
Eremophila alpestris	horned lark	Native
Haemorhous mexicanus	house finch	Native
Hirundo rustica	barn swallow	Native
Lanius ludovicianus	loggerhead shrike	Native – SSC
Larus calfornicus	California gull	Native
Mimus polyglottos	northern mockingbird	Native
Numenius americanus	long-billed curlew	Native – BCC
Oreoscoptes montanus	sage thrasher	Native
Passer domesticus	house sparrow	Introduced
Passerculus sandwichensis	savannah sparrow	Native
Petrochelidon pyrrhonota	cliff swallow	Native
Saya nigricans	black phoebe	Native
Saya sayorna	Say's phoebe	Native
Selasphorus rufus	rufous hummingbird	Native – BCC
Setophaga coronata	yellow-rumped warbler	Native
Spizella passerina	chipping sparrow	Native
Streptopelia decaocto	Eurasian collared dove	Introduced
Sturnella neglecta	western meadowlark	Native
Sturnus vulgaris	European starling	Introduced
Thryomanes bewickii	Bewick's wren	Native
Toxostoma sp.	thrasher	Native
Tyrannus verticalis	western kingbird	Native
Tyrannus vociferans	Cassin's kingbird	Native
Zenaida macroura	mourning dove	Native

Zonotrichia leucophrys	white-crowned sparrow	Native
Mammals		
Ammospermophilus leucurus	white-tailed antelope squirrel	Native
Canis familiaris	domestic dog	Introduced
Canis latrans	coyote*	Native
Dipodomys sp.	kangaroo rat*	Native
Lepus californicus	black-tailed jackrabbit	Native
Lynx rufus	bobcat*	Native – CFGC
Spermophilus beecheyi	California ground squirrel	Native
Sylvilagus audobonii	desert cottontail	Native
Thomomys bottae mohavensis	Mojave pocket gopher*	Native
Vulpes macrotis arsipus	desert kit fox	Native – CFGC

* *Indicates that only sign (e.g., dens or burrows, scat, prey remains, tracks) of the species was observed*

SSC: California Species of Special Concern
ST: State Threatened
BCC: Federal Bird of Conservation Concern
CFGC: California Fish and Game Code Fur-bearing Mammal

SSC: California Species of Special Concern
ST: State Threatened
BCC: Federal Bird of Conservation Concern
CFGC: California Fish and Game Code Fur-bearing Mammal

APPENDIX E

SWHA FORAGING IMPACT ANALYSIS

5080 California Avenue, Suite 220 | Bakersfield, CA 93309 | (661) 616-2600

October 15, 2021

Ms. Aarty Joshi
Director, Environmental Permitting
Clearway Energy Group LLC
100 California Street, Suite 400
San Francisco, CA 94111

Subject: Rosamond South Project, Kern County – Analysis of Impacts to Swainson's Hawk Nesting and Foraging Habitat

Dear Ms. Joshi:

QK Inc. (QK) prepared this report on behalf of Golden Fields Solar IV, LLC a subsidiary of Clearway Energy Group, LLC (Clearway), to present an analysis of potential impacts of the proposed Rosemond South Solar Project (Project) on the Swainson's hawk (SWHA, *Buteo swainsoni*), which is listed as threatened under the California Endangered Species Act (CESA). The information presented will enable Kern County and other responsible agencies to make findings pursuant to the requirements of the California Environmental Quality Act (CEQA). The proposed Project is in unincorporated southeastern Kern County and Clearway is seeking land use entitlements from Kern County.

The analysis in this report identifies Project impacts to the Swainson's hawk following an approach that has been successfully used to support CEQA documents in Fresno and Kings Counties (HELIX 2020). The methods used include field observations, publicly available data, and spatial analyses to estimate the acreage of suitable foraging habitat that is available for sustaining the regional population of Swainson's hawk. Impacts to foraging habitat are assessed at both the Project-specific and cumulative levels.

Project Location

The Project would be constructed on approximately 1,292 acres of undeveloped land in the Antelope Valley of the western Mojave Desert, on the southern border of Kern County, California. The Project would be approximately six miles southwest of the town of Rosamond. It is approximately seven miles west of State Route 14, four miles north of Highway 138, and is just south of Rosamond Boulevard (Figure 1). The Tehachapi Mountain Range occurs north and west of the Project, while the Central Transverse Range is to the south and west.

The Project is within U.S. Geological Survey (USGS) 7.5-minute quadrangles *Fairmont Butte* and *Little Buttes* and is in portions of Sections 23 and 24, Township 9 North, Range 15 West, San Bernardino Base and Meridian (SBBM); Sections 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28, Township 9 north, Range 14 West, SBBM; and Sections 30 and 31 in Township 9 North, Range 13 West, SBBM.

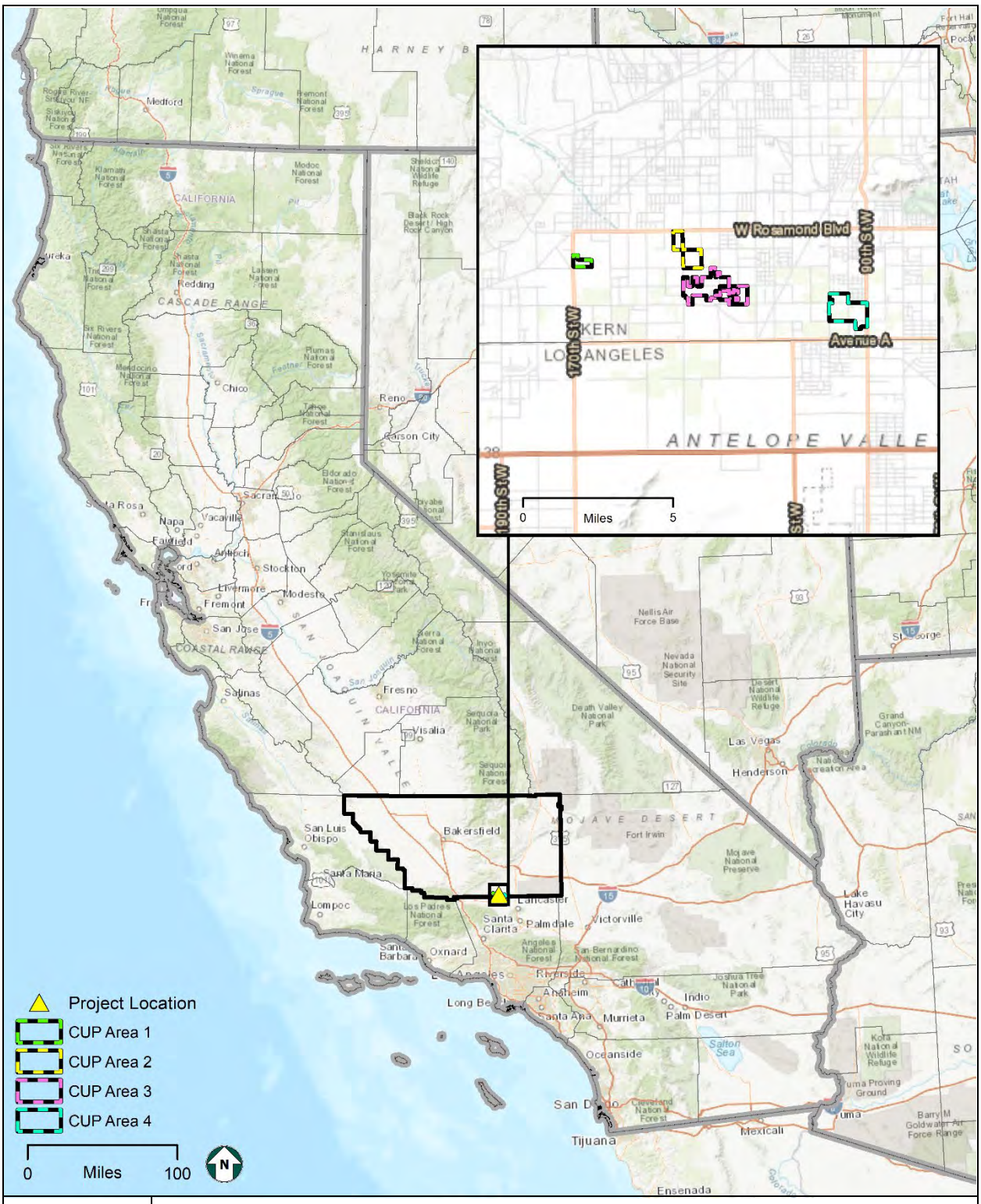

Figure-1
Regional Map,
Rosemond South Solar Project,
Kern County, California

Summary of the Project

The Project includes the construction and operation of a 154-Megawatt (MW) alternating current (AC)/200-MW direct current (DC) photovoltaic (PV) energy generating facilities and 200 MW of battery storage on approximately 1,292 acres of undeveloped land. The Project consists of four separate CUP Areas: Area 1, Area, 2, Area 3, and Area 4 (see Figures 1 and 2). These areas are non-contiguous and privately owned. Each site will be surrounded with a perimeter fence that will be wildlife friendly, allowing for the passage of wildlife into and through the sites. Approximately 29 miles of gen-tie lines are under evaluation along existing rights-of-way, some of which are existing and will be used to connect the photovoltaic panels to the existing Southern California Edison Whirlwind Substation.

Brief Natural History of the Swainson's Hawk

The Swainson's hawk occurs in grassland, desert, and agricultural landscapes in the Antelope Valley. They may be resident or migratory, and they nest and breed in stands of juniper-sage flats, Joshua trees, wind rows, ornamental trees, and powerline structures. Nests are a platform of sticks, bark, and fresh leaves at or near the top of trees. This species breeds from March to late August, and they forage in grasslands, open desert scrub, and agricultural fields, primarily for rodents. Swainson's hawks may forage within a ten-mile radius from the nest site (Babcock 1995 and Estep 1989).

Regulatory Guidance

The California Department of Fish and Wildlife (CDFW, formerly CDFG) developed regionalized strategies to address changes to land use related to Swainson's hawk conservation to meet both California Endangered Species Act (CESA)and the California Environmental Quality Act (CEQA) during the application and approval process. The CDFW *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CDFG 2010) is the only document available that addresses land use issues for proposed projects in the Antelope Valley. The guidelines outline methods for conducting nest surveys and avoiding or minimizing impacts to active nests that may cause harm, harassment, injury, or mortality to individual Swainson's hawk (i.e., "take") under CESA. Take of Swainson's hawks are regulated under CESA and would be considered a significant impact. To avoid "take" of nesting Swainson's hawk, the guidelines recommend that no new disturbances or other Project-related activities should be initiated within 0.5 mile of an active nest (CDFG 2010). This 0.5-mile avoidance buffer would be implemented because nesting areas in the Antelope Valley are typically far from urban development, where intensive disturbance is not a normal occurrence during the nesting season. Examples of disturbance cited in the guidelines include dust, noise, and human presence (CDFG 2010).

Threshold of Significance

The regulatory guidelines recommend acquisition of replacement lands (i.e., compensatory mitigation) for projects that would result in the loss of foraging habitat in amounts that would be sufficient to significantly impact a Swainson's hawk population pursuant to CEQA definitions. The guidelines state that the determining criteria for CEQA significance is the removal of any suitable foraging habitat within 5 miles of an active Swainson's hawk nest, which is defined as a nest that was active at any time during the previous 5 years. Compensatory mitigation is recommended at a ratio of 2:1 for projects within 5 miles of an active nest (CDFG 2010). However, Project-related mitigation and compensatory lands required for projects in the Antelope Valley for foraging Swainson's hawk habitat has not been uniformly applied.

CEQA defines the significance of an impact on a State-listed species based on the following relevant thresholds of significance:

- Appendix G of the State CEQA guidelines states that a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in "substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS"; and
- CEQA Section 15065 (Mandatory Findings of Significance) states that a biological resource impact is considered significant if the project has the potential to "substantially reduce the number or restrict the range of an endangered, rare or threatened species".

These thresholds are understood to mean impacts other than "take" of a single member of a species.

Swainson's Hawk Nesting Near the Project Site

QK biologists examined the Project site and a half-mile buffer around the Project site for active Swainson's hawk nests and suitable nesting and foraging habitat on multiple occasions between March and June 2020 and between March and June 2021. Biologists used spotting scopes and binoculars to examine trees, power poles and other features that could be used as raptor nesting sites. All observations of raptors and active raptor nests were described and mapped. No Swainson's hawks were observed nesting on the Project site.

One active Swainson's hawk nest was present approximately 0.5 mile from the boundary of the Project site in 2020 but that nest was not active in 2021. No active Swainson's hawk nests were observed within one mile of the Project site in 2021. There were ten other nests known to be active in the past five years within five miles of the Project site (Figure 2).

Regional Swainson's Hawk Population and Study Area

The "regional population" of Swainson's hawks is defined as the number of nesting territories occurring within 10 miles of the Project site. The 10-mile radius standard was chosen based on telemetry studies that indicate Swainson's hawks will forage 10 miles from an active nest (Babcock 1995, Estep1989). Consequently, the regional population considered in this analysis includes the Swainson's hawks that may forage on the Project site and thus be directly affected by the Project through loss of foraging habitat. The 10-mile radius around the Project site boundary also defines the study area for this analysis. According to the 2010 CDFW Swainson's hawk guidance document it was estimated that the Antelope Valley, on average, supports 10 pairs of breeding Swainson's hawk (CDFG 2010).

QK reviewed Swainson's hawk nesting data from a number of publicly available sources including studies from solar projects in the area, the California Natural Diversity Database (CNDDB) and recent data provided from the Audubon Society. QK also conducted nesting Swainson's hawk surveys of the Project site that included a 0.5-mile buffer. These efforts resulted in noting 11 documented Swainson's hawk breeding pairs within the study area within the last five years. Five of those pairs of nesting Swainson's hawks occur within five miles of the Project. Although there were more active nests within the study area than known nesting pairs of Swainson's hawks (see Figure 2), this is an artifact because not all nests are found to be active in any single year.

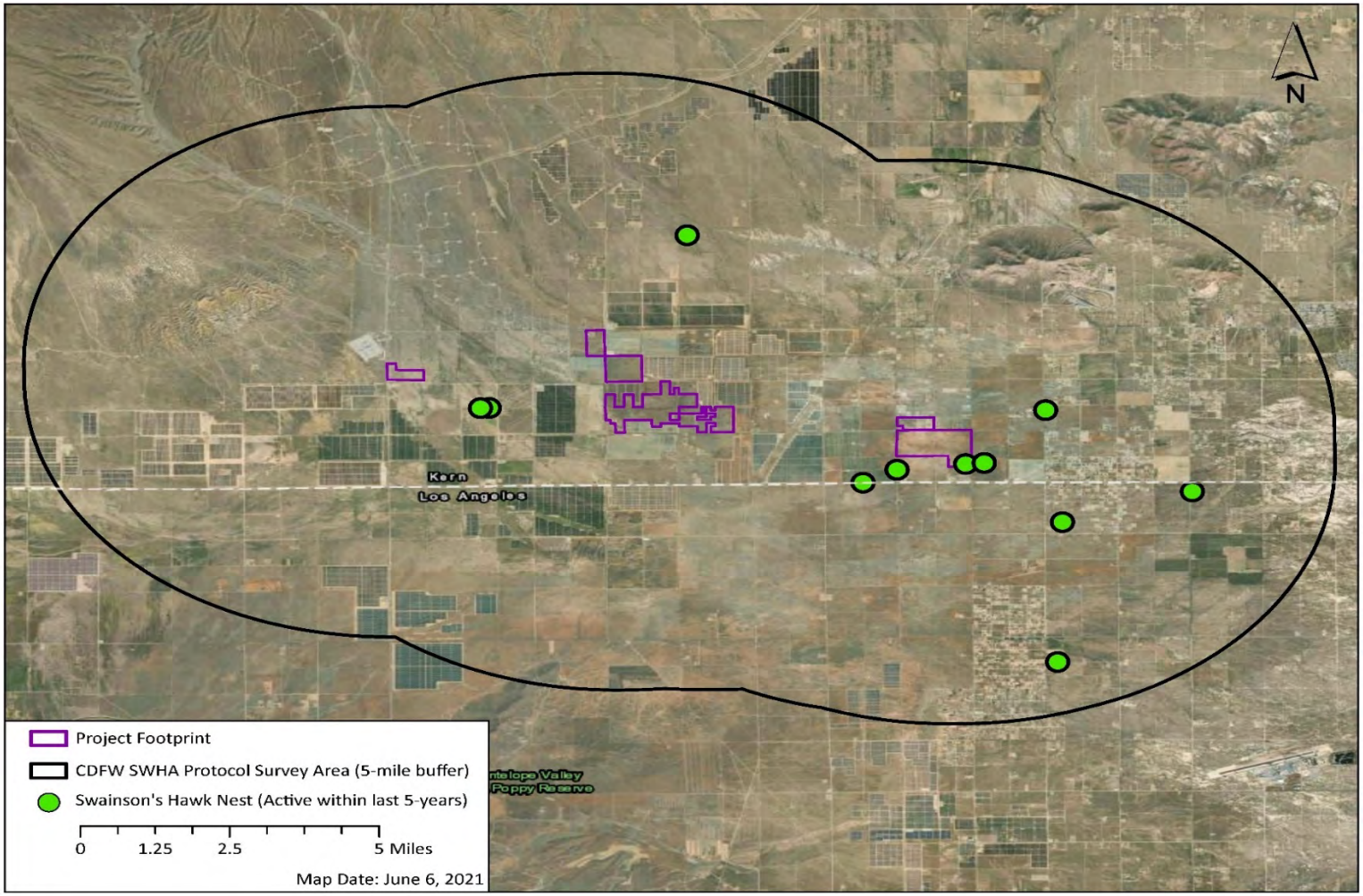

Figure 2
Swainson's Hawk Nests Occurring Within 10 Miles of the Rosemond South Solar Project, Kern County, California

Project Impacts to Swainson's Hawk Nests

Surveys confirm there are no nests or suitable nesting trees within the Project site. Therefore, potential for the Project to result in impacts to Swainson's hawk nests is restricted to the three active nests that occur outside of the Project boundaries but within 0.5-mile of the site.

CDFW management protocols stipulate a 0.5-mile buffer for "new disturbances" around active nests. CDFW (CDFG 2010) defines "disturbance" in the Antelope Valley as any activities that that lead to an increase in dust, noise, human presence, and other factors that could likely occur during Project construction and decommissioning. Project construction activities could create disturbances to nearby nesting Swainson's hawks through noise, vibration, night lighting or human presence, leading to chick abandonment and/or mortality. Activity from Project that would result in population-based impacts to a listed species, or that would result in the substantial reduction in the numbers or range of the Swainson's hawk as a species would be considered a significant impact under CEQA.

Because there are no suitable nesting trees or other structures on the Project site, the Project would not remove Swainson's hawk nesting habitat. Project construction and decommissioning activities within a 0.5-mile of trees or structures suitable for nesting could potentially disturb nesting Swainson's hawks. There is one active Swainson's hawk nest within 0.5-mile of the Project site. Measures to reduce or avoid impacts to Swainson's hawk nests are provided later in this report.

Project Impacts to Swainson's Hawk Foraging Habitat

The analysis of the potential impacts of the Rosamond South Solar Project on foraging habitat available to the regional population of Swainson's hawks follows methods that were employed for several utility-scale solar projects in the Central Valley region of California (HELIX 2020). These methods more effectively address CEQA-based cumulative impacts to Swainson's hawks than the approach employed in the CDFW guidelines. In this method of analysis it is necessary to extend the investigation beyond the Project site and the nearest active Swainson's hawk nest and to consider the size and distribution of the regional population of Swainson's hawks, the availability of suitable foraging habitat, and the effect of the Project on the nesting and foraging resources available to the regional population.

Foraging Habitat Availability

The amount, distribution, and quality of foraging habitat available to the regional Swainson's hawk population is a function of surrounding land use patterns. Historically, Swainson's hawks hunted in the grasslands of the Central Valley and coastal valleys, and the desert scrub and shrublands of high desert regions. With the historic conversion of natural habitat to agriculture in many areas in California, Swainson's hawk foraging has often shifted to cultivated lands. The Antelope Valley once supported a large area of agricultural activity, but recently much of this cultivated land has become fallow due to an insufficient amount of water available for irrigation. The shift in agriculture has subsequently allowed previously

cultivated cropland to revegetated with desert scrub habitat. Additionally, agricultural land has also been converted to large scale renewable energy projects, housing development or other types of development.

The suitability of individual land-cover types is largely a function of two factors; prey abundance, and prey accessibility, both of which are influenced by vegetation structure. Land uses that are suitable for Swainson's hawk foraging include alfalfa hay; irrigated cropland that consists of low-profile, open vegetative structure; irrigated pasture; and uncultivated land that has retained some natural soil and vegetation suitable to support a small mammal prey base. Land uses that are generally unsuitable for Swainson's hawk foraging include developed land, orchards, vineyards and open water (HELIX 2020) as well as steep sloped hillsides and dense urban development.

Foraging studies indicate that Swainson's hawks preferentially forage in alfalfa, tomato, wheat, oat, and other annually rotated crops that maintain a relatively low vegetative profile and are harvested during the breeding season when the prey base is exposed. Alfalfa has been shown to provide particularly high value habitat due to its consistently low vegetation height and high frequency of mowing. This crop is used by Swainson's hawks at a significantly higher rate relative to its availability in the landscape (HELIX 2020). Other grain crops (e.g., wheat, barley, sorghum), along with row crops (e.g., tomatoes, sugar beets) also provide high quality foraging habitat though much of this type of cropland has greatly diminished in the recent past, while irrigated pasture and recently fallowed agricultural lands provide moderate value habitat.

QK determined four categories of foraging habitat quality existing within the study area: unsuitable, low, medium, and high (Table 1). The habitat quality of each type is based upon factors that influence the potential value of these land uses to support foraging Swainson's hawks.

Table 1
Habitat Foraging Quality Criteria

Habitat Quality Type	Description
Unsuitable	Solar facilities, urban development, steep slopes or mountains
Low	Wind facilities, rural developments, frequently flooded areas with low a density small mammal burrows, or grubbed/disked or barren land
Moderate	Native/endemic vegetation, presence of perches, high-profile agricultural crops (i.e., corn), irrigated pasture, recently fallow agriculture
High	Low-profile agricultural crops (i.e., alfalfa, tomato, wheat, oats)

Areas of unsuitable habitat are located within active solar facilities, heavily urbanized areas in or near the town of Rosemond, and steep hillsides and mountains in the study area. Small areas of vacant land near or between solar facilities were considered to be low quality habitat (QK, 2001). However, conservatively, this land was considered to be moderate quality habitat in this analysis; these areas are not statistically significant to affect the study area calculations. Low quality habitat also includes low lying areas that are seasonally flooded, because they contain a relative low density of small mammal burrows to support adequate prey base. Other low-quality habitat type includes active wind energy facilities, recently disked agricultural fields and barren ground. A majority of the study area consists of moderate habitat quality type that consists of native vegetation, high-profile agricultural fields, irrigated pastureland, low density residential property and fallow agricultural fields. High quality habitat is identified as active low-profile agricultural fields, which are sparsely found throughout the study area.

Foraging Habitat Requirements of the Swainson's Hawk

Although Swainson's hawks do not defend a territory beyond the immediate vicinity of the nest, they forage widely over a large area (HELIX 2020). No specific data about foraging ranges are available for the Antelope Valley.

Data from two telemetry studies conducted in the Sacramento Valley indicate that Swainson's hawks home ranges vary from 830 acres where nests are in the immediate

vicinity of high value foraging habitat, to an area of 21,543 acres where only low quality foraging habitat is available (HELIX 2020). Other studies show the average home range size from was 9,978 acres (N=5) (Babcock, 1995) and 6,820 acres (N=12) (Estep 1989).

Estep (1989), Babcock (1995) and others (see HELIX 2020) developed an analytical methodology to determine the potential effects of large-scale habitat loss for foraging Swainson's hawks by solar facilities in the Central Valley. Although the Antelope Valley habitat is quite different than that in the Central Valley, the same methodology can be used to analyze potential impacts by this Project by modifying some of the basic assumptions of foraging habitat suitability as it applies to the habitat present in the Antelope Valley region. The Central Valley studies determined the average range of suitable foraging habitat required for nesting Swainson's hawks is approximately 6,820 acres (Estep 1989). Because no scientific studies have been conducted to determine the amount of foraging habitat required to support Swainson's hawks in the Antelope Valley, the average home range of 6,820 acres was used for this analysis. QK reviewed aerial imagery to preliminarily determine the presence of foraging habitat in the study area and then conducted ground truthing in June of 2021 to verify the extent and quality of habitat indicated by aerial imagery (Google 2021).

It is important to note that home range and foraging territory are not synonymous. The 6,820-acre home range is the average area that an individual hawk will occupy during the entirety of the breeding season, but within this area foraging occurs opportunistically where conditions provide accessible prey (HELIX 2020). Although average home range size may not be an accurate indicator of important foraging habitat acreage, it is not feasible to precisely quantify the foraging area used by individuals of wide-ranging, opportunistic species such as the Swainson's hawk. Therefore, the average home range size is a useful baseline that can be adjusted to account for factors that affect the amount of the home range that provides the essential resource base for a Swainson's hawk nesting territory (i.e., prey base, nesting substrates, etc.) and thus determines the amount of habitat required to sustain a nesting pair (HELIX 2020). The primary factors that must be considered include home range overlap, habitat suitability, and the potential use of foraging habitat outside of the home range.

Home Range Overlap

The home ranges of individual Swainson's hawks within a population overlap as Swainson's hawks forage opportunistically over a shared landscape. Estep (1989) found that average overlap among home ranges within a population was 40 percent. Adjusting the average home range size downward by the average amount of overlap partially accounts for the extent to which Swainson's hawks in a population share the available foraging habitat in the region.

Habitat Suitability

Although Swainson's hawks use a large home range, actual foraging takes place in a subset of the total home range, and largest prey capture attempts are in moderate- or high-quality

habitat areas (HELIX 2020). Most Swainson's hawk home ranges are likely to contain some unsuitable and low quality, suitable habitat types that do not contribute appreciably to the resource base available in the home range (see Table 1). To account for this, the average home range can be adjusted downward to reflect only the proportion of the suitable foraging habitat in the area that is of moderate or high quality (HELIX 2020).

Foraging Outside the Study Area

Most foraging of Swainson's hawks occurs within 10 miles from the nest (Babcock 1995, Estep1989), but the species may sometimes forage within a broader area. Comparing only the habitat available inside the 10-mile area to the total habitat requirements of the regional population would underestimate the amount of habitat available to the regional population.

The overlap of foraging areas and the potential for a Swainson's hawk to forage within a given area both decrease with increasing distances from a nest. This relationship can be represented with a trigonometric formula for the overlap (A) between two circles of unit radius (radius=1) in Equation 1:

$$A = 2\,cos^{-1}\left(\frac{d}{2}\right) - \frac{d}{2}\sqrt{4 - d^2}$$

where d= distance between the centers of the circles expressed as a proportion of a radius of unit 1. Although the area of potential foraging is not a perfect circle, this is a suitable approximation of the amount of area available for foraging for a given nest as a function of its distance from the nest.

When applying this equation to each of the nests in the regional population and calculating the weighted average overlap of all nests, the total amount of foraging habitat required by the regional population can then be adjusted to reflect the average proportion of all home ranges that are outside the study area. For this analysis, nest distances from the Project site were binned in increments of 1 mile, and the value of d for each bin was the mid-point of the distance increment (e.g., all nests between 2 and 3 miles from the Project site boundary were given a value of 2.5). For example, for a nest that is between 2 and 3 miles from the center of the Project site the quantity d is calculated as 0.25 (2.5 miles divided by the 10-mile radius of the circle to get a value of 0.25).

Each nesting location overlap (A) was individually calculated, then the weighted average overlap of all nests was adjusted for foraging buffers around known Swainson's hawk nests outside of the study area. The average distances of known Swainson's hawk nests from the Project center was evaluated and given an average value of 0.5.

The acreage of suitable foraging habitat required to support the regional population of Swainson's hawks (Y) can be calculated using Equation 2.

$$Y = n \cdot range \cdot p \cdot q \cdot r$$

Where:

n = number of Swainson's hawk nesting pairs (n=10).
range= average acreage of foraging range
p= adjustment for average foraging range overlap.
q= proportion of the suitable habitat in study area that is moderate- or high-quality.
r= weighted average overlap between the study area and the foraging buffers around nests (calculated from Equation 1 above)

The result of Y can be subtracted from the total foraging acreage occurring within the study area. A positive result indicates a surplus of foraging habitat, while a negative result indicates a deficit.

Impacts to Swainson's Hawk Foraging Habitat

The proposed Project would have a potentially significant impact to Swainson's hawks if it resulted in a reduction of available foraging habitat below that required to sustain the regional population. If the proposed Project would not result in a deficit of suitable foraging habitat in the study area, the project's impact could be considered less than significant under CEQA.

Because Swainson's hawk home ranges vary from year to year due to the seasonal and annual changes in rainfall, availability of water for irrigation of agricultural crops, and new large-scale conversion of landscapes, it is difficult to predict or model the extent of the area likely to be used by a given pair of Swainson's hawks over a period of years. Although the method used to estimate the acreage of available and required foraging habitat in the study area represents a robust and defensible analysis, it is necessarily dependent on several generalizations and assumptions. Accordingly, the estimates provided may vary over time and are, at best, approximations.

To account for variation in the foraging acreage estimates due to annual variations in the regional population (caused by mortality and recruitment), acknowledge the resilience of the species to environmental factors outside the scope of this analysis, and to account for other potential sources of error, the threshold of determining significant impacts should be set substantially higher than the minimum amount of foraging habitat required to sustain the regional population. For this analysis, the significance threshold was conservatively set at 70 percent of the existing surplus habitat. The 70 percent threshold has been established as being adequate to provide a buffer of foraging habitat above the minimum number of acres needed (HELIX 2020). If the Project would result reducing suitable foraging habitat to less than 70 percent, the Project would be considered to have a significant impact on the regional population of Swainson's hawks under CEQA.

The existing landscape, including this Project, supports a total of 200,653 acres of suitable Swainson's hawk foraging habitat and 25,354 acres developed with land uses unsuitable for foraging within the 10-mile radius of the Project, for a total 226,007 acres of available foraging habitat (Table 2, Figure 3).

Table 2
Swainson's Hawk Foraging Habitat within the Study Area

Habitat Quality	Existing Habitat (acres)	Existing Habitat (%)	Cumulative Habitat for All Proposed and Existing Solar (acres)	Cumulative Habitat for All Proposed and Existing Solar (%)
Unsuitable	25,354.00	11.22	31,355.02	13.87
Low	23,520.75	10.41	23,520.75	10.41
Moderate	174,270.79	77.11	168,272.75	74.45
High	2,861.57	1.27	2,861.57	1.27
Total	**226,007.11***	**100.00**	**226,010.09***	**100.00**

* Total acreages do not exactly match due to rounding.

Cumulative Projects

Data on the locations and acreages of other existing, planned and reasonably foreseeable solar projects (cumulative projects) in the study area were obtained from Kern County. Cumulative projects were classified as either "existing" (construction complete) or "proposed" (planned, but not yet constructed) for purposes of this analysis. Solar projects included in the cumulative analysis include: Antelope Valley Solar, AV Apollo Solar, AVEP, BigBeau Solar, Catalina Renewable Energy, Central Antelope Drive Ranch Project, Gaskell West Solar Project, Gettysburg Solar Project, Kingbird Photovoltaic, Raceway Solar 2.0, RE Astoria Solar Project, Rosamond Central Project, Rosamond Solar Array, RE Garland Solar, Sierra Solar, TA High Desert Solar and Valentine Solar. All solar projects that are planned, under construction or completed are shown in Figure 4.

Results

Swainson's Hawk Regional Population and Habitat Requirements

The regional population of Swainson's hawks that would potentially be directly or indirectly affected by the Rosamond South Solar Project is 10 nesting pairs known to have nested within the 226,007-acre study area within the last five years. The nest locations are concentrated mainly in the eastern one-third of the study area (see Figure 2).

Of the 200,653 acres suitable foraging habitat in the study area, 2,861 acres were high quality (alfalfa), 174,271 acres were moderate quality, and 23,521 acres were low quality. Overall, approximately 78 percent of the suitable foraging habitat was considered moderate- or high-quality habitat.

When all potential solar projects within the study area are considered (i.e., cumulative impacts), including the Rosemond South Solar Project, the amount of suitable Swainson's hawk foraging habitat totals 194,655 acres, with 31,355 acres of unsuitable foraging habitat.

Of the suitable foraging habitat in the study area 2,862 acres are high quality, 168,273 acres are moderate quality, and 23,521 are low quality. Overall, approximately 76 percent of the available, suitable foraging habitat was moderate- or high-quality habitat. Based on this analysis, using the established 70 percent threshold as being adequate to provide a buffer of foraging habitat, impacts of the Project to Swainson's hawk foraging habitat is considered less than significant.

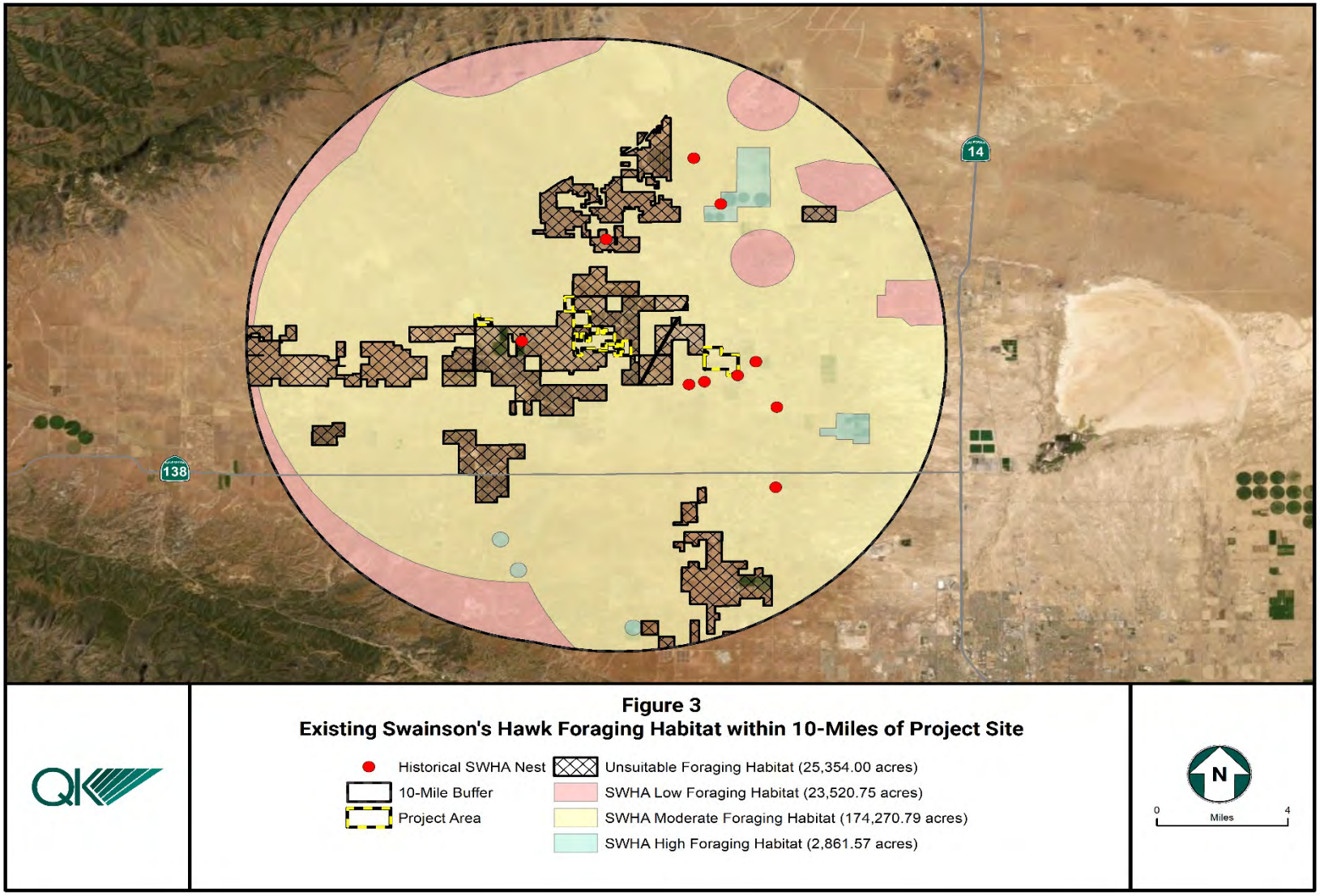
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Figure 3
Existing Swainson's Hawk Foraging Habitat within 10-Miles of Project Site
Historical SWHA Nest
10-Mile Buffer
Project Area
Unsuitable Foraging Habitat (25,354.00 acres)
SWHA Low Foraging Habitat (23,520.75 acres)
SWHA Moderate Foraging Habitat (174,270.79 acres)
SWHA High Foraging Habitat (2,861.57 acres)
N
0
Miles
4

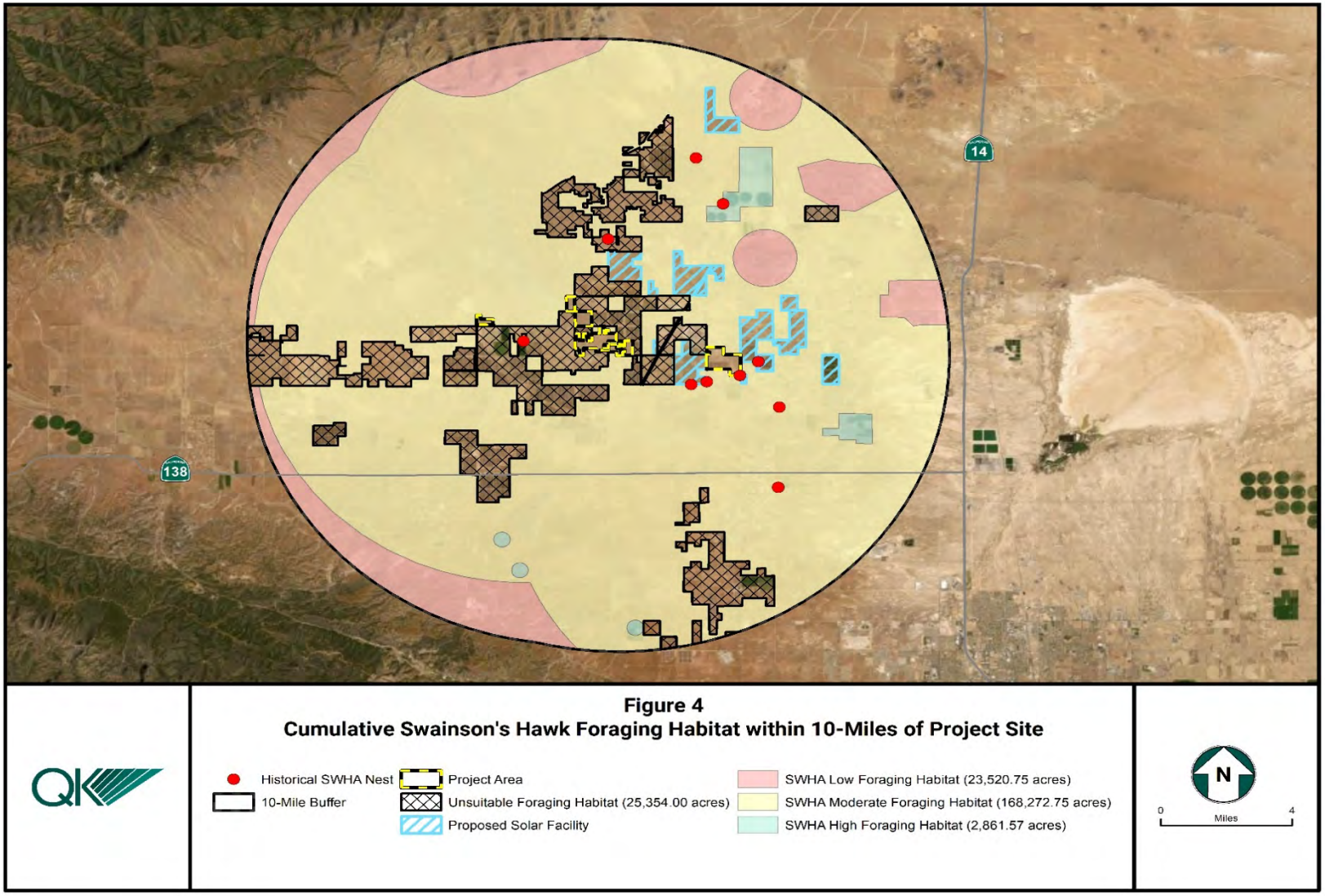
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Figure 4
Cumulative Swainson's Hawk Foraging Habitat within 10-Miles of Project Site
Historical SWHA Nest
10-Mile Buffer
Project Area
Unsuitable Foraging Habitat (25,354.00 acres)
Proposed Solar Facility
SWHA Low Foraging Habitat (23,520.75 acres)
SWHA Moderate Foraging Habitat (168,272.75 acres)
SWHA High Foraging Habitat (2,861.57 acres)
N
0
4
Miles

Half of the nests are more than 5 miles from the Project site boundary, and the largest concentration of nests (7 nests) are 3.5 to 6.5 miles from the Project site (Table 3). To adjust for overlapping home ranges and including all foraging areas within 10-miles of each nest, the approximate overlap of these areas was calculated for each nest using Equation 1. The weighted average overlap of all nests with the study area was 2.10 (Table 3). This adjusts for the Swainson's hawk nests being situated near each other, and accounts for foraging areas at a greater distance than 10-miles from the Project site.

Table 3
Weighted Adjustment for Average Foraging Range

Distance Increment (mi)	Number of Nests	Overlap
1.5	1	2.84
3.5	2	2.45
4.0	1	2.35
5.5	2	2.06
6.5	2	1.86
8.0	1	1.59
8.5	1	1.49
	Weighted Average Overlap -	**2.10**

The total acreage of foraging habitat required to sustain the regional population of Swainson's hawks was calculated using Equation 2:

$$Y = 10 \cdot 6{,}820 \cdot 0.4 \cdot 0.78 \cdot 2.10 = 44{,}685$$

Where 10 is the size of the regional population (n), 6,820 is the baseline average home range size (Estep 1989), 0.4 is the correction for 40 percent overlap among home ranges (p); 0.78 is the proportion of the suitable foraging habitat that is moderate- or high-quality (q); and 2.10 is the weighted average proportion of potential foraging area for all nest territories in the regional population that is inside the study area (r).

The total amount of foraging habitat required by the regional Swainson's hawk population based upon a 10-mile radius from the Project site is 44,685 acres (Table 4). The total amount of suitable foraging habitat is 194,655 acres, resulting in a surplus of 130,942 acres of suitable foraging habitat. The significance threshold, as established previously, is 70 percent of the existing surplus, or 123,993 acres.

Considering all proposed projects within 10-miles of the Project, including this Project (i.e., cumulative foraging habitat), the total amount of foraging habitat in the study area required by the regional Swainson's hawk population is 43,538 acres (using the equation below and the information contained in Table 4). The total amount of suitable foraging habitat is approximately 171, 134 acres, resulting in a surplus of 126,464,50 acres of suitable foraging habitat.

$$Y = 10 \cdot 6{,}820 \cdot 0.4 \cdot 0.76 \cdot 2.10 = 43{,}538$$

Table 4
Swainson's Hawk Foraging Area Requirements and Surplus

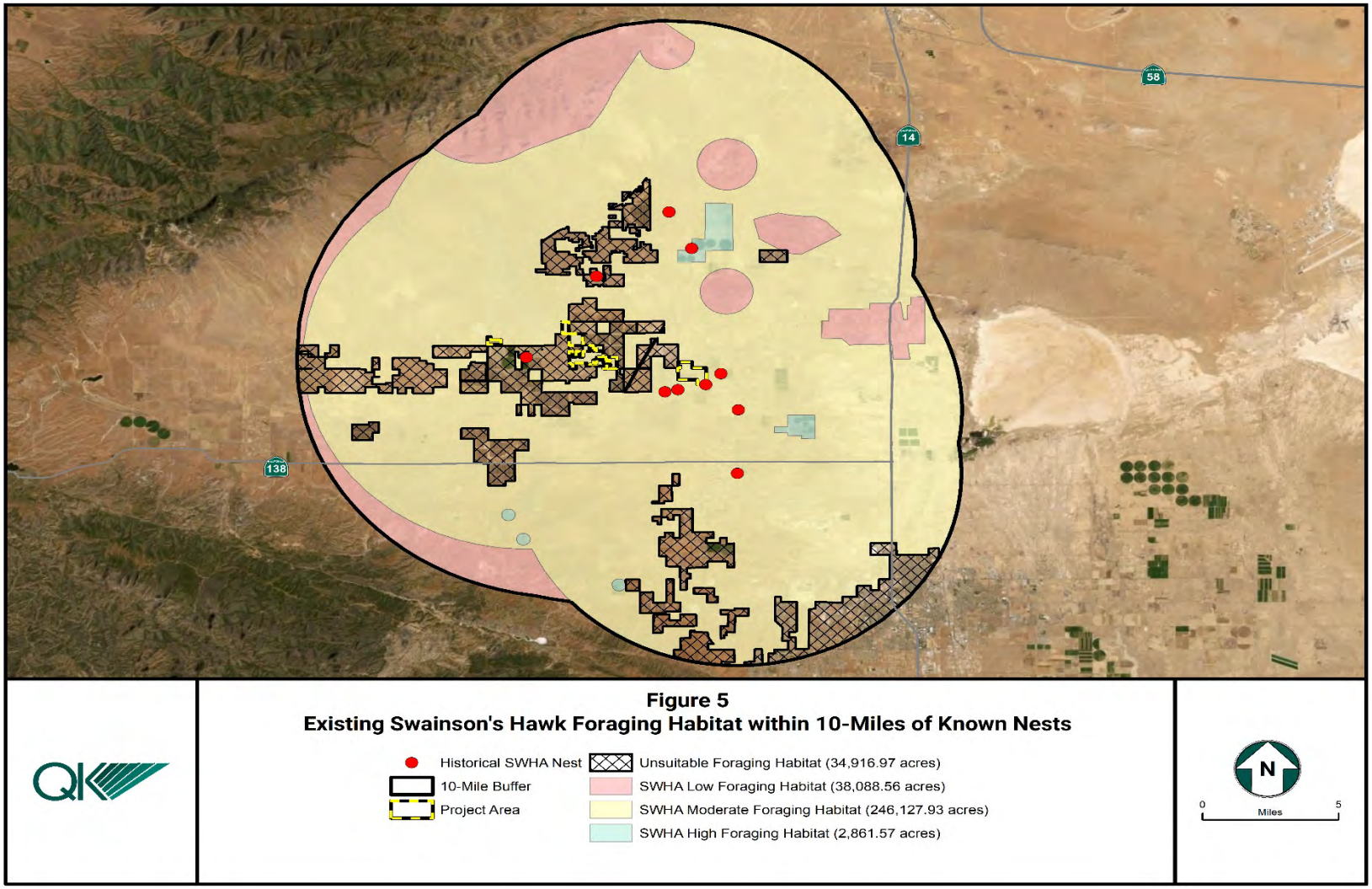
Suitable Foraging Habitat Available[1] (acres)	Home Range Assumption[2]	(acres)	Y[3] (acres)	Surplus[4] (acres)	Remaining Surplus[5] (%)
Project Construction Only (Including Existing Projects)					
177,132.4	Estep	**6,820**	**44,684.64**	**131,155.72**	**74.04**
Cumulative – All Proposed Projects Completed (Including this Project and Existing Projects)					
171,134.3	Estep	**6,820**	**43,538.88**	**126,303.44**	**73.80**

[1] Total Moderate- and High-quality foraging habitat within the study area – see Table 2
[2] Home range used for Equation 2 calculation to calculate *Y*, according to various studies (Estep 1989, Babcock 1995, HELIX 2020). The home range of 6,820 acres described by Estep (1989) was used for this analysis and is discussed in this report; the other home range examples are included for reference.
[3] *Y* = Habitat acreage required to support the regional SWHA population for the Rosamond South Solar Project
[4] Surplus = Total acreage of suitable foraging habitat available within study area – acreage of Rosamond South Solar Project (1,292 acres) - *Y*
[5] Percentage of total suitable foraging habitat remaining after construction (Surplus ÷ Suitable Foraging Habitat Available) *100%

When considering a 10-mile foraging buffer around the ten known Swainson's hawk nests within the study area, there is a total of 86,424.95 acres of potential foraging habitat that is outside of the study area, and 9,562,97 acres of unsuitable foraging habitat outside of the study area (Table 5, Figures 5 and 6). This habitat was not considered in the analysis but is available and likely used by foraging Swainson's hawk.

Table 5
Swanson' Hawk Foraging Habitat Outside of the Study Area

Habitat quality	Habitat (acres)
Unsuitable	9,562.97
Low	14,567.81
Moderate	71,857.14
High	0.00
Total	95,987.92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14
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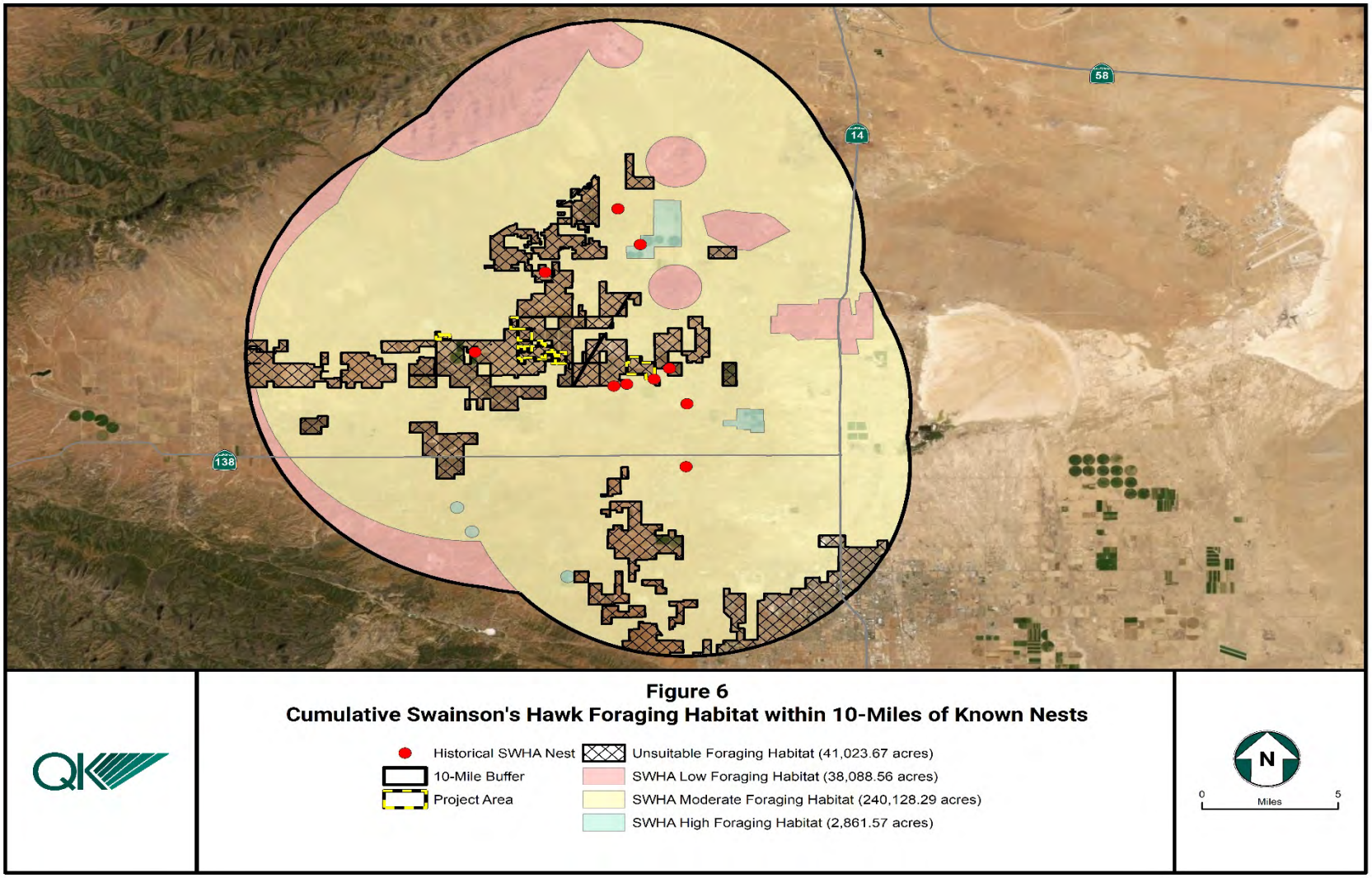
Figure 5
Existing Swainson's Hawk Foraging Habitat within 10-Miles of Known Nests
Historical SWHA Nest
10-Mile Buffer
Project Area
Unsuitable Foraging Habitat (34,916.97 acres)
SWHA Low Foraging Habitat (38,088.56 acres)
SWHA Moderate Foraging Habitat (246,127.93 acres)
SWHA High Foraging Habitat (2,861.57 acres)
N
0
5
Miles


58
14
138
Figure 6
Cumulative Swainson's Hawk Foraging Habitat within 10-Miles of Known Nests
Historical SWHA Nest
10-Mile Buffer
Project Area
Unsuitable Foraging Habitat (41,023.67 acres)
SWHA Low Foraging Habitat (38,088.56 acres)
SWHA Moderate Foraging Habitat (240,128.29 acres)
SWHA High Foraging Habitat (2,861.57 acres)
N
0
5
Miles

Discussion of Impacts to Swainson's hawk Foraging Habitat

When all proposed projects within 10-miles of the Project are considered and fully developed, including this Project (i.e., cumulative impacts), approximately 74 percent of suitable foraging habitat will remain. Based upon the established 70 percent threshold, the cumulative impacts do not reach a level of significance. The loss of 1,292 acres of undeveloped land resulting from development of the Rosamond South Solar Project will not affect the distribution or abundance of nesting Swainson's hawks in the study area. Because the Project represents only 0.6 percent of the total available foraging habitat (low, moderate, and high quality combined) within the study area, its conversion is negligible relative to habitat availability and the relatively small number of Swainson's hawks that nest in the study area. The loss of 1,292 acres of undeveloped land would not represent a significant loss of foraging habitat for Swainson's hawks and does not represent a significant impact. At the cumulative level all existing and proposed solar projects would result in the removal of approximately 15 percent of the total available foraging habitat within the study area. There is also 95,988 acres of foraging habitat outside of the study area that is available to the regional population of foraging Swainson's hawks.

The Project would not result in a significant impact to the regional population of Swainson's hawk through the loss of suitable foraging habitat, nor would it contribute to a significant cumulative impact in conjunction with other existing, planned, or reasonably foreseeable solar projects. After Project development, the amount of surplus suitable foraging habitat for Swainson's hawk in the study area would remain greater than 70 percent of the existing surplus and therefore provide sufficient surplus foraging habitat to allow for population growth and resiliency to disturbance, as well as to changes to the foraging landscape through changes in land uses.

Because no analysis of Swainson's hawk foraging or home ranges in the Antelope Valley has been conducted, it is possible that the significance threshold could vary from the 70 percent threshold that is accepted for Central Valley populations. The foraging habitat availability for Swainson's hawks in the Antelope Valley could be greater than in the Central Valley because the Antelope Valley area is mainly rural and undeveloped compared to the Central Valley, which supports more active agriculture, urban development, and infrastructure. The current status of nests, locations of active nests, increasing numbers of Swainson's hawk individuals, and migratory patterns of the Swainson's hawk could change, thus invalidating the findings of this analysis.

The analysis performed for this study is based on previously accepted methods used for Swainson's hawks in California's Central Valley (HELIX 2020) and makes use of the best available data. This analysis considers impacts to Swainson's hawks at a more biologically realistic scale than the method employed in the 2010 CDFW guidelines while remaining logistically feasible as well as applicable to a wide range of projects and locations. The most limiting factor in this analysis is the need for telemetry studies to determine average home range size for Swainson's hawks in the Antelope Valley. The CDFW guidelines define an active Swainson's hawk nest location as one that has been active in any of the previous five years. Therefore, primary nest data for the study area should come from a ground survey

within the previous five years. In this case, much of the study area has been surveyed for Swainson's hawk within the last five years in support of other solar projects that have been recently proposed or constructed. Data from CNDDB, and the Audubon Society were used to supplement data collected during Swainson's hawk surveys.

Comprehensive ground surveys of approximately 900,000 acres of land within Fresno and Kings counties revealed an estimated density of 0.07 Swainson's hawk nesting territories per square mile (HELIX 2020). For this study, there is an estimated 0.03 Swainson's hawk nesting territories per square mile, which is less than half the density determined by the studies conducted in the Central Valley and is likely a result of a much lower acreage of active agriculture (high-quality foraging habitat) in the Antelope Valley than in the Central Valley.

In conclusion, the proposed Project would not result in a significant reduction (based on the significance threshold and assessment methods used here) of available Swainson's hawk agricultural foraging habitat at either the Project or cumulative level.

Recommended Swainson's Hawk Mitigation

Implementation of the proposed mitigation measures BIO-1 through BIO-4 below would reduce Project impacts to nesting Swainson's hawks to less than significant. Impacts to Swainson's hawk foraging habitat is not considered significant at either the Project level or cumulative level. No mitigation measures are warranted and no habitat compensation is recommended.

BIO-1 **Pre-activity Surveys for Swainson's Hawk Nests**. If Project activities must occur during the Swainson's hawk nesting season (February 15 to September 31), pre-activity surveys should be conducted for Swainson's hawk nests in accordance with the *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CDFW 2010). The surveys would be conducted on the Project site plus a 0.5-mile buffer. To meet the minimum level of protection for the species, surveys should be conducted during at least two survey periods prior to the start of construction. The survey will be conducted in accordance with the methodology outlined in existing protocols and should be phased with construction of the Project.

If no Swainson's hawk nests are found, no further action is required.

BIO-2 **Swainson's Hawk Nest Avoidance.** If an active Swainson's hawk nest is discovered at any time within 0.5 miles of active construction, a qualified biologist should complete an assessment of the potential for current construction activities to impact the nest. The assessment would consider the type of construction activities, the location of construction relative to the nest, the visibility of construction activities from the nest location, and other existing disturbances in the area that are not related to construction activities of this Project. Based on this assessment, the biologist will determine if

construction activities can proceed, and the level of nest monitoring required. Construction activities should not occur within 500 feet of an active nest but depending upon conditions at the site this distance may be reduced. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks may be required. The qualified biologist should have the authority to stop work if it is determined that Project construction is disturbing the nest. These buffers may need to increase depending on the sensitivity of the nesting Swainson's hawk to disturbances and at the discretion of the qualified biologist.

BIO-3 **Biological Monitoring**. A qualified biologist should monitor all initial ground-disturbing activities occurring during all construction activities. The qualified biologist should be present at all times during ground-disturbing activities (including drilling holes and trenching) within and adjacent to habitat with the potential to support special-status wildlife species. If a special-status species is found within the construction area, all construction shall cease immediately, and the animal will be allowed to leave the area of its own accord or relocated by an authorized biologist to suitable habitat outside of the Project area.

BIO-4 **Worker Environmental Awareness Training.** Prior to the initiation of construction activities, all personnel should attend a Worker Environmental Awareness Training program developed by a qualified biologist. The program should include information on the life histories of special-status species with potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. All attendees at WEATs should signify that they have received and understand the training material by signing an attendance sheet, which will be maintained on site. All attendees will be provided with summary training materials that they can carry while on the job and can reference while working on the Project.

Sincerely,

Dave L Dayton
Principal Environmental Scientist

Curtis Uptain
Principal Environmental Scientist

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Appendix D-2
Aquatic Resources Delineation Report

AQUATIC RESOURCES DELINEATION REPORT

CLEARWAY ENERGY GROUP LLC.

ROSAMOND SOUTH SOLAR PROJECT

OCTOBER 2021

AQUATIC RESOURCES DELINEATION REPORT

ROSAMOND SOUTH SOLAR PROJECT

Prepared for:

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October 2021

Project #190351.05

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Acronyms and Abbreviations

ARSA	Aquatic Resource Survey Area
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
CUP	Conditional Use Permit
CWA	Clean Water Act
MW	Megawatt
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWPL	National Wetland Plant List
OHWM	ordinary high water mark
QK	Quad Knopf
ROW	Rights of Way
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

This report includes the results of a delineation of wetlands and waters that Quad Knopf, Inc. (QK) conducted at the Rosamond South Solar Project (Project). This Aquatic Resources Delineation was conducted in accordance with U.S. Army Corps of Engineers (USACE) guidelines. Waters of the State were delineated in accordance with guidance provided by the California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB).

Golden Fields Solar IV, LLC, a subsidiary of Clearway Energy Group, LLC, proposes the construction of 165- megawatt (MW) photovoltaic energy generating facilities, 245 MW of battery storage and associated infrastructure, on approximately 1,292 acres of undeveloped land in the Antelope Valley of the western Mojave Desert, Kern County, California, known as the Rosamond South Solar Project (Project). The Project is broken up into four CUP areas.

Quad Knopf, Inc. (QK) conducted a delineation of waters (including potential wetlands) on the Project site. These data will allow impact to water to be determined based upon final Project design, and the determination of any permitting that would need to be completed for the Project.

Prior to conducting field investigation, a review of available literature and a search of the National Wetlands Inventory (NWI), aerial imagery, and topographical maps were conducted. Field investigations were conducted in March, and May 2020 and April 2, 2021 to identify and delineate the water features on the Project site. This Aquatic Resources Delineation was conducted in accordance with USACE guidelines. Waters of the State were delineated in accordance with guidance provided by the CDFW and RWQCB.

Soil pits were taken at eleven potential wetland features to identify the presence of hydric soils, the presence of hydrophytic vegetation and hydrology indicators were also documented at each feature. None of the features met wetland criteria and therefore do not fall under any federal or State regulatory jurisdiction.

One non-wetland drainage feature was delineated within the ARSA. This drainage feature W1_CUP2 encompassed 1.82 acres and 2,973 feet in length. As an isolated non-wetland drainage that does not establish connectivity with navigable waters, this feature is not a Water of the U.S. However, this feature meets the criteria as a Water of the State and would fall under the regulatory authority of the RWQCB and CDFW would likely also assert regulatory authority over this feature.

SECTION 1 - INTRODUCTION

Golden Fields Solar IV, LLC, a subsidiary of Clearway Energy Group, LLC, proposes to construct a 154 megawatt (MW) photovoltaic energy generating facility that includes 200 MW of battery storage, gen-tie routes, and associated infrastructure. The Project would be constructed on approximately 1,292 acres of undeveloped land in the Antelope Valley of the western Mojave Desert, Kern County, California. The Project is known as the Rosamond South Solar Project (Project).

This report includes the results of a delineation of wetlands and waters that QK conducted on the Project site. Wetlands that are under federal jurisdiction are defined as:

> "*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." [40 CFR 230.3(T)].*

Waters of the United States are defined as:

> *"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, all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, salt-flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce, all impoundments of waters otherwise defined as waters of the United States under this definition, tributaries of waters previously identified, the territorial sea, and wetlands adjacent to waters (other than water that are themselves wetlands) previously identified" [40 CFR 230.3(s)].*

Waters of the State are defined in the California Water Code as:

> "*Any surface water or groundwater, including saline waters, within the boundaries of the state" [Section 13050 (e)].*

This definition of Waters of the State does not distinguish between wetlands and waters, but includes all surface waters, including wetlands and waters that do not fall under federal jurisdiction. Accordingly, this is a much broader definition than that of Waters of the U.S.

QK delineated Waters of the U.S. and Waters of the State that occur on the Project site to:

- Document existing site conditions.
- Determine the presence of waters that occur on the Project site using standardized diagnostic criteria.

- Delineate wetland boundaries, boundaries of the Ordinary High Water for those features that may be under the jurisdictional authority of the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB), and boundaries of the watercourse for those features that may be under the regulatory authority of the California Department of Fish and Wildlife (CDFW).

The purpose of this report is to identify and describe aquatic resources within the study area, provide background information on the project site, and to document aquatic resource boundary determinations for review by regulatory authorities.

1.1 - Project Location

The Project is in California's Antelope Valley in the Mojave Desert, on the southern border of Kern County, approximately 6 miles southwest of the town of Rosamond (Figure 1-1). It is approximately 7 miles west of State Route 14, 4 miles north of Highway 138, and is just south of Rosamond Boulevard (Figure 1-2). The Tehachapi Mountain Range occurs north and west of the Project, while the Central Transverse Range is to the south and west.

The Project is within U.S. Geological Survey (USGS) Quadrangles *Fairmont Butte* and *Little Buttes* and is in portions of Section 23 and 24, Township 9 North, Range 15 West, San Bernardino Base and Meridian (SBBM); Sections 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28, Township 9 north, Range 14 West, SBBM; and Sections 30 and 31 in Township 9 North, Range 13 West, SBBM. (Figure 1-3).

1.2 - Project Description

The Project consists of constructing 165 MW AC/245 MW DC photovoltaic energy generating facility with 200 MW of battery storage on approximately 1,292 acres of natural habitat. The Applicant is proposing: (1) four Conditional Use Permits (CUP) to allow for the construction and operation of the Project (see Figure 1-2), and one CUP to allow for the installation of a communications tower; (2) a Specific Plan Amendment to the Willow Springs Specific Plan; and (3) two Zone Change Applications. The project would also require the approval of a Franchise Agreement for the generation tie (gen-tie) route used to connect project facilities to the Whirlwind substation. There are two preferred gen-tie routes and two alternative gen-tie routes being proposed along existing road rights of way (ROW). The approved gen-tie route will connect to existing transmission lines. For identification purposes, the Project is broken up into four CUP areas.

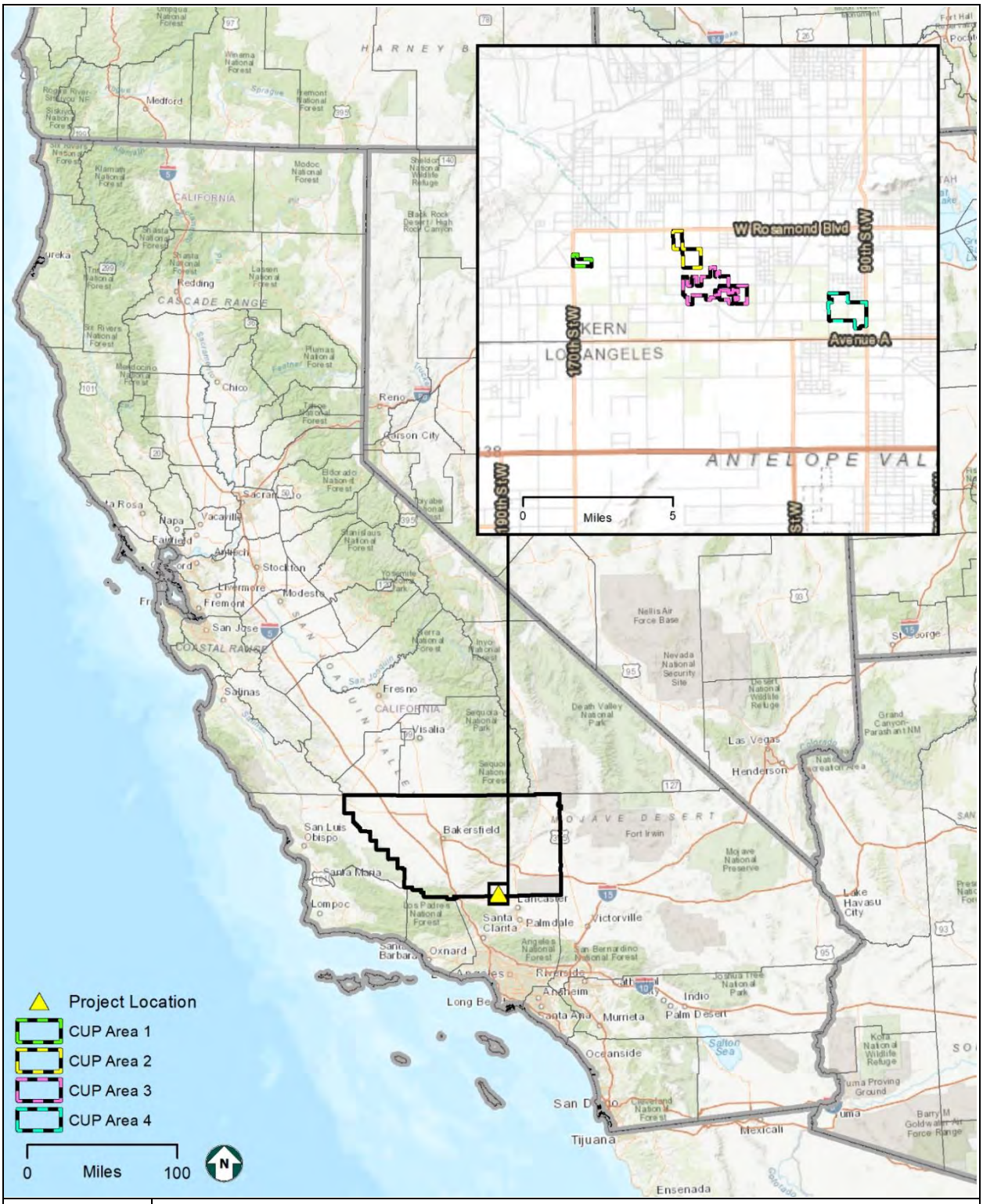


Figure 1-1
Regional Map,
Rosamond South Solar Project, Kern County, California

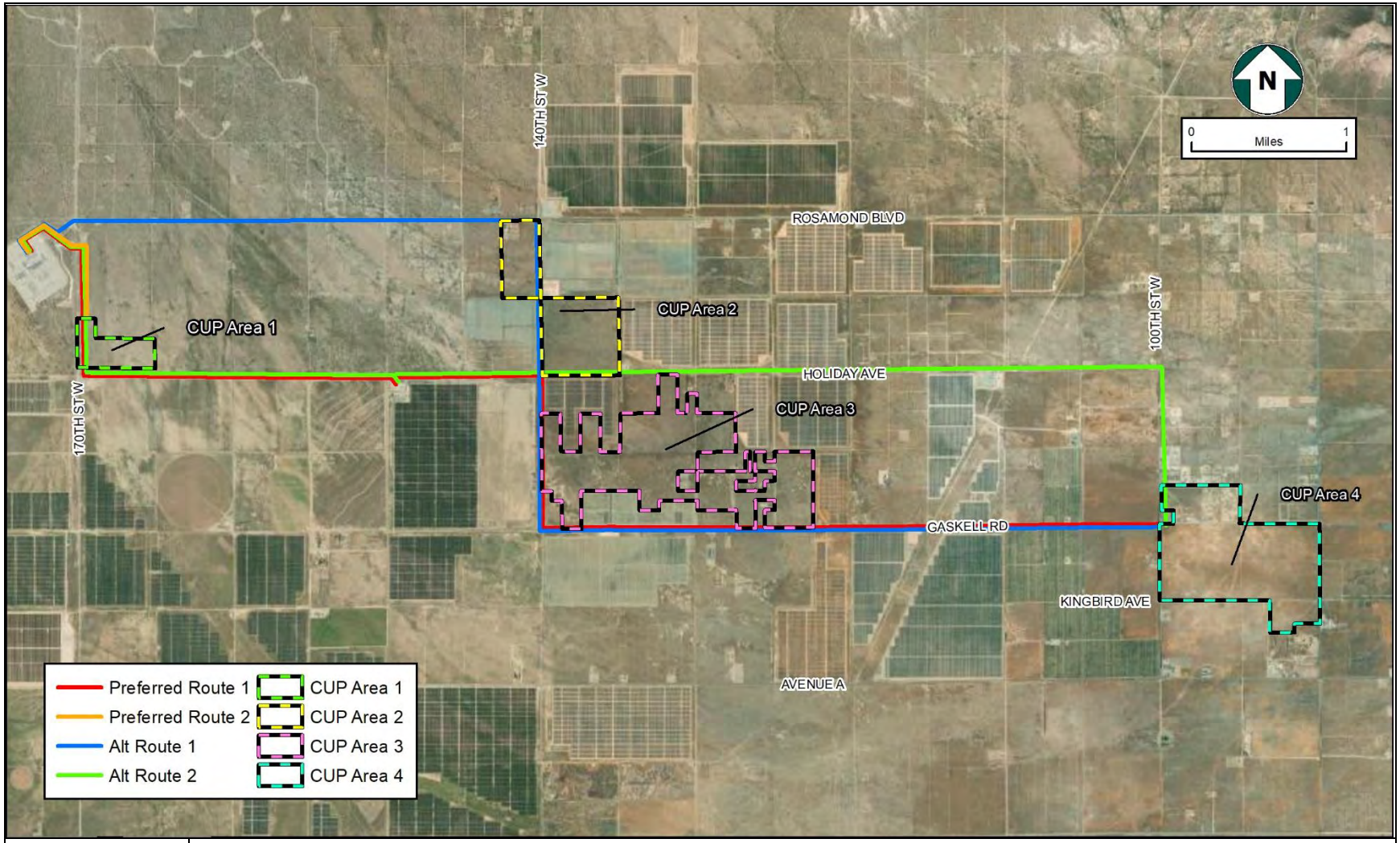


Figure 1-2
Project Location Map,
Rosamond South Solar Project,
Kern County, California

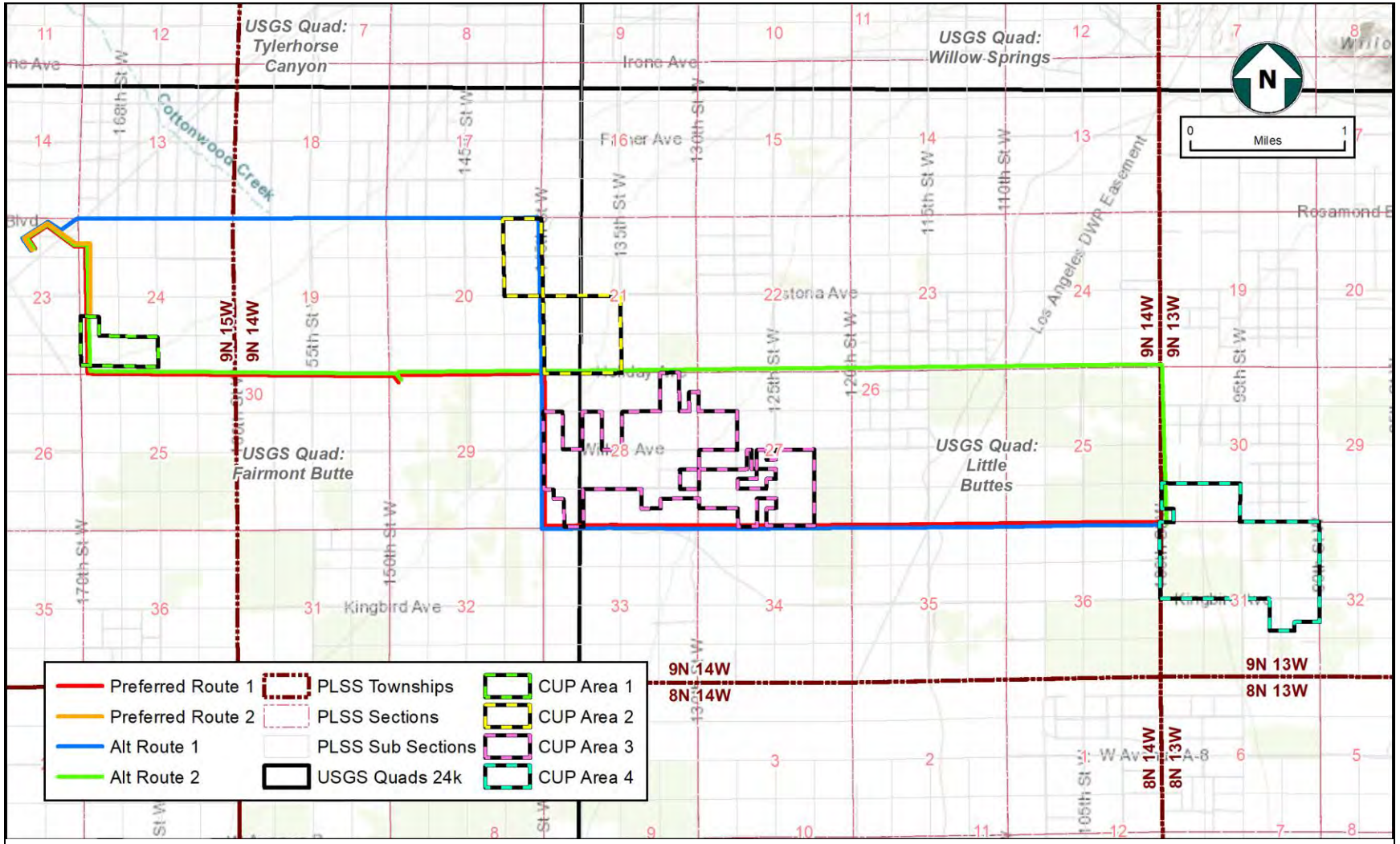


Figure 1-3
7.5 USGS Quadrangle Map
Rosamond South Solar Project, Kern County, California

SECTION 2 - METHODS

This section discusses the methods used to obtain relevant data on the occurrence of aquatic resources on the Project. An agency-maintained database search, literature review, and on-site surveys were conducted.

2.1 - Definition of the Study Area

The Aquatic Resources Study Area (ARSA) encompasses the entire Project disturbance footprint, including the alternative gen-tie routes (see Figure 1-2).

2.2 - Desktop Review

Prior to the field visit, a review of existing literature, databases, and mapping programs was performed to understand the overall hydrology of the region. The following sources were reviewed:

- Current and historical aerial imagery (ESRI 2021)
- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Web Soil Survey (NRDC 2021)
- USFWS National Wetlands Inventory (NWI; USFWS 2021)
- USGS National Hydrography Dataset (NHD; USGS 2021)
- Western Regional Climate Center (WRCC 2021)

The NWI was searched for known occurrences of wetlands, and USGS 7.5-minute topographic maps were evaluated for the presence of known natural drainage features ("blue-line") and other potential waters occurring on and near the Project site. Aerial imagery ArcGIS Online was reviewed to identify differences in vegetative cover, slope, and general terrain that can be indicative of water presence. Information on regional hydrology, including the NHD from the USGS, was obtained from the Geospatial Data Gateway website of the Natural Resources Conservation Service and the Lahontan Region Basin Plan RWQCB. Weather and precipitation data were obtained from the WRCC, and soils data were obtained from the Web Soil Survey.

2.3 - Field Visit

QK Biologists surveyed the ARSA on March 20, 23, 24, 30 and May 13 and 18, 2020, to identify potential water features and verify the presence/absence of water features listed on agency-maintained databases. On April 02, 2021, QK Environmental Scientists Eric Madueno, Lucas Knox, Courtney Chaney, and Julie Hausknecht conducted a delineation of wetlands and non-wetland waters of the ARSA at locations identified during the preliminary surveys. The delineation data obtained was compared to current and historical aerial imagery to accurately pinpoint the location of potential water features and water feature boundaries. A ground-based representative photograph was taken at each feature to document existing conditions at the time of survey.

All observed wetland and water features were delineated using standard methods described in both the *1987 Army Corps of Engineers Wetland Delineation Manual* (USACE 1987) and the most recent version of the *Arid West Regional Supplement Version 2.0* (USACE 2008a).

At least one soil sample pit was dug at each potential wetland feature to obtain information describing wetland or upland conditions. If the potential wetland feature covered a large area, two soil pits were dug. Soil pits were dug with a shovel to a depth of approximately 12 to 24 inches, or until clay or other restrictive layers were reached. The locations of soil pits were mapped using an EOS Arrow 100 GNSS GPS receiver, which allows for sub-meter accuracy.

Fourteen soil sample pits were taken within the ARSA. At each soil pit, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was evaluated following standard procedures. Hydrologic indicators include drainage patterns, drift deposits, saturation, high-water table, saturation visible on aerial imagery, reduced iron, and other diagnostic characteristics. Soils were examined to characterize soil profiles at each sample point and to compare site-specific observations with soil conditions described in the Web Soil Survey (NRCS 2020a). Soil horizonation, texture, moisture content, depth to saturation, and/or standing water was noted for each soil pit. The presence or absence of particulate organic matter, redoximorphic features, depleted matrices, and other diagnostic characteristics were noted. Soil colors were determined using Munsell soil color charts (Munsell 2000). The cover (percent) of observed plant species was visually estimated and recorded within an area in a 10-foot radius around each sample point. Dominant plant species were identified in accordance with the USACE 50/20 Rule. Plant identification was determined using the *Jepson Manual: Vascular Plants of California of Higher Plants* (Baldwin et al., 2012). The wetland indicator status of each plant species was determined using The *National Wetland Plant List: 2016 wetland ratings* (Lichvar et al. 2016). Hydrologic, soil, and vegetative data that were gathered at the sample points were transcribed onto USACE Arid West Region Wetland Determination Data Forms. The Cowardin system was used to classify wetland types (Cowardin et al., 1979). If wetland criteria were not met with the first soil pit, no additional pits were dug. A test upland soil pit was dug for reference in CUP 3.

Linear drainages and other similar waters were delineated using methodologies and diagnostic characteristics presented in the *Methods to Describe and Delineate Episodic Stream Processes on Arid-Landscapes for Permitting Utility-Scale Solar Power Plants: With the MESA Field Guide* (Brady 2013), with references to *the Field Guide to the Identification of the Ordinary High Water Mark (OHWM)* in the *Arid West Region of the Western United States (Field Guide)* (USACE 2008b). Additionally, the *Review of Stream Processes and Forms in Dryland Watersheds,* which shares many similarities with the MESA guide, was also referenced (CDFW 2010). Both the MESA guide and the USACE Field Guide datasheets require entries for standard evaluative characteristics, including fluvial and terrestrial indicators, vegetation cover, transportation, deposition, flow indicators, and sediment texture. The primary differences between datasheets in the USACE Field Guide and the MESA Guide pertain to the identification of geomorphic units and the significance of the OHWM. The MESA guide recommends consultation with a professional geologist to identify basic geological and geomorphic units. The MESA guide discourages using the traditional OHWM

indicators to define the boundaries of a watercourse and instead recommends using the local topography, elevations of land, and specific indicators of fluvial activity to identify the boundaries of a watercourse.

Dryland, or episodic, stream processes are often outside the normal range of the hydrologic and morphologic characteristics of their temperate and humid region counterparts, and their hydrology, sediment transport characteristics, and resultant channel forms cannot be reliably modeled by extrapolation from temperate and humid region fluvial systems (CDFW 2010) (Brady 2013). Potential water features on the Project site were initially identified by noting changes in geomorphology, vegetative distribution, fluvial indicators, and various aspects of hydrology and sedimentation.

For water features on the Project site, the active floodplain, when present, was considered as the lateral limit of non-wetland waters. When an active floodplain was absent, the high-flow channel was considered as the lateral limit of non-wetland waters. When the high-flow channel was absent, the bank was considered as the lateral limit of non-wetland waters. The active floodplain is an area associated with a stream over which water and sediment from that stream overflow when the capacity of the channel is exceeded (Brady 2013). The high-flow channel, sometimes called "secondary channels," carries water during high flows or flood flows and may include topographically higher channels (higher than low-flow channel) or out of channel flows, including those over benches or around islands. The bank is the land on the outermost edge of the channel that confines the channels' boundary when its water rises to the highest level of confinement (Brady 2013). The low-flow channel is the topographically lowest stream channel, or the dominant subchannel, within a channel watercourse (Brady 2013).

The identification of terrestrial (upland) and fluvial processes guided the mapping of the watercourse boundary. These indicators may or may not be present in every feature and may exhibit spatial and temporal variability in position over the length of a feature or laterally across it.

Upland, fluvial, and watercourse indicators were recorded on the Episodic Stream Indicator Data Sheet at a representative location along the channel feature that reflected existing indicators of the channel. The MESA guide, specifically the Review of Channel Forms and Geomorphic Units and Photographic Atlas, was used to fill out the data forms and map the watercourse boundaries.

SECTION 3 - REGULATORY SETTING

Potential impacts to aquatic resources were assessed based on the following statutes (Appendix A):

- Federal Clean Water Act (CWA) Sections 404 and 401
- California Fish and Game Code (CFGC) Section 1600 *et seq*.
- Porter-Cologne Water Quality Control Act

SECTION 4 - EXISTING CONDITIONS

4.1 - Project Setting

The ARSA is situated on the western perimeter of the Mojave Desert, a region that is a mixture of desert habitat, solar arrays, agriculture, and urban development. The topography of the ARSA is generally flat, although the terrain is slightly more variable where creosote bush scrub persists. The ARSA slopes from northwest to southeast, with an elevation that ranges between 2,440 and 2,750 feet above mean sea level. The Tehachapi Mountain Range is approximately 8 miles northwest of the ARSA, while the Central Transverse Range is approximately 10 miles to the southwest.

The region in which the ARSA is located is characterized by a typical desert climate, with hot, dry, windy summers and mild, relatively dry winters. Average high temperatures range from 57°F in December to 97°F in July, and it is not uncommon for temperatures to exceed 100 °F during the summer (WRCC 2021). Average low temperatures range from 29°F in December to 66°F in July. Precipitation events are variable from year to year, with an average of 7.38 inches of precipitation annually.

The land immediately surrounding the ARSA is a mix of native and non-native vegetated habitat and existing solar array facilities. There are a few parcels that were previously utilized for agriculture, although most of these were converted to solar array facilities in the between 2010 and the present (Google LLC 2021). Active construction for new solar facilities were occurring on several parcels adjacent to the Project. Other existing or proposed solar projects near the Project include the existing Antelope Valley Solar Project, the Rosamond Central Solar Project, and the proposed Raceway Solar Project, which are adjacent to the Rosamond South Solar Project.

There are scattered residences in the vicinity of and adjacent to the ARSA. Rosamond, a census-designated place, shares its western border with the eastern end of the ARSA, although most of its population resides about 5.5 miles northeast of the Project.

4.2 - Vegetation

Based on descriptions and the habitat classification system in the CWHR (Mayer and Laudenslayer 1998), six habitat types were present within the ARSA. These included Annual Grassland, Desert Scrub, Alkali Desert Scrub, Barren, Urban, and Deciduous Orchard. The most prevalent habitat type was Annual Grassland, which covered approximately 66 percent of the ARSA. A complete list of plant species observed is included in Appendix C.

4.2.1 - ANNUAL GRASSLAND

Annual Grassland habitat is composed primarily of annual plant species, which also will occur as understory plants in some woodland and shrubland habitats. Structure is dependent largely on weather patterns and livestock grazing, and large quantities of dead organic material can accumulate in the summer months. Introduced annual grasses are

generally the dominant plant species, but perennial grasses may also be present in this habitat. Many wildlife species use annual grassland habitat for foraging, but some require special habitat features such as cliffs, ponds, and woodlands for breeding and refuge. Characteristic species of annual grasslands include western fence lizard (*Sceloporus occidentalis*), western rattlesnake (*Crotalus oreganus*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), turkey vulture (*Cathartes aura*), burrowing owl (*Athene canicularia*), and horned lark (*Eremophila alpestris*).

Annual Grassland habitat was found on much of the ARSA, especially on CUP Area 2 on much of CUP Area 3, and most of CUP Area 4. Annual Grassland was also present along the Holiday Avenue and Gaskell Road gen-tie routes. This habitat was not present on CUP Area 1. Non-native *Bromus* species were common; native grass species were rarely observed. Fiddleneck species (*Amsinckia tesselata* and *A. intermedia*) often competed for dominance with the non-native grasses. In some areas of the ARSA, native shrubs such as rubber rabbitbrush (*Ericameria nauseosa*), creosote, and Joshua trees were scattered within the Annual Grassland habitat.

4.2.2 - DESERT SCRUB

In the western Mojave region, this shrub-dominated habitat typically consists of open, scattered assemblages of deciduous microphyll shrubs rarely exceeding 10 feet. Creosote bush is often a dominant species owing primarily to its tall stature, rather than density. Other species occurring in this habitat include acacia (*Acacia* sp.), bladderpod (*Peritoma* sp.), brittlebush (*Encelia* sp.), cholla (*Cylindropuntia* sp.), ocotillo (*Fouquieria splendens*), and rubber rabbitbrush. This habitat supports a variety of wildlife species. Standing water in the winter and the growth of herbs in spring provide foraging areas and food for wildlife species typically including Couch's spadefoot toad (*Scaphiopus couchii*), desert tortoise (*Gopherus agassizii*), a variety of lizards and snakes including the desert iguana (*Dipsosaurus dorsalis*) and common kingsnake (*Lampropeltis californiae*), black-throated sparrow (*Amphispiza bilineata*), various pocket mice and kangaroo rats (family Heteromyidae), desert kit fox (*Vulpes macrotis arsipus*), coyote, and bobcat (*Lynx rufus*). Soils are generally well-drained and coarse, and salt content in the soil ranges from low to high concentrations of calcium carbonate and other salts, forming a hardpan.

Desert Scrub habitat is found on much of the ARSA, particularly in the western and central portions. CUP Area 1 and CUP Area 2 consisted entirely of Desert Scrub habitat and smaller portions of CUP Area 3 contained Desert Scrub habitat. No Desert Scrub habitat was present CUP Area 5. Desert Scrub habitat was present along portions of the Holiday Avenue gen-tie route, and to a lesser degree along the Gaskill Avenue gen-tie route.

Numerous perennial shrub species were present in this habitat type including creosote, rubber rabbitbrush, cholla, Anderson thornbush (*Lycium andersonii*), Ephedra (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasciculatum*), and winterfat (*Krascheninnikovia lanata*). Joshua trees were also scattered throughout. Common understory species were fiddleneck, wildflowers like goldfields (*Lasthenia californica*) and

blazing star (*Mentzelia veatcheana*), rattlesnake sandmat (*Euphorbia albomarginata*), non-native mustards and grasses, and some native grasses.

4.2.3 - ALKALI DESERT SCRUB

This habitat includes alkali scrub plant assemblages that can be subdivided into two phases: xerophytic and halophytic. Species composition in Alkali Desert Scrub habitats differ based on the two types of phases. Primary perennial plant species of the xerophytic phase include various species of shrubby saltbushes, especially allscale saltbush (*Atriplex polycarpa*), desert holly (*Atriplex hymenelytra*), fourwing saltbush (*A. canescens*), Nuttall's saltbush (*A. nuttalli*), and other species tolerant of alkali conditions. Primary perennial shrub and subshrub species of the halophytic phase include greasewood (*Sarcobatus* sp.), alkali goldenbush (*Isocoma acradenia*), and rubber rabbitbrush. Common wildlife species that inhabit Alkali Scrub habitats in the Mojave Desert are the white-tailed antelope squirrel (*Ammospermophilus leucurus*), zebra-tailed lizard (*Callisaurus draconoides*), long-nosed leopard lizard (*Gambelia wislizenii*), black-tailed jackrabbit (*Lepus californicus*), coyote, and desert kit fox. Alkali Scrub vegetation occurs in California throughout the Mojave Desert, portions of the Colorado Desert, portions of northeastern California within the Great Basin, and in the southern San Joaquin Valley.

Alkali Desert Scrub occurs along the eastern end of Holiday Avenue gen-tie route, a small portion of the Gaskill gen-tie route, and within a small remnant patch of Annual Grassland habitat on CUP Area 4 .Alkali Desert Scrub habitat was not present on CUP Areas 1, 2, or 3. Saltbush species occurred at a high density in this habitat (allscale saltbush and spiny saltbush [*A. confertifolia*]), with other scattered shrub species such as rubber rabbitbrush and Cooper's goldenbush (*Ericameria cooperi*). Understory species consisted mainly of non-native grasses, *Amsinckia* species, and red-stemmed filaree (*Erodium cicutarium*).

4.2.4 - BARREN

This non-vegetated habitat is defined by the absence of vegetation. Any habitat with <2% total vegetation cover by herbaceous, desert, or non-wildland species and <10% cover by tree or shrub species is defined this way. Barren habitat may be found in combination with many different habitats, depending on the region of the State. Where there is little or no vegetation, structure of the non-vegetated substrate becomes a critical component of the habitat. Certain bird species nest on rock ledges and open ground covered with sand or gravel to construct scrape nests. Rocky canyon walls above open water are preferred foraging habitat for many bats. The physical settings for permanently barren habitat represent extreme environments for vegetation.

Barren habitat within the ARSA is found on the northern and eastern portions of the ARSA of CUP Area 2, and along portions of the northern, central, and eastern ARSA of CUP Area 3. This habitat is also present along the western end of the 170th Street West gen-tie route that ends at the SCE Whirlwind Substation and within existing solar facilities and solar facilities that are under construction along Holiday Avenue and Gaskell Road,

4.2.5 - URBAN

Mayer and Laudenslayer (1988) describe urban habitat as variable with five vegetative structures defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. These structures vary based on the associated urban development. Vegetation commonly associated with this habitat includes ornamental herbs (grass lawns, weeds, and flowers), shrubs, hedges, and trees, as well as ruderal species. Species composition within urban habitat varies with the type of ornamental plantings.

There are several rural residences within the ARSA adjacent to CUP Areas 3 and 4, on CUP Area 2, and along the Holiday Avenue and Gaksell Road gen-tie routes. Vegetation within these urban areas consists mainly of non-native ornamental plant species, including larger trees like Siberian elm (*Ulmus pumila*), eucalyptus (*Eucalyptus* sp.), and various conifer species (*Pinus* sp.).

4.3 - Soils

The ARSA of the solar array footprint (not the gen-tie routes) is underlain by nine soil types: Hesperia loam, Hesperia fine sandy loam, Hesperia loamy fine sand, Rosamond loam, Rosamond fine sandy loam, Rosamond loamy fine sand, Rosamond silty clay loam, Sunrise loam, and Cajon loamy sand (Figure D-1 in Appendix D; NRCS 2021a).

Hesperia soil series: The Hesperia soil series consists of very deep, well-drained soils that formed from granite and related rocks (NRCS 2021a). These soils are found on alluvial fans, valley plains, and stream terraces with slopes of up to 9 percent, at elevations from 200 to 4,00 feet. Hesperia soils are distributed extensively in the lower San Joaquin Valley and the high desert of Southern California, and adjoining areas of the southwest. The series is found in areas with a semiarid to arid climate, with somewhat rainy winters and infrequent summer thunderstorms. Mean annual precipitation is six to nine inches, and mean annual temperature is between 61 and 70°F. Hesperia soils are used for irrigated orchards, row crops, and vineyards, although they are often left as large tracts of desert habitat. Natural vegetation is typically creosote bush (*Larrea tridentata*) in the high desert and sparse annuals in the valley.

Hesperia loam, Hesperia fine sandy loam, and Hesperia loamy fine sand are not considered hydric.

Rosamond soil series: The Rosamond soil series consists of deep, well-drained soils that formed mainly from granitic alluvium (NRCS 2021a). These soils are found on the margins of alluvial fans on slopes less than two percent, at elevations between 1,900 and 2,900 feet. Rosamond soils are extensively distributed in the high desert of Los Angeles and adjacent counties. This series is found in areas with an arid climate, with winter rains and occasionally snow, and infrequent summer thunderstorms. Annual precipitation is three to eight inches and mean annual temperature is between 61 and 64°F. Rosamond soils are used for irrigated and row crops like alfalfa, although they are often left as large tracts of desert habitat. Native

vegetation is typically rabbitbrush (*Ericameria* sp.), big sagebrush (*Artemesia tridentata*), saltbush (*Atriplex* sp.), and some annual and perennial grasses and weeds.

Rosamond loam, Rosamond fine sandy loam, Rosamond loamy fine sand, and Rosamond silty clay loam are not considered hydric.

Sunrise soil series: The Sunrise soil series consists of deep, well-drained soils formed from mixed alluvium, and is found on flood plains and basins on slopes up to nine percent (NRCS 2021a). These soils are not extensive and are found only in the high desert of the Mojave, at elevations between 1,500 and 3,500 feet. The Sunrise series is found in areas with an arid climate with hot, dry summers and mild, somewhat moist winters. Mean annual precipitation is three to five inches, sometimes as snow, and mean annual temperature is between 61 and 65 °F. Sunrise soils are used primarily for recreation and occasionally for sheep grazing. Natural vegetation is saltbush and creosote bush with scattered annual grasses. Sunrise loam is not considered hydric.

Cajon soil series: The Cajon soil series consists of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rock (NRCS 2021a). These soils are found on alluvial fans and river terraces with slopes of up to 15 percent, at elevations from 200 to 4,300 feet. Cajon soils are extensively distributed in southeastern California, southern Nevada, and Arizona. The series is found in areas with an arid climate with hot, dry summers and somewhat moist winters. Mean annual precipitation is two to nine inches, and mean annual temperature is between 57 and 70°F. Cajon soils are used mainly for rangeland, recreation, and watershed. Natural vegetation is desert shrubland, populated with creosote bush, saltbush, Mormon tea (*Ephedra* sp.), and Joshua trees (*Yucca brevifolia*), with Indian ricegrass (*Stipa hymenoides*) and annual grasses and forbs.

All of the soils present, except for Cajon sandy loam, are listed as potentially hydric under Criterion 3 by the U.S. Department of Agriculture (USDA): map unit components that are frequently ponded for a long or very long duration during the growing season that a) based on the range of characteristics for the soil series, will at least in part meet one or more field indicators of hydric soils in the United States, or b) show evidence that the soil meets the definition of a hydric soil (NRCS 2021b). Cajon sandy loam is not considered a hydric soil.

4.4 - Hydrology

The ARSA is in the Antelope Valley watershed, within the South Lahontan Hydrologic Region. The South Lahontan Hydrologic Region represents about 17 percent of the land (26,732 square miles) area in California. The region includes Inyo County and portions of Mono, San Bernardino, Kern, and Los Angeles counties. It is bounded to the north by the drainage divide between Mono Lake and East Walker River; to the west and south by the Sierra Nevada, San Gabriel, San Bernardino, and Tehachapi mountains; and to the east by the State of Nevada. In addition to the Sierra Nevada, important mountain ranges in the region include the White Mountains, the Avawatz Mountains, and the Argus and Coso ranges. The mountains are separated by many U-shaped alluvial valleys, some of which are quite large. Drainage for most of the watershed in the region is internal. Along with the arid climate, this accounts for

the presence of many dry lakebeds or playas in the region. Major lakes and reservoirs within the region include Mono Lake, June Lake, Convict Lake, Crowley Lake, and Tinemaha Reservoir in the north and Lake Arrowhead, Silverwood Lake, and Lake Palmdale in the south. Most of the perennial rivers are in the northern portion of this hydrologic region. These include the Owens River and Rush Creek. In the south, the Mojave and Amargosa rivers are present but typically dry for most of the year.

4.4.1 - USGS TOPOGRAPHIC DRAINAGES AND NATIONAL WETLANDS INVENTORY

A query of the NHD and NWI databases showed 12 water features within the ARSA (Figure D-2 in Appendix D; USGS 2021a, USFWS 2021c). One lacustrine littoral unconsolidated shore, intermittently flooded wetland feature within CUP Area 2, 10 wetland features of Palustrine Unconsolidated Shore, Intermittently Flooded within CUP Area 3, and one riverine intermittent streambed; intermittently flooded within CUP Area 2.

The ARSA is in an area of 1% Annual Chance Flood Hazard as designated by FEMA (Figure D-3 in Appendix D; FEMA 2021).

SECTION 5 - AQUATIC RESOURCES ON-SITE

5.1 - Delineated Wetlands and Waters

5.1.1 - WETLANDS

One wetland feature, Lacustrine littoral unconsolidated shore, intermittently flooded was located within CUP Area 2. Two soil pits were collected within this feature to identify hydric soil indicators (Figure 5-1). No hydric soil indicators were present, and no hydrophytic vegetation was observed in the feature. However, evidence of hydrology via surface soil cracking was present. This feature did not contain an OHWM, bank, or any other fluvial indicators.

CUP Area 3 contained 10 wetland features classified as Palustrine Unconsolidated Shore, Intermittently Flooded. Soil test pits were taken at each of these features (Figure 5-1). No hydric soils or hydrophytic vegetation was observed. However, hydrology via soil cracking was observed at each of the 10 locations.

No other features were present within ARSA.

5.1.2 - NON-WETLAND WATERS

An unnamed drainage (W1_CUP2) classified as riverine intermittent streambed; intermittently flooded was delineated within CUP Area 2 (Figure 5-2). This water feature is a discontinuous channel that encompasses 1.826 acres and extends 2,973 feet in length within the ARSA. The watercourse of this drainage was delineated using floodplain indicators due to the absence of defined banks or channel. The drainage is an isolated episodic water feature that typically only flows for brief periods in response to rainfall. The drainage flows in a northwest-southeast orientation and terminates on the southeast corner of CUP Area 2. This water feature historically extended 0.5 miles northeast of CUP Area 2, but a solar farm has been constructed over most of the northwest portion, which has eliminated the upstream water source at the western boundary of CUP Area 2. The upstream channels that have been eliminated are considered dormant, which reduces the potential for this feature to carry water. Such conditions "may or may not be jurisdictional" (Brady 2013).

No other potential non-wetland water features present within the ARSA.

SECTION 6 - JURISDICTION DETERMINATIONS

6.1 - United States Army Corps of Engineers

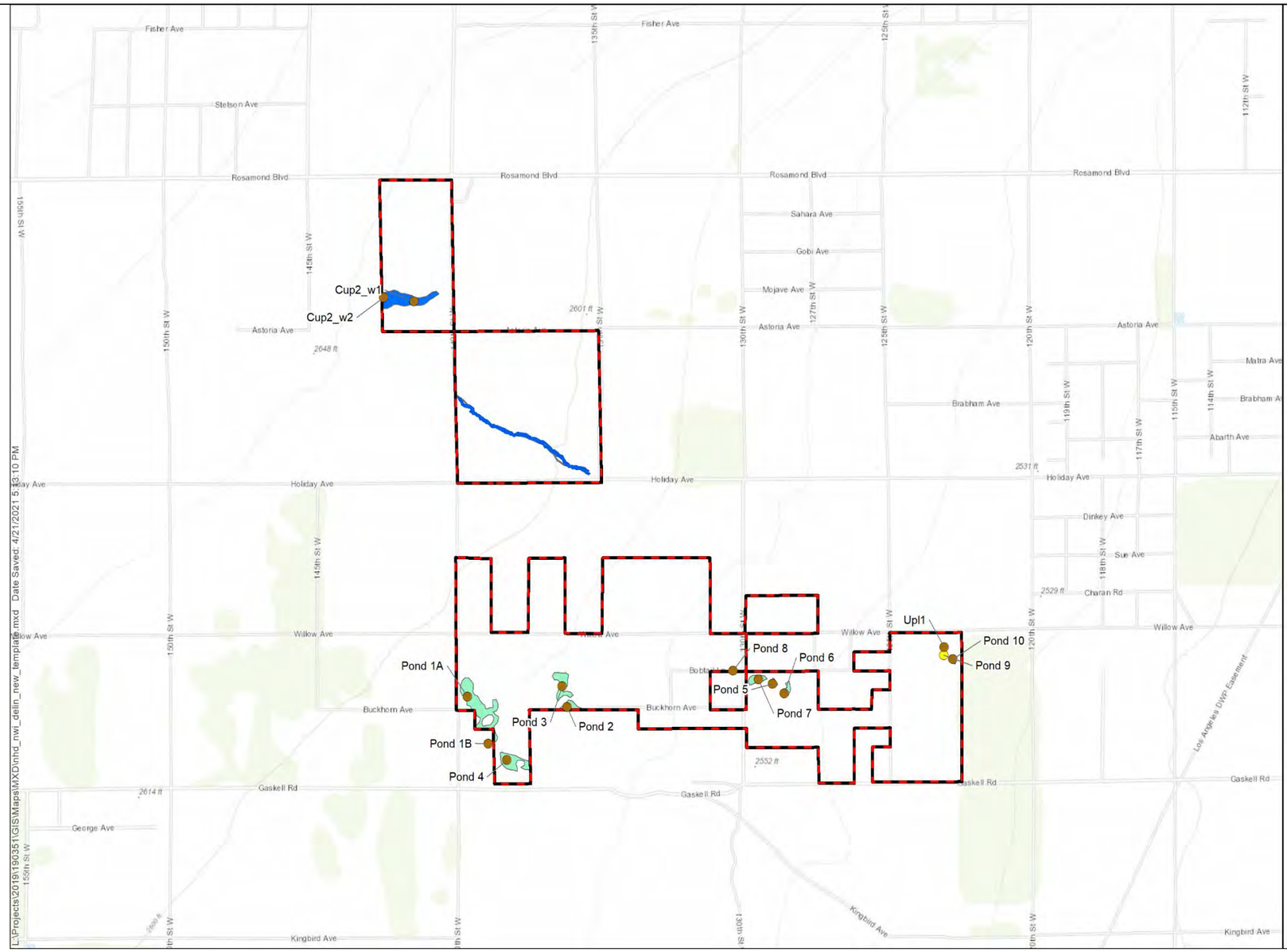
No Waters of the U.S. (WOUS), including adjacent or isolated waters or wetlands are present within the boundaries of the ARSA. A Section 404 permit from the USACE would not be warranted. However, a letter confirming the non-jurisdictional status of the on-site features may be required by the RWQCB.

6.2 - California Department of Fish and Wildlife and Regional Water Quality Board

The potential wetland features in CUP Area 2 and CUP Area 3 did not meet wetland criteria and therefore do not fall under the regulatory authority of the RWQCB (Lahontan Region) or CDFW. The drainage feature W1_CUP2 in CUP Area 2 qualifies as waters of the State and would likely be under the regulatory authority of the RWQCB (Lahontan Region) and CDFW, which takes jurisdiction over the bed, bank, and channel of water features and associated riparian habitat. The drainage did not contain a defined bed or bank or OHWM, and therefore it is likely that CDFW and RWQCB would take jurisdiction over the entire watercourse boundary as delineated. Because the drainage has been isolated from its upstream source, it is currently dormant, and the CDFW may or may not assert regulatory authority over this feature. The Project may result in a maximum of 1.826 acres of disturbance to this feature. The final disturbance area would depend upon the final design and layout of the solar facilities.

Table 6-1
State Aquatic Resources Present within the ARSA,
Rosamond South Solar Project, Kern County, California

Aquatic	CDFW		RWQCB	
Resource Name	Linear Feet	Acreage	Linear Feet	Acreage
W1_CUP2	2,973	1.826	2,973	1.826
Total	**2,973**	**1.826**	**2,973**	**1.826**



Rosamond South Solar Project
Kern County, California
Aquatic Resources Delineation Map

- Soil Sample Pit
- Upland Test Soil Pit
- Waters Delineation Line
- ARSA
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- PUSJ - Palustrine Unconsolidated Shore Intermittenly Flooded
- L2USJ - Lacustrine Littoral Unconsolidated Shore Intermittently Flooded
- Other
- R4SBJ - Riverine Intermittent Streambed Intermittently Flooded

N

700 0 2,100

Feet

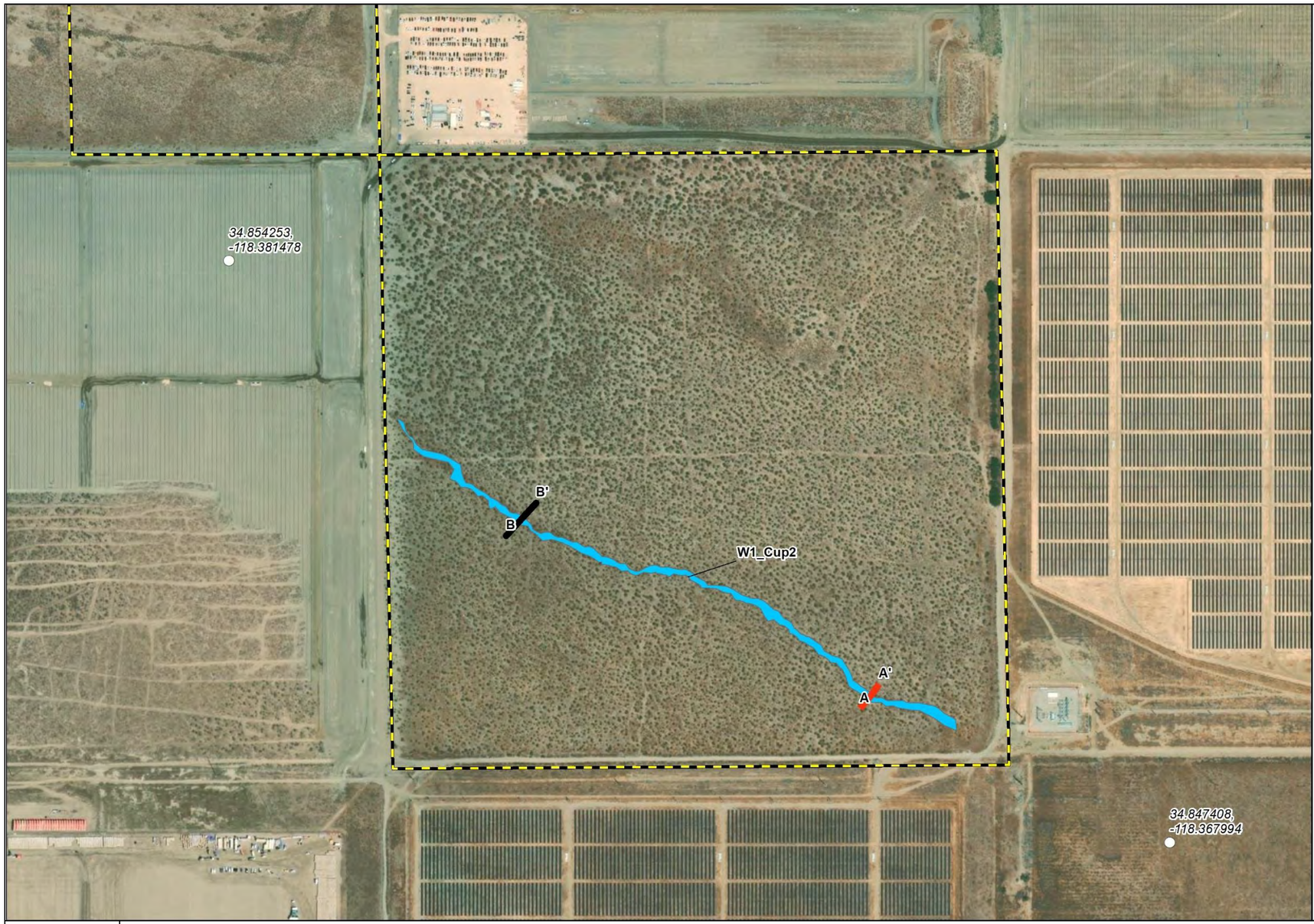
Coordinate System:
NAD 1983 StatePlane California V FIPS 0405 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI,

Created on 4/21/2021

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on January 11, 2019
By: Kristoffer Law, Quad Knopf, Inc.

Figure 6-1
Aquatic Resources Delineation Soil Pit Map



Rosamond South Solar Project
Kern County, California
Aquatic Resources Delineation Map

Reference Points

Delination

Water Course (1.826 ac) (2973 lf) (W1_Cup2)

Data Points

Transect1

Transect2

Project

CUP Area 2

N

500 0 500

Feet

Coordinate System: NAD 1983 StatePlane California IV FIPS 0403 (US Feet)
Projection: Lambert Conformal Conic
Datum: North American 1983

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

04/14/2021

Made in accordance with the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program, as amended on January 11, 2019
By: Kathie Castanon, Quad Knopf, Inc.

Figure 6-2
Aquatic Resources Delineation Detail Map

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APPENDIX A

REGULATORY SETTING

Regulatory Setting

5.1.1.1 Federal Regulatory Authority

CLEAN WATER ACT SECTION 404 (33 U.S.C. SECTIONS 1251 TO 1376)

The Clean Water Act (CWA) provides the primary means for the protection of "Waters of the U.S.," including wetlands. Under Section 404 of the CWA, the USACE, under the Environmental Protection Agency (EPA), regulates the discharge of dredged and fill material into "Waters of the U.S., including wetlands"

The CWA defines Waters of the U.S. as follows:

- 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.
- All interstate waters including interstate wetlands.
- 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 (33 CFR 328.3[a]).

The CWA defines wetlands as a subset of waters of the U.S. Wetlands are those areas that are inundated or saturated by surface water 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[b]; 40 CFR 230.3[t]). Wetlands generally contain three distinct parameters: hydrophytic vegetation, hydric soils, and wetland hydrology.

Waters generally not considered to be Corps-jurisdictional include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds excavated on dry land used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water filled depressions (51 Fed. Reg. 41, 217 1986). In addition, a Supreme Court ruling (*South Waste Agency of North Cook County [SWANCC] vs. USACE*, January 9, 2001) determined that the USACE exceeded its statutory authority by asserting CWA jurisdiction over "an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds." Based solely on the use of such waters by migratory birds, the Supreme Court's holding was strictly limited to waters that are "non-navigable, isolated, and intrastate."

The Supreme Court further addressed the extent of the Corps' jurisdiction in the consolidated cases *Rapanos v. United States* (No. 04-1034) and *Carabell v. United States* (No. 04-1384 (USACE and EPA 2007), referred to as "Rapanos." In Rapanos, a sharply-divided Court issued multiple opinions, none of which garnered the support of a majority of Justices. This created substantial uncertainty as to which jurisdictional test should be used in routine

jurisdictional determinations. The Ninth Circuit Court of Appeal, which encompasses California, answered this in *Northern California River Watch v. City of Healdsburg* (August 11, 2006). In this case, the Court held that Justice Kennedy's opinion in Rapanos provided the controlling rule of law. Under that rule, wetlands or other waters that are not navigable are subject to Corps jurisdiction if they have "a significant nexus to waters that are navigable in fact." As Justice Kennedy explained, whether a "significant nexus" exists in any given situation will need to be decided on a case-by-case basis, depending on site-specific circumstances. The U.S. Environmental Protection Agency (EPA) and Corps subsequently developed an instructional guidebook on how to apply these rulings for all future jurisdictional determinations (USACE and EPA 2007) as well as a memorandum providing guidance to implement the U.S. Supreme Court's decision in Rapanos (Grumbles and Woodley2007).

The USACE and EPA issued a joint memorandum on June 5, 2007, issuing new guidelines for establishing whether or not wetlands or other waters of the U.S. fall within USACE jurisdiction (USACE and EPA 2007). Under these guidelines, the agencies assert jurisdiction over traditional navigable waters (TNWs), wetlands adjacent to TNWs, non-navigable tributaries to TNWs that are relatively permanent waters (RPWs), and wetlands that abut RPWs. The agencies may take jurisdiction over non-navigable tributaries that are not RPWs, wetlands that are adjacent to non-RPWs, and wetlands adjacent to but not directly abutting a relatively permanent, non-navigable tributary. The agencies will generally not assert jurisdiction over swales, erosional features, or ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

CLEAN WATER ACT SECTION 401

Section 401 of the CWA grants States the right to ensure that federal regulatory actions on Waters of the U.S. within their states do not result in negative impacts to water quality. Section 401 requires that any applicant for a federal permit to discharge into Waters of the U.S. must also provide certification that such discharges will comply with state-established water quality standards. As such, Section 401 applies only to waters that are subject to Section 404. In California, the State Water Resource Control Board (SWRCB) and each of its nine Regional Water Quality Control Boards (RWQCBs) administer the Section 401 water quality certification program.

PROTECTION OF WETLANDS (EXECUTIVE ORDER NO. 11990)

Executive Order No. 11990, issued in May 1997, directs federal agencies to "minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands" by avoiding direct and indirect support of new construction in wetlands to the greatest extent feasible. This order applies to projects that involves acquisition, management, and disposal of Federal lands and facilities, non-federal projects that utilize federal funding, and federal activities and programs that affect land use. This order does not apply to issues of permits to private parties for projects on non-federal lands.

5.1.1.2 State Regulatory Authority

PORTER-COLOGNE WATER QUALITY CONTROL ACT

Waters of the state or regulated by the SWRCB and RWQCBs. Waters of the State are broadly defined by the Porter-Cologne Water Quality Control Act (§ 1305(e)) as "any surface water or groundwater, including saline waters, within the boundaries of the state." Under this definition, isolated wetlands that may not be subject to regulations under federal law are waters of the State. However, the SWRCB has not yet adopted a wetland definition. As required by State Water Board Resolution No. 2008-0026, a wetland definition will be developed as part of the Wetland and Riparian Area Protection Policy. On October 6, 2009, the Technical Advisory Team for the Wetland and Riparian Area Protection Policy presented a definition to the SWRCB that "would reliably define the diverse array of California wetlands based on the USACE wetland delineation methods to the extent feasible." The proposed definition is as follows:

An area is a wetland if, under normal circumstances, it (1) is saturated by groundwater or inundated by shallow surface water for a duration sufficient to cause anaerobic conditions within the upper substrate; (2) exhibits hydric substrate conditions indicative of such hydrology; and (3) either lacks vegetation or the vegetation is dominated by hydrophytes (San Francisco Estuary Institute 2009).

This proposed definition has been submitted for public review and comment; however, there is currently no timeline for adoption of the definition. Some Regional Water Quality Control Boards have adopted a wetland definition in their basin plans. The Central Valley Regional Water Quality Control Board, which has jurisdiction over all the drainage basins potentially affected by the project, has not yet adopted a wetland definition within its basin plans. Therefore, the definition in the USACE manuals (USACE 1987 and 2008a) was followed in conducting this wetland delineation.

CALIFORNIA FISH AND GAME CODE SECTION 1600 ET SEQ.

The California Department of Fish and Wildlife (CDFW) regulates all activities (construction, discharge, dredge, diversion, etc.) within rivers, streams, and lakes, and associated riparian vegetation, under California Fish and Game Code Section 1600 *et seq*. This includes all such features on public and private lands throughout California. The regulatory limits of their jurisdiction is generally considered to include all area within the bed, bank, and channel of a river, stream, or lake, plus the outer extent of riparian vegetation immediately adjacent to these aquatic features. Recently the CDFW has asserted jurisdiction as far out as limits of the 100-year flood plain around rivers, streams, and lakes. This also includes man-made and/or channelized streams located where natural streams historically occurred, or that are connected to natural streams. Isolated wetlands that are not located within the jurisdictional limits described here are not regulated by the CDFW.

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS

Photograph 1. Cup2_w1. Taken from 34.856949, -118.381789, facing north. Photograph by Eric Madueno on April 2, 2021

Photograph 2. Cup2_w1. Taken from 34.856949, -118.381789, facing east. Photograph by Eric Madueno on April 2, 2021

Photograph 3. Cup2_w2. Taken from 34.857135, -118.383657, facing east. Photograph by Eric Madueno on April 2, 2021

Photograph 4. Cup2_w2. Taken from 34.857135, -118.383657, facing north. Photograph by Eric Madueno on April 2, 2021

Photograph 5. Pond 1A. Taken from 34.838054, -118.378444, facing north.
Photograph by Eric Madueno on April 2, 2021

Photograph 6. Pond 1B. Taken from 34.835795, -118.377166, facing south.
Photograph by Eric Madueno on April 2, 2021

Photograph 7. Pond 2. Taken from 34.837567, -118.372360, facing east. Photograph by Eric Madueno on April 2, 2021

Photograph 8. Pond 3. Taken from 34.838551, -118.372655, facing north. Photograph by Eric Madueno on April 2, 2021

Photograph 9. Pond 4. Taken from 34.83503, -118.376019, facing north. Photograph by Eric Madueno on April 2, 2021

Photograph 10. Pond 5. Taken from 34.838707, -118.359800, facing north. Photograph by Eric Madueno on April 2, 2021

Photograph 11. Pond 6. Taken from 34.838248, -118.359084, facing south. Photograph by Eric Madueno on April 2, 2021

Photograph 12. Pond 7. Taken from 34.838913, -118.360669, facing north. Photograph by Eric Madueno on April 2, 2021

Photograph 13. Pond 8. Taken from 34.839325, -118.362219, facing east. Photograph by Eric Madueno on April 2, 2021

Photograph 14. Pond 9. Taken from 34.840109, -118.349356, facing south. Photograph by Eric Madueno on April 2, 2021

Photograph 15. Pond 10. Taken from 34.839923, -118.348804, facing north.
Photograph by Eric Madueno on April 2, 2021

Photograph 16. Upland test soil pit. Taken from 34.840502, -118.349334, facing north.
Photograph by Eric Madueno on April 2, 2021

Photograph 17. Watercourse W1_Cup2 transect 1. Taken from 34.849121, -118.372283, facing north (upstream). Photograph by Eric Madueno on April 2, 2021

Photograph 18. Watercourse W1_Cup2 transect 1. Taken from 34.849121, -118.372283, facing south (downstream). Photograph by Eric Madueno on April 2, 2021

Photograph 19. Watercourse transect 2. Taken from 34.851201, -118.377288, facing north (upstream). Photograph by Eric Madueno on April 2, 2021

Photograph 20. Watercourse transect 2. Taken from 34.851201, -118.377288, facing south (downstream). Photograph by Eric Madueno on April 2, 2021

APPENDIX C

PLANT LIST

Table C-1
Plant Species Present within the Aquatic Resources Study Area,
Rosamond South Solar Project, Kern County, California

Scientific Name	Common Name	Wetland Indicator Status*	Native or Introduced
Tree			
Eucalyptus sp.	eucalyptus	FAC	Introduced
Juniperus occidentalis	juniper	FACU	Native
Pinus sp.	pine	FACU	-
Tamarix parviflora	tamarisk	FAC	Introduced; Cal-IPC High
Ulmus pumila	Siberian elm	UPL	Introduced
Yucca brevifolia	Joshua tree	UPL	Native – CDNPA
Sapling/Shrubs			
Acamptopappus shockleyi	Shockley's goldenhead	NI	Native
Acamptopappus sphaerocephalus	rayless goldenhead	NI	Native
Ambrosia dumosa	white bursage	NI	Native
Ambrosia salsola	cheesebush	NI	Native
Atriplex confertifolia	spiny saltbush	NI	Native
Atriplex polycarpa	allscale saltbush	FACU	Native
Cylindropuntia sp.	cholla	NI	Native – CDNPA
Encelia actoni	Acton encelia	NI	Native
Ephedra nevadensis	ephedra	NI	Native
Ericameria cooperi	Cooper's goldenbush	NI	Native
Ericameria linearifolia	interior goldenbush	N	Native
Ericameria nauseosa	rubber rabbitbrush	NI	Native
Eriogonum fasciculatum	California buckwheat	NI	Native
Grayia spinosa	spiny hopsage	NI	Native
Gutierrezia microcephela	sticky snakeweed	NI	Native
Krascheninnikovia lanata	winterfat	NI	Native
Larrea tridentata	creosote bush	NI	Native
Lycium andersonii	Anderson's thornbush	NI	Native
Lycium cooperi	Cooper's boxthorn	NI	Native
Opuntia polyacantha var. *erinacea*	grizzly bear prickly pear	NI	Native – CDNPA
Peritoma arborea	bladderpod	NI	Native
Tetradymia stenolepis	Mojave cottonthorn	NI	Native
Herbs			
Abronia pogonatha	sand verbena	NI	Native
Amsinckia intermedia	common fiddleneck	NI	Native
Amsinckia tesselata	devil's lettuce	NI	Native

Anisocoma acaulis	scalebud dandelion	NI	Native
Astragalus lentiginosus	freckled milk vetch	UPL	Native
Brassica nigra	black mustard	NI	Introduced; Cal-IPC Moderate
Calochortus striatus	alkali mariposa lily	FACW	Native – Rare
Camissonia campestris	field primrose	NI	Native
Chaenactis fremontii	Fremont's pincushion	NI	Native
Chamaesyce albomarginata	rattlesnakeweed	NI	Native
Chylismia claviformis	brown-eyed primrose	NI	Native
Croton setiger	doveweed	NI	Native
Datura wrightii	Jimson weed	UPL	Native
Descurainia sophia	flixweed	NI	Introduced; Cal-IPC Limited
Dichelostemma capitatum	blue dicks	NI	Native
Eremalche exilis	white mallow	NI	Native
Eremothera boothii ssp. *desertorum*	Booth's desert primrose	NI	Native
Eriastrum eremicum	desert woollystar	NI	Native
Eriogonum baileyi var. *baileyi*	Bailey's buckwheat	NI	Native
Eriogonum mohavense	western mojave buckwheat	NI	Native
Eriogonum pusillum	yellow turban	NI	Native
Erodium cicutarium	red-stemmed filaree	NI	Introduced; Cal-IPC Limited
Eschscholzia californica	California poppy	NI	Native
Eschscholzia glyptosperma	desert gold poppy	NI	Native
Gilia tenuiflora	slender flowered gilia	NI	Native
Lactuca serriola	prickly lettuce	FACU	Introduced
Lasthenia californica	goldfields	FACU	Native
Layia glandulosa	white layia	NI	Native
Lepidium fremontii	desert pepperweed	NI	Native
Leptosyne bigloveii	Bigelow's tickseed	NI	Native
Loeseliastrum matthewsii	desert calico	NI	Native
Loeseliastrum schottii	Schott gilia	NI	Native
Lupinus microcarpus	chick lupine	NI	Native
Malacothrix coulteri	snake's head	NI	Native
Malacothrix glabrata	desert dandelion	NI	Native
Marah fabacea	California man-root	NI	Native
Marrubium vulgare	white horehound	FACU	Introduced

Matricaria discoidea	pineapple weed	FACU	Native
Mentzelia veatchiana	blazing star	NI	Native
Mucronea perfoliata	perfoliate spineflower	NI	Native
Pectocarya penicillata	winged pectocarya	NI	Native
Phacelia fremontii	Fremont's phacelia	NI	Native
Phacelia tanacetifolia	tansy-leafed phacelia	NI	Native
Plagiobothrys arizonicus	Arizona popcornflower	NI	Native
Rumex hymenosepalus	wild rhubarb	FACU	Introduced; Cal-IPC Limited
Salsola tragus	Russian thistle	NI	Native
Salvia columbariae	chia sage	FACU	Introduced
Sisymbrium altissimum	tumble mustard	NI	Introduced
Solanum elaeagnifolium	silver leaf nightshade	NI	Native
Stephanomeria exigua	small wirelettuce	NI	Native
Tetrapteron palmeri	Palmer's sun cup	NI	Native
Uropappus lineleyi	silverpuffs	NI	Native
Xylorhiza tortifolia var. *tortifolia*	Mojave aster		
Grasses			
Arundo donax	giant reed	FACW	Introduced; Cal-IPC High
Avena sp.	wild oat	UPL	Introduced; Cal-IPC Moderate
Bromus diandrus	ripgut brome	NI	Introduced; Cal-IPC Moderate
Bromus madritensis ssp. *rubens*	red brome	UPL	Introduced; Cal-IPC High
Bromus tectorum	downy brome	NI	Introduced; Cal-IPC High
Cynodon dactylon	Bermuda grass	FACU	Introduced; Cal-IPC Moderate
Elymus elymoides	squirrel tail grass	FACU	Native
Hordeum murinum	foxtail barley		Introduced; Cal-IPC Moderate
Schismus arabicus	Arabian schismus	FACU NI	Introduced; Cal-IPC Limited
Stipa hymenoides	Indian rice grass	NI	Native
Stipa speciosa	Desert needle grass	NI	Native

*OBL	occurs in aquatic resources > 99% of time
FACW	occurs in aquatic resources 67-99% of time
FAC o	occurs in aquatic resources 34-66% of time
FACU	occurs in aquatic resources 1-33% of time
UPL	occurs in uplands > 99% of time
NI	indicator status not known in this region
~	unsure as to FAC or FACU

APPENDIX D

SUPPORTING MAPS

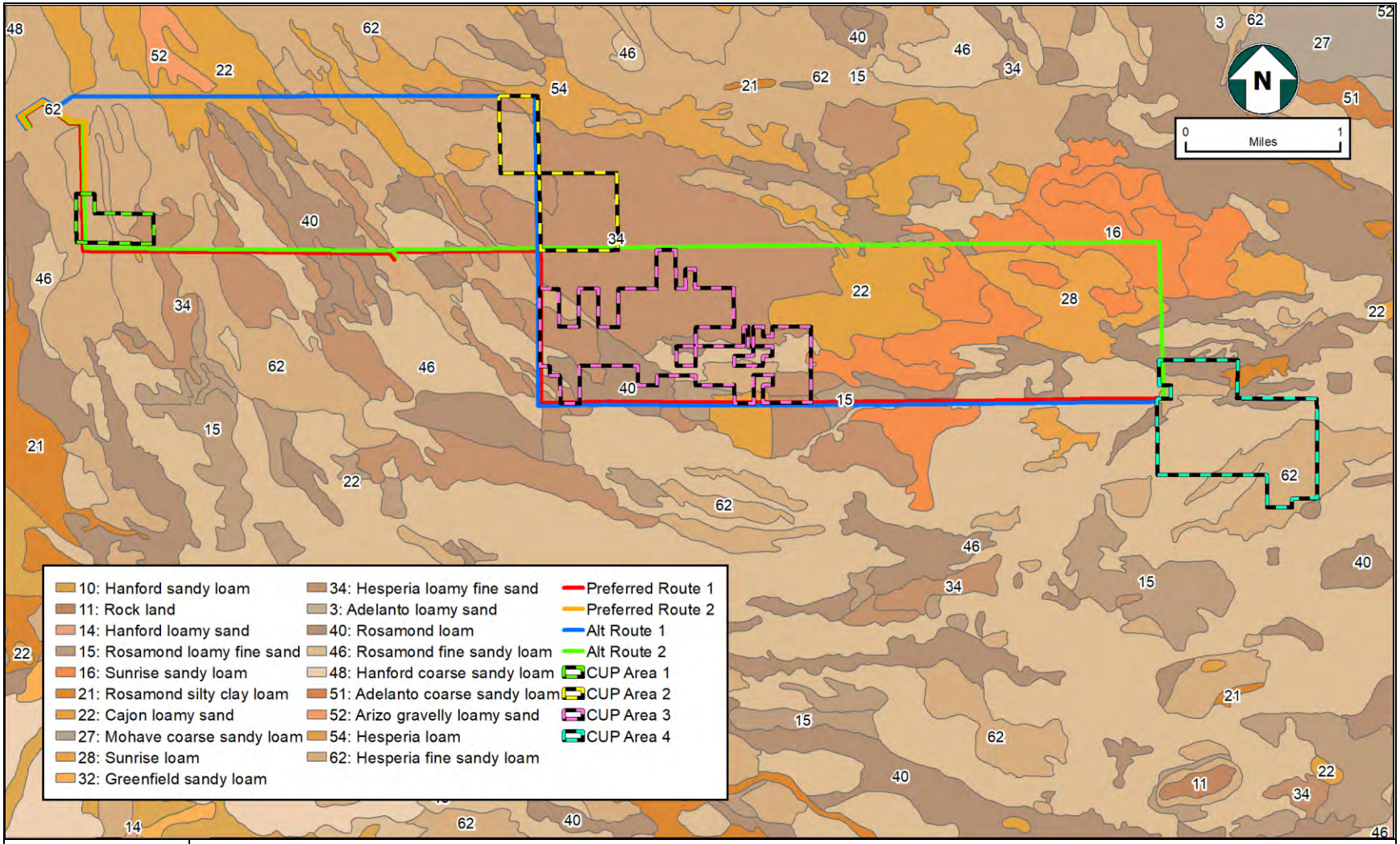

Figure D-1
Soils Map
Rosamond South Solar Project
Kern County, California

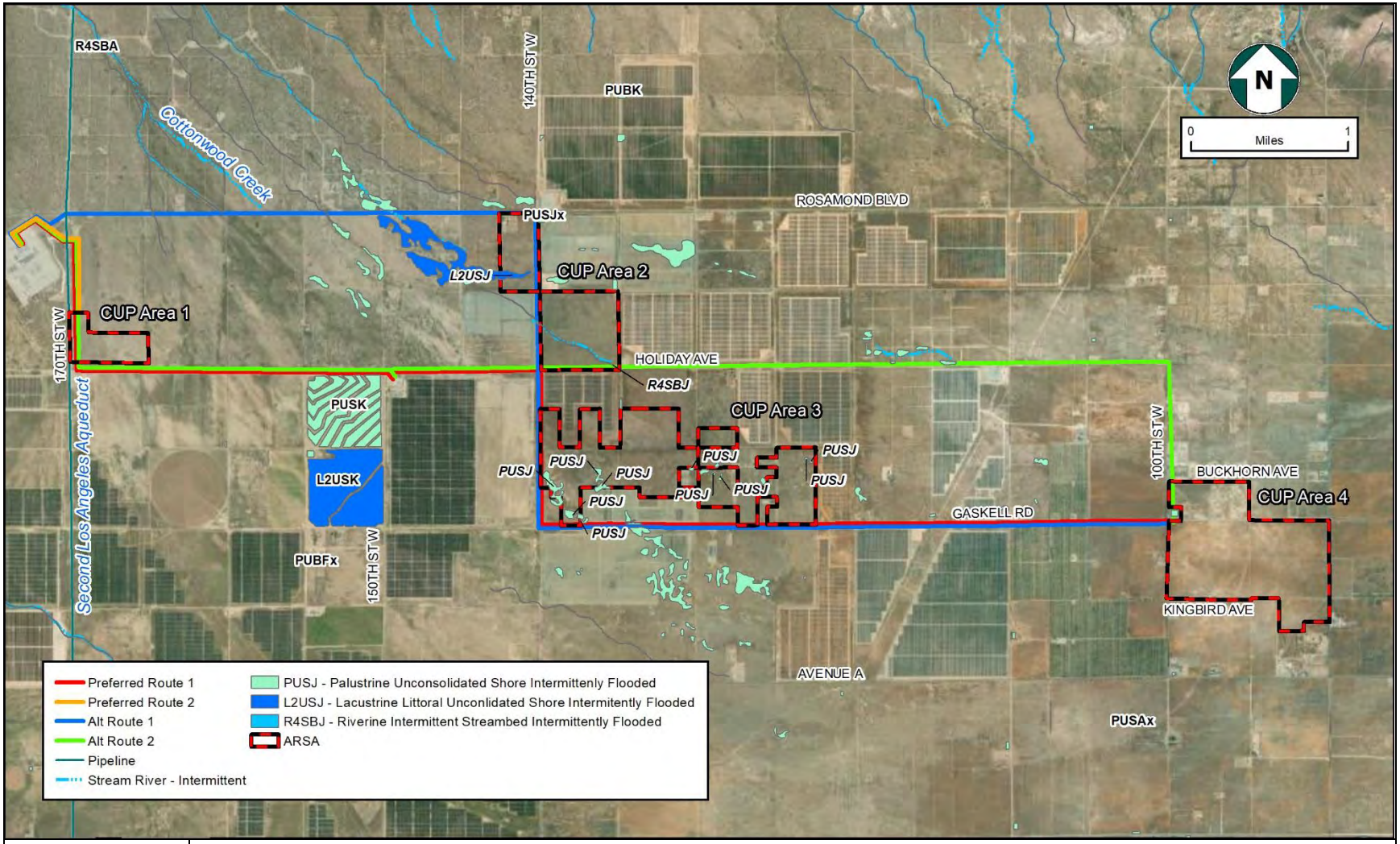

Figure D-2
NWI and NHD Map
Rosamond South Solar Project
Kern County, California

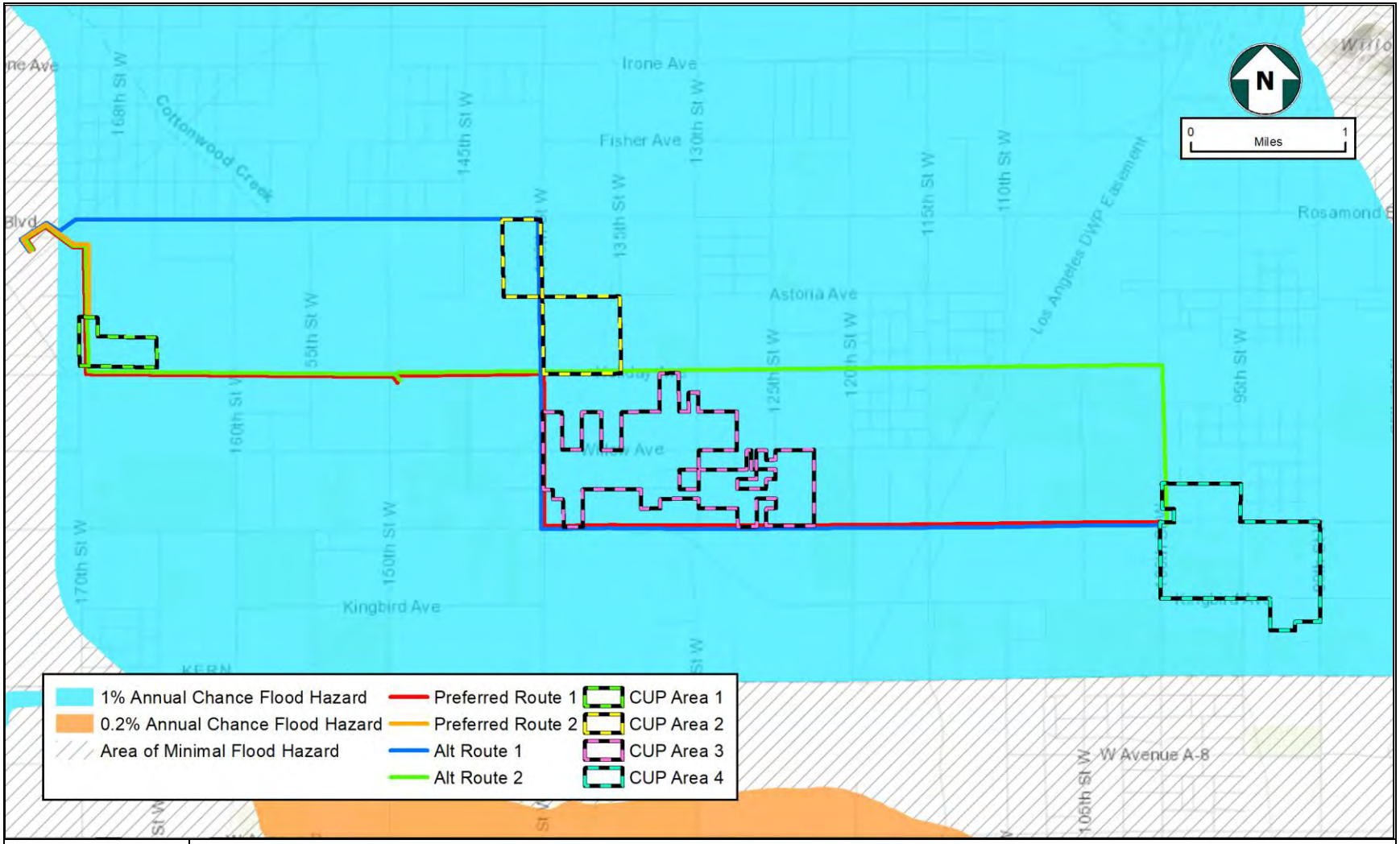

Figure D-3
FEMA Map
Rosamond South Solar Project
Kern County, California

APPENDIX E

WETLAND DATA SHEETS

APPENDIX F

EPISODIC STREAM INDICATORS DATA SHEETS