Draft
Environmental Impact Report

SCH# 2021020513

Volume 1

Chapters 1 through 10

ARATINA SOLAR PROJECT

by 64NB 8ME LLC *(PP20401)*

Zone Change Case No. 6, Map No. 192
Zone Change Case No. 3, Map No. 208-5
Zone Change Case No. 6, Map No. 208-6
Zone Change Case No. 1, Map No. 209-1
Conditional Use Permit No. 16, Map No. 192
Conditional Use Permit No. 17, Map No. 192
Conditional Use Permit No. 3, Map No. 208-5
Conditional Use Permit No. 7, Map No. 208-6
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Conditional Use Permit No. 1, Map No. 209-2
General Plan Amendment No. 6, Map No. 192 (Circulation)
General Plan Amendment No. 2, Map No. 192-35 (Circulation)
General Plan Amendment No. 3, Map No. 208-5 (Circulation)
General Plan Amendment No. 3, Map No. 208-6 (Circulation)
General Plan Amendment No. 1, Map No. 209-1(Circulation)
General Plan Amendment No. 1, Map No. 209-2 (Circulation)

Kern County
Planning and Natural Resources Department
Bakersfield, California

May 2021

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Lorelei H. Oviatt, AICP, Director
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PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

May 28, 2021

File: ZCC 6, Map 192; ZCC 3, Map 208-5; ZCC 6, Map 208-6; ZCC 1, Map 209-1; CUP 16, Map 192; CUP 17, Map 192; CUP 3, Map 208-5; CUP 7, Map 208-6; CUP 1, Map 209-1; CUP 1, Map 209-2; GPA 6, Map 192; GPA 2, Map 192-35; GPA 3, Map 208-5; GPA 3, Map 208-6; GPA 1, Map 209-1; and GPA1, Map No. 209-2

ADDRESSEE LIST (See Distribution List)

Re: Draft Environmental Impact Report for the Aratina Solar Project by 64 NB 8ME LLC (8Minute Energy) (SCH # 2021020513)

Dear Interested Party:

Kern County has prepared a Draft Environmental Impact Report (Draft EIR) for the above-noted land use applications to allow for the construction and operation of a solar photovoltaic power generating facility and associated facilities that would generate a combined total of approximately 530 megawatts (MW) of renewable electrical energy and 600 MW of energy storage on privately-owned land in unincorporated Kern County. The proposed project consists of five separate sites (Sites 1 through 5) located on 22 parcels and totals approximately 2,554 acres; however, it is anticipated that approximately 2,317 acres will be utilized for the construction of the solar panels and permanent facilities.

The proposed project site is located in unincorporated Kern County, straddling State Route 58 between Gephart Road on the west and the San Bernardino County line on the east. 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. The existing U.S. Borax open pit mine and refinery are located approximately two miles north of the project site. The site is located within Sections 5 and 6, Township 10N, Range 7W; Sections 1 and 2, Township 10N, 8W; and Sections 33 and 35, Township 11N, Range 8W, San Bernardino Base Meridian, County of Kern, State of California.

The project proponent is requesting the following:

a) Changes in zone classifications as follows:

- Zone Change Case No. 6, Map No. 192 – From A-1 (Limited Agriculture) to A (Exclusive Agriculture) for 696.69 acres
- Zone Change Case No. 3, Map No. 208-5 – From A-1 to A for 299.94 acres
- Zone Change Case No. 6, Map No. 208-6 – From A-1 to A for 222.49 acres and from R-1 to A for 79.6 acres
- Zone Change Case No. 1, Map No. 209-1 - From A-1 to A for 635.20 acres

b) Conditional Use Permits to allow for the construction and operation of five solar facilities with a total generating capacity of approximately 530 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 600 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 192, 208-5, 208-6, and 209-1) and the M-1

(Light Industrial) Zone District (in Zone Map 209-2) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- Site 1 (up to 70 MW)
  - Conditional Use Permit No. 3, Map No. 208-5 for 299.94 acres
- Site 2 (up to 180 MW)
  - Conditional Use Permit No. 7, Map No. 208-6 for 169.92 acres
  - Conditional Use Permit No. 1, Map No. 209-1 for 635.20 acres
- Site 3 (up to 140 MW)
  - Conditional Use Permit No. 1, Map No. 209-2 for 620.26 acres
- Site 4 (up to 80 MW)
  - Conditional Use Permit No. 16, Map No. 192 for 339.46 acres
- Site 5 (up to 60 MW)
  - Conditional Use Permit No. 17, Map No. 192 for 252.31 acres

c) 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:

- General Plan Amendment No. 6, Map No. 192
- General Plan Amendment No. 2, Map No. 192-35
- General Plan Amendment No. 3, Map No. 208-5
- General Plan Amendment No. 3, Map No. 208-6
- General Plan Amendment No. 1, Map No. 209-1
- General Plan Amendment No. 1, Map No. 209-2

The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's Holgate Substation to the north. Alternatively, the project may interconnect at Southern California Edison's Kramer Substation to the east, located in San Bernardino County via an up to 230kV transmission line located within an Edwards Air Force Base utility corridor. 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.

The Kern County Planning and Natural Resources Department, as Lead Agency, has determined that preparation of an Environmental Impact Report would be appropriate for the referenced project. Enclosed is a copy of the Draft EIR.

If we have not received a reply from you by **July 12, 2021, at 5:00 P.M.**, we will assume that you have no comments regarding this Draft EIR.

Should you have any questions regarding this project, please do not hesitate to contact me at (661) 862-8997 or via email at candiar@kerncounty.com.

Sincerely,

Ronelle Candia, Supervising Planner
Advanced Planning Division

GPA 6; ZC 6, CUP 16, CUP 17 Map 192
WO #PP20401 (EIR - Aratina Solar 2.0)
I:\Planning\WORKGRPS\WP\LABELS\
EIR05-19JJ.nop.doc
Sc 07/29/20

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

Bakersfield City Planning Dept
1715 Chester Avenue
Bakersfield, CA 93301

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

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

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

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

City of McFarland
401 West Kern Avenue
McFarland, CA 93250

City of Ridgecrest
100 West California Avenue
Ridgecrest, CA 93555

City of Shafter
336 Pacific Avenue
Shafter, CA 93263

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

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

City of Wasco
764 E Street
Wasco, CA 93280

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

Kings County Planning Agency
1400 West Lacey Blvd, Bldg 6
Hanford, CA 93230

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

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

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

Santa Barbara Co Resource Mgt Dept
123 East Anapamu Street
Santa Barbara, CA 93101

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

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

U.S. Bureau of Land Management
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555

China Lake Naval Weapons Center
Comm Plans & Liaison
429 E Bowen, Building 981
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

Federal Aviation Administration
Western Reg Office/
777 South Aviation Boulevard
Suite 150
El Segundo, CA 90245

Federal Communications Comm
18000 Studebaker Road, #660
Cerritos, CA 90701

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

Eastern Kern Resource Cons Dist
300 South Richmond Road
Ridgecrest, CA 93555-4436

Environmental Protection Agency
Region IX Office
75 Hawthorn Street
San Francisco, CA 94105

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

U.S. Army Corps of Engineers
P.O. Box 997
Lake Isabella, CA 93240

U.S. Army Corps of Engineers
Regulatory Division
1325 "J" Street, #1350
Sacramento, CA 95814-2920

State Air Resources Board
Stationary Resource Division
P.O. Box 2815
Sacramento, CA 95812

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

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

Caltrans/Dist 9
Planning Department
500 South Main Street
Bishop, CA 93514

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

Caltrans/
Division of Aeronautics, MS #40
P.O. Box 942873
Sacramento, CA 94273-0001

State Clearinghouse
Office of Planning and Research
1400 - 10th Street, Room 222
Sacramento, CA 95814

California Energy Commission
Steven Kerr
1516 Ninth Street
Mail Stop 17
Sacramento, CA 95814

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

California State University
Bakersfield - Library
9001 Stockdale Highway
Bakersfield, CA 93309

Integrated Waste Management
P.O. Box 4025, MS #15
Sacramento, CA 95812-4025

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

California Highway Patrol
Planning & Analysis Division
P.O. Box 942898
Sacramento, CA 94298-0001

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

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

California Regional Water Quality
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

State Dept of Toxic Substance Control
Environmental Protection Agency
1515 Tollhouse Road
Clovis, CA 93612

Cal Environmental Protection Agency/
Dept of Toxic Substances Control, Reg 1
Attn: Dave Kereazis, Permit Div - CEQA
8800 Cal Center Drive, 2nd Floor
Sacramento, CA 95826

Kern County Administrative Officer

Kern County
Agriculture Department

Kern County Airports Department

Kern County
Env Health Services Department

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County Library/Beale
Local History Room

Kern County Fire Dept
David Witt, Fire Chief

Kern County Fire Dept
Michael Nicholas

Kern County Parks & Recreation

Kern County Library/Beale
Andie Sullivan

Kern County Library
California City Branch
9507 California City Boulevard
California City, CA 93505

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

Kern County Sheriff's Dept
Administration

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

Muroc Unified School Dist
17100 Foothill Avenue
North Edwards, CA 93523

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

Mojave Unified School Dist
3500 Douglas
Mojave, CA 93501

Local Agency Formation Comm/LAFCO
5300 Lennox Avenue, Suite 303
Bakersfield, CA 93309

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

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

East Kern Air Pollution
Control District

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 Airport Dist
Attention Stuart Witt
1434 Flightline
Mojave, CA 93501

California City Airport
22636 Airport Way, #8
California City, CA 93505

Mojave Air and Spaceport
1434 Flightline
Mojave, CA 93501

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

East Kern Airport Dist Engineer
3900 Ridgemoor Avenue
Bakersfield, CA 93306

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4220 Poplar Street
Lake Isabella, CA 93240-9536

Center on Race, Poverty
& the Environment
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San Francisco, CA 94612

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

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

Southern California Edison
Planning Dept.
421 West "J" Street
Tehachapi, CA 93561

Center on Race, Poverty
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CA Rural Legal Assistance Foundation
1012 Jefferson Street
Delano, CA 93215

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

Desert Tortoise Preserve Committee
4067 Mission Inn Avenue
Riverside, CA 92501

Native American Heritage Council
of Kern County
Attn: Gene Albitre
3401 Aslin Street
Bakersfield, CA 93312

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

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

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

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

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

San Fernando Band of Mission Indians
Attn: John Valenzuela, Chairperson
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Newhall, CA 91322

Carol Vaughn
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Ridgecrest, CA 93555

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

Pleistocene Foundation
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Ridgecrest, CA 93555

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

Southern California Edison
2244 Walnut Grove, Ave, GO-1 Quad 2C
Rosemead, CA 91770

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Bakersfield, CA 93390

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

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

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The Gorman Law Firm
1346 E. Walnut Street, Suite 220
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Bakersfield, CA 93386

Mojave Foundation
Attn: Todd Quelet
16922 Airport Boulevard
Mojave, CA 93501

Raymond Kelso/
Pleistocene Foundation
2362 Lumill Street
Ridgecrest, CA 93555

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

Verizon California, Inc.
Attention Engineering Department
520 South China Lake Boulevard
Ridgecrest, CA 93555

Kern Valley Indian Council
Attn: Robert Robinson, Chairperson
P.O. Box 401
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Tejon Indian Tribe
Kathy Morgan, Chairperson
1731 Hasti-acres Drive, Suite 108
Bakersfield, CA 93309

Tule River Indian Tribe
Neal Peyron, Chairperson
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11512 El Camino Real, Suite 370
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U.S. Army
Attn: Philip Crosbie, Chief
Strategic Plans, S3, NTC
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Fort Irwin, CA 92310

U.S. Marine Corps
Attn: Patrick Christman
Western Regional Environmental Officer
Building 1164/Box 555246
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Charlotte, NC 28273

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Renewal Resources Group
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Rupal Patel
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Los Angeles, CA 90036

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Fotowatio Renewable Ventures
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803 Tucker Road
Tehachapi, CA 93561

Kelly Group
Kate Kelly
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Winters, CA 95694

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Tehachapi, CA 93561

Robert Burgett
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Mojave, CA 93501

Structure Cast
Larry Turpin, Sales Mgr
8261 McCutchen Road
Bakersfield, CA 93311

San Manuel Band of Mission Indians
Attn: Ryan Nordness,
Cultural Resources Analyst
26569 Community Center Drive
Highland, CA 92346

Torres Martinez Desert Cahuilla Indians
Attn: Michael Mirelez, Cultural
Resources Coordinator
P.O. Box 1160
Thermal, CA 92274

Twenty-Nine Palms Band of Mission
Indians
Attn: Darrell Mike, Tribal Chairman
46-200 Harrison Place
Coachella, CA 92236

Twenty-Nine Palms Band of Mission
Indians
Attn: Anthony Madrigal Jr., Tribal
Grants Administrator
46-200 Harrison Place
Coachella, CA 92236

Tejon Indian Tribe
Attn: Collin Rambo, Cultural Resource
Management Technician
P.O. Box 640
Bakersfield, CA 93309

Big Pine Paiute Tribe of the Owens Valley
Attn: James Rambeau, Sr., Chairperson
P.O. Box 700
Big Pine, CA 93513

Big Pine Paiute Tribe of Owens Valley
Attn: Sally Manning, Env. Director
P.O. Box 700
Big Pine, CA 93513

Big Pine Paiute Tribe of the Owens Valley
Attn: Danelle Gutierrez, THPO
P.O. Box 700
Big Pine, CA 93513

Chumash Council of Bakersfield
Attn: Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA 93307

Wuksache Indian Tribe/ Eshom Valley Band
Attn: Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA 93906

Kern Valley Indian Community
Attn: Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA 93240

Kern Valley Indian Community
Attn: Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella, CA 93240

Fernandeno Tataviam Band of Mission Indians
Attn: Jairo F. Avila, THPO
1019 Second St. Suite 1
San Fernando, CA 91340

San Manuel Band of Mission Indians
Attn: Jessica Mauck, Director-CRM Dept.
26569 Community Center Dr.
Highland, CA 92346

Santa Rosa Rancheria Tachi Yokut Tribe
Attn: Lee Sisco, Chairperson
P.O. Box 8
Lemoore, CA 93245

Tejon Indian Tribe
Attn: Octavio Escobedo III, Chairperson
P.O. Box 640
Bakersfield, CA 93309

Kern Valley Indian Community
Attn: Brandy Kendricks
30741 Foxridge Court
Tehachapi, CA 93561

Vak titvu titvu vak tilhini – Northern Chumash Tribe
Attn: Mona Olivas Tucker, Chairwoman
660 Camino Del Rey
Arroyo Grande, CA 93420

Nick Jensen, PhD
Lead Conservation Scientist
California Native Plant Society
2707 K Street, Suite 1
Sacramento, CA 95816

Isabella Langone
California Native Plant Society
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David Eyre
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Boron, CA 93516

Donna Fort
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Millie Ashpaugh
24183 Sage Ave.
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Patricia M. Eyre
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Boron, CA 93516

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Diana Wise
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Boron, CA 93516

Broc Job
24300 Chaparral Ave.
Boron CA 93516

Bob & Pat Jennings
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Boron, CA 93516

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San Ramon, CA 94583

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North Edwards, CA 93523

Thomas Bahrs
PO Box 6582
Orange CA 92863

Melissa Munoz
26401 20 Mule Team Road
Boron, CA 93516

Center for Biological Diversity
Attn: Ileene Anderson, Senior Biologist
660 S. Figueroa Street, Suite 1000
Los Angeles, CA 90017

Kevin Emmerich
Basin and Range Watch
PO Box 70
Beatty, NV 89003

James & Tena Hanson
26509 John Street
Boron, CA 93516

Charles & Melba Kennedy
26501 John Street
Boron, CA 93516

NOTICE OF AVAILABILITY FOR PUBLIC REVIEW AND HEARING ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED ARATINA SOLAR PROJECT

This is to advise that the Kern County Planning and Natural Resources Department has prepared an Environmental Impact Report (EIR) for the project identified below. As mandated by State law, the minimum public review period for this document is 45 days.

PROJECT TITLE: EIR05-19: Aratina Solar Project by 64NB 8ME LLC (8Minute Energy); Zone Change Case 6, Map 192; Zone Change Case 3, Map 208-5; Zone Change Case 6, Map 208-6; Zone Change Case 1, Map 209-1; Conditional Use Permit 16, Map 192; Conditional Use Permit 17, Map 192; Conditional Use Permit 3, Map 208-5; Conditional Use Permit 7, Map 208-6; Conditional Use Permit 1, Map 209-1; Conditional Use Permit 1, Map 209-2; General Plan Amendment 6, Map 192 (Circulation); General Plan Amendment 2, Map 192-35(Circulation); General Plan Amendment 3, Map 208-5 (Circulation); General Plan Amendment 3, Map 208-6 (Circulation); General Plan Amendment 1, Map 209-1(Circulation); and General Plan Amendment 1, Map 209-2 (Circulation) (SCH #202102513)

PROJECT LOCATION: The proposed project site is located in unincorporated Kern County, straddling State Route 58 between Gephart Road on the west and the San Bernardino County line on the east. 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. The existing U.S. Borax open pit mine and refinery are located approximately two miles north of the project site. The site is located within Sections 5 and 6, Township 10N, Range 7W; Sections 1 and 2, Township 10N, 8W; and Sections 33 and 35, Township 11N, Range 8W, San Bernardino Base Meridian, County of Kern, State of California.

DOCUMENT AVAILABILITY: The document and documents referenced in the Draft EIR are available for review at the Planning Natural Resources Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301 or on the Departmental website **(https://kernplanning.com/planning/environmental-documents/).**

PUBLIC HEARING AND COMMENT: Kern County is soliciting comments on the adequacy and completeness of the analysis and proposed mitigation measures described in the Draft EIR. You may comment by providing testimony at the public hearing on:

DATE:	**August 26, 2021**
TIME:	**7:00 P.M. or soon thereafter**
LOCATION:	**Chambers of the Board of Supervisors**
	Kern County Administrative Center, First Floor
	1115 Truxtun Avenue, Bakersfield, CA 93301

And/or submitting written comments to the project planner identified below prior to the close of the public comment period on July 12, 2021, at 5:00 p.m.

Testimony at future public hearings may be limited to those issues raised during the public review period either orally or submitted in writing.

HOW TO COMMENT: You may provide testimony at the public hearing on the date and time specified above or provide written comments prior to the close of public comment period on July 12, 2021, at 5:00 p.m. to:

Kern County Planning and Natural Resources Department
ATTN: Ronelle Candia, Supervising Planner
2700 "M" Street, Suite 100, Bakersfield, CA 93301
Phone: (661) 862-8997
E-mail: candiar@kerncounty.com

PROJECT DESCRIPTION: The project includes a request for land use entitlements necessary to facilitate the construction and operation of a solar photovoltaic power generating facility and associated facilities that would generate a combined total of approximately 530 megawatts (MW) of renewable electrical energy and 600 MW of energy storage on privately-owned land in unincorporated Kern County. The proposed project consists of five separate sites (Sites 1 through 5) located on 22 parcels and totals approximately 2,554 acres; however, it is anticipated that approximately 2,317 acres will be utilized for the construction of the solar panels and permanent facilities.

The project proponent is requesting the following:

a) Changes in zone classifications as follows:

- Zone Change Case No. 6, Map No. 192 – From A-1 to A for 696.69 acres
- Zone Change Case No. 3, Map No. 208-5 – From A-1 to A for 299.94 acres
- Zone Change Case No. 6, Map No. 208-6 – From A-1 to A for 222.49 acres and from R-1 to A for 79.6 acres
- Zone Change Case No. 1, Map No. 209-1 - From A-1 to A for 635.20 acres

b) Conditional Use Permits to allow for the construction and operation of five solar facilities with a total generating capacity of approximately 530 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 600 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 192, 208-5, 208-6, and 209-1) and the M-1 (Light Industrial) Zone District (in Zone Map 209-2) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- Site 1 (up to 70 MW)
    - Conditional Use Permit No. 3, Map No. 208-5 for 299.94 acres
- Site 2 (up to 180 MW)
    - Conditional Use Permit No. 7, Map No. 208-6 for 169.92 acres
    - Conditional Use Permit No. 1, Map No. 209-1 for 635.20 acres
- Site 3 (up to 140 MW)
    - Conditional Use Permit No. 1, Map No. 209-2 for 620.26 acres
- Site 4 (up to 80 MW)
    - Conditional Use Permit No. 16, Map No. 192 for 339.46 acres
- Site 5 (up to 60 MW)
    - Conditional Use Permit No. 17, Map No. 192 for 252.31 acres

c) 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:

- General Plan Amendment No. 6, Map No. 192
- General Plan Amendment No. 2, Map No. 192-35
- General Plan Amendment No. 3, Map No. 208-5
- General Plan Amendment No. 3, Map No. 208-6
- General Plan Amendment No. 1, Map No. 209-1
- General Plan Amendment No. 1, Map No. 209-2

The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's Holgate Substation to the north. Alternatively, the project may interconnect at Southern California Edison's Kramer Substation to the east, located in San Bernardino County via an up to 230kV transmission line located within an Edwards Air Force Base utility corridor. 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.

ENVIRONMENTAL REVIEW FINDINGS: Anticipated significant and unavoidable impacts on Aesthetics (Project and Cumulative); Air Quality (Project and Cumulative); Biological Resources (Cumulative); Hazards and Hazardous Materials (Cumulative); and Wildfire (Cumulative).

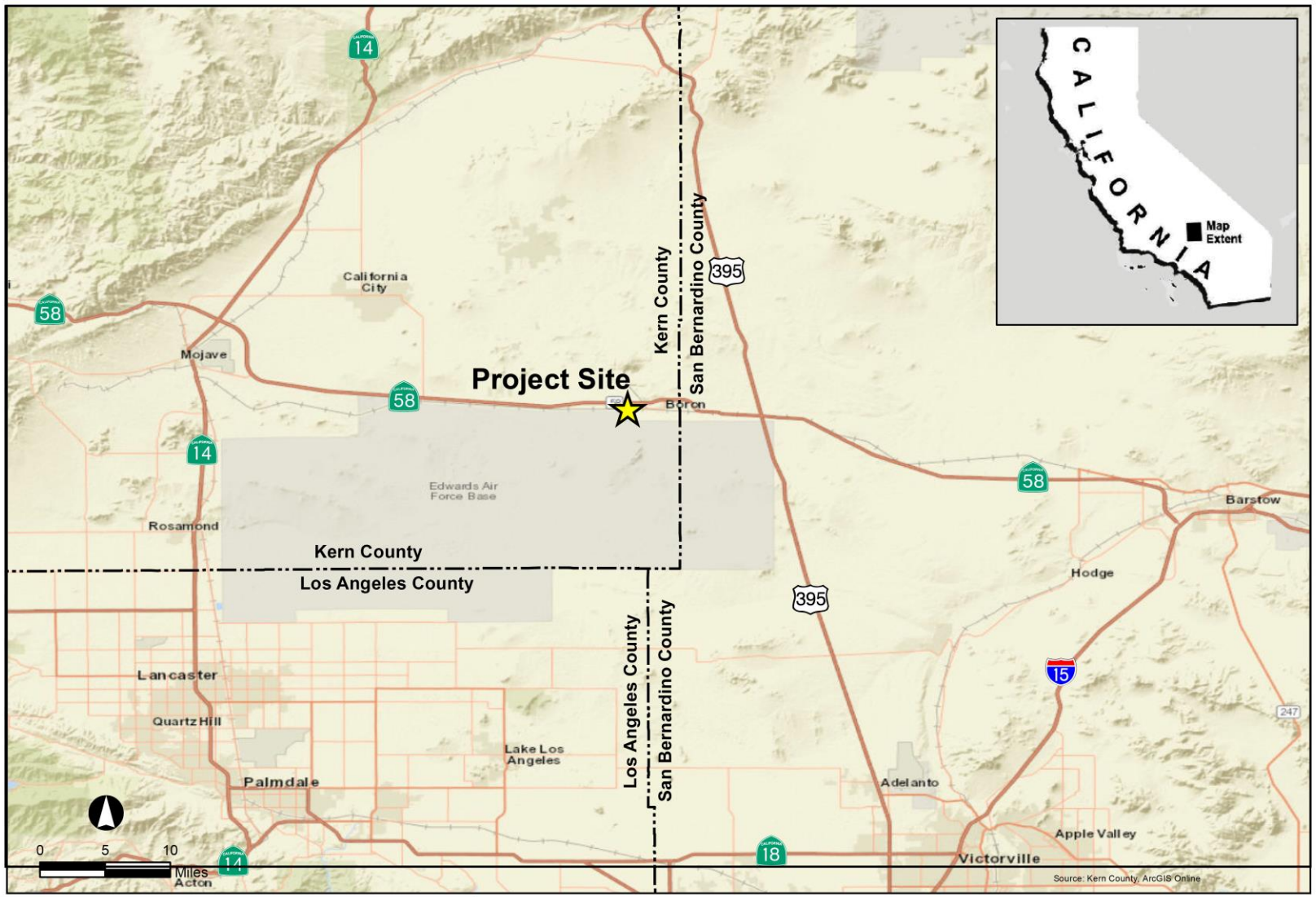
LORELEI H. OVIATT, AICP, Director
Planning and Natural Resources Department

To be published once only on next available date and as soon as possible

THE BAKERSFIELD CALIFORNIAN
MOJAVE DESERT NEWS

RRC:sc (05/28/21)

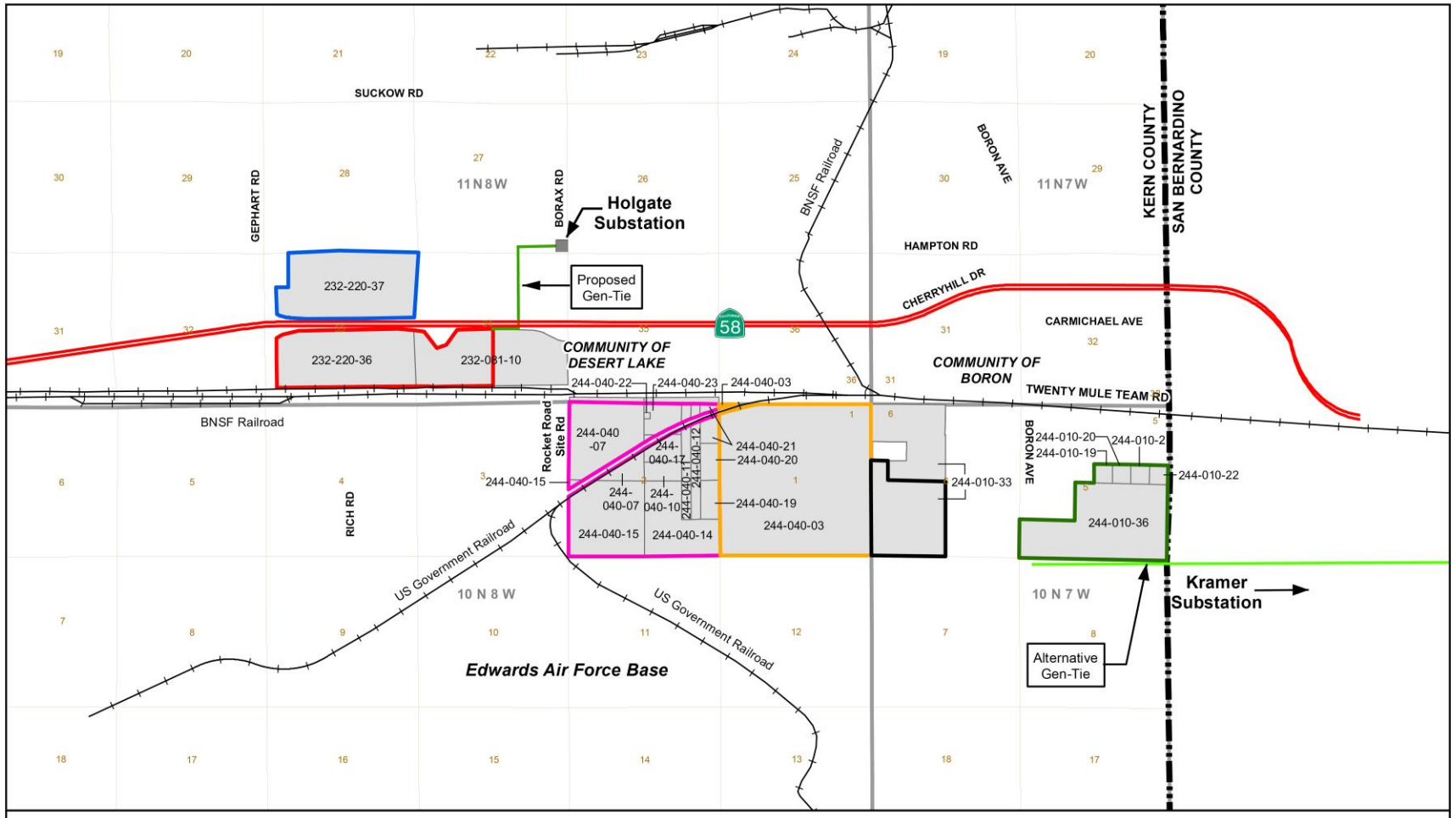
cc: County Clerk (2) (with fee)
Environmental Status Board
LiUNA
Supervisorial District No. 2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

REGIONAL VICINITY MAP



Legend

Project Boundary	CUP 16, Map 192	CUP 1, Map 209-02	Section	Proposed Gen-Tie (up to 230 kV)	
Project Parcels	CUP 7, Map 208-06	CUP 17, Map 192	Township/Range	Alternative Gen-Tie (up to 230 kV)	
232-081-10 - APN Label	CUP 1, Map 209-01	CUP 3, Map 208-05			

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

Source: Kern County (2020), San Bernardino County, ArcGIS Online, Protected Areas Database of the United States (PADUS)

0 2,500 5,000 Feet

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

PROJECT SITE BOUNDARIES

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GPA 6; ZC 6, CUP 16, Map 192
WO #PP20401 (EIR - Aratina Solar)

Sc 02/18/21

232 171 01 00 1
AMAYA GEORGE J & NANCY
44 WALKER AV
WAHIAWA HI 96786-1887

244 372 02 00 6
ANTELOPE VALLEY E KERN WTR AG
P O BOX 3176
QUARTZ HILL CA 93534

244 312 04 00 4
ASCENCIO ERICK JR
44708 FENHOLD ST
LANCASTER CA 93535-3417

244 352 09 00 1
ATKINSON GARY D & MARIAN K
26535 JOHN ST
BORON CA 93516

232 171 27 00 7
BAIRD CAROL J
24147 SAGE AV
BORON CA 93516-1331

232 171 05 00 3
BARNARD DORIS M
24164 JUNIPER AV
BORON CA 93516

244 341 12 00 9
BELARDES AUDREY DELIA FAMILY TRUST
26849 NICHOLS ST
BORON CA 93516-1938

244 312 11 00 4
BISHOP TIMOTHY T
26967 JOHN ST
BORON CA 93516-1920

244 312 16 00 9
BORON BIBLE CHURCH
P O BOX 627
BORON CA 93596

231 180 07 00 8
ALS FUND INC
7586 WOODROW WILSON DR
LOS ANGELES CA 90046

244 010 27 00 0
ANA PROPERTIES LLC
P O BOX 1510
LA MIRADA CA 90637

244 010 32 00 4 **DUP**
ANTELOPE VALLEY EAST KERN WATER AGENCY
P O BOX 3176
QUARTS HILL CA 93534

232 171 24 00 8
ASHPAUGH LIVING TRUST
2797 MAGNOLIA ST
CAMARILLO CA 93012-8044

244 351 09 00 4
AUSTIN RONALD
1337 CASIANO RD
LOS ANGELES CA 90049

231 190 24 00 0
BALLESTEROS JONATHAN ROBERT
26145 TWENTY MULE TEAM RD
BORON CA 93516

244 332 15 00 2
BEALMER WILLIAM LIVING TRUST
732 PALMER ST
NIPOMO CA 93444-9569

231 101 12 00 5
BENCH SHAMMA MICHELLE
26562 NUGENT ST
BORON CA 93516

232 173 09 00 9
BLODGETT ZACHARY JOE
12363 SIERRA VIEW ST
BORON CA 93516-1341

231 040 01 00 9
BORON CHAMBER OF COMMERCE
26962 TWENTY MULE TEAM RD
BORON CA 93516

244 332 09 00 5
ALVARENGA ANGELICA V
11861 NANCY AV
BORON CA 93516

232 081 12 00 7 **DUP**
ANTELOPE VALLEY E KERN WTR AG
ADDRESS UNKNOWN

244 312 03 00 1
ASBURY ROBERT J & DANIELLE
PO BOX 402
POTTER VALLEY CA 95469-0402

232 171 07 00 9 **DUP**
ASHPAUGH TRUST
2797 MAGNOLIA ST
CAMARILLO CA 93012-8044

244 342 14 00 2
BAHRS THOMAS
PO BOX 6582
ORANGE CA 92863-6582

232 150 02 00 1
BANKS LISA
12153 EL MIRAGE ST
BORON CA 93516-1312

232 172 27 00 4
BEARDEN ERBY R & MILDRED F
24263 JOSHUA AV
BORON CA 93516

231 190 30 00 7
BIRCH JARED & PRINNIS
26095 20 MULE TEAM RD
BORON CA 93516-1410

232 173 03 00 1
BLUE GARRY & BOBBIE
16771 ALEXANDER AV
NORTH EDWARDS CA 93523

231 180 10 00 6 **DUP**
BORON COMMUNITY SERVICE DIST
ADDRESS UNKNOWN

232 220 27 00 4
BORON COMMUNITY SERVICE DIST
P O BOX 1060
BORON CA 93596

232 140 28 00 4
BRANDEL CHARLES F & CINDY L
REV TR
2057 WEST AVE M-8
PALMDALE CA 93551

232 182 20 00 6
BRECKENRIDGE RUTH E
24171 CHAPARREL AV
BORON CA 93516

232 182 21 00 9
BRECKENRIDGE STEVE & JAMIE
24157 CHAPPARRAL AV
BORON CA 93516

244 040 14 00 1
BRITTON ASSCS LLC
PO BOX 27325
ANAHEIM CA 92809-0110

231 190 12 00 5
BROWN JACQULINE S
7475 W SAHARA AV # 100
LAS VEGAS CA 89117

232 181 02 00 7
BROWN MORTON EUGENE &
PASSMORE DEBURAH
24422 TAMARISK AV
BORON CA 93516-1358

244 351 07 00 8
BURGESS ROBERT E
11945 FOOTHILL RD
RED BLUFF CA 96080-8984

244 361 10 00 9
BURKE SHEILA
P O BOX 5651
SANTA MONICA CA 90409

244 361 11 00 2
BURKE SHEILA
PO BOX 5651
SANTA MONICA CA 90409

231 190 09 00 7
BUTLER TONI LEE
11 IRIS CT
BODFISH CA 93205

244 331 12 00 6
CAILLIER FAM LIV TR
26655 NICHOLS ST
BORON CA 93516-1934

244 331 13 00 9
CAILLIER FAM LIV TR
9195 SVL BOX
VICTORVILLE CA 92395-5135

244 341 11 00 6
CAILLIER JEREMY
16640 ALEXANDER AV
EDWARDS CA 93523-3526

232 182 06 00 6
CAILLIER KAREN TR
25831 CHERRYHILL DR
BORON CA 93516-1202

232 172 07 00 6
CANADA MICHAEL W & DEBORAH L
24192 SAGE AV
BORON CA 93516-1332

244 040 21 00 1
CAO TIM
7856 CARMENCITA AV
SACRAMENTO CA 95829-9425

232 172 26 00 1
CARBAJAL JAVIER
24153 TAMARISK AV
BORON CA 93516-1345

244 351 11 00 9
CARBONARI JESSICA I
1125 REGENTS ST
LANCASTER CA 93534-1400

244 371 05 00 8
CARDOZA ROBERTA A TR
1031 NORD AV
BAKERSFIELD CA 93314-9784

244 362 06 00 5
CAREY JOHN W & CATHY E
P O BOX 494
BORON CA 93596

244 361 02 00 6
CASTANEDA JOSE T
P O BOX 866
LOMA LINDA CA 92354

231 101 13 00 8
CESENA RUPERTO R & GLORIA F DE
26545 TWENTY MULE TEAM RD
BORON CA 93516

244 332 03 00 7
CHALTRAW IRENE P
P O BOX 344
BORON CA 93596

244 341 14 00 5
CHAVEZ BRANDON DE LA TORRE
494 MARIN ST
TULARE CA 93274-4892

232 150 08 00 9
COOK FAMILY TR
24138 CHAPARRAL AV
BORON CA 93516

232 183 05 00 0
COOK FAMILY TR
24138 CHAPARRAL AV
DESERT LAKE CA 93516

231 180 03 00 6
CORE FAMILY TR
305 SUNDOWN DR
FARMINGTON AR 72730

232 182 05 00 3
CORONEL WILLARDO C
24172 JOSHUA AV
BORON CA 93516

244 010 06 00 9
COUNTY OF KERN
GENERAL SERVICES/PROPERTY MGT

244 010 07 00 2 **DUP**
COUNTY OF KERN
1115 TRUXTUN AV
BAKERSFIELD CA 93301

244 010 14 00 2 **DUP**
COUNTY OF KERN
1115 TRUXTUN AV FLR 4
BAKERSFIELD CA 93301

244 010 23 00 8
COUNTY OF KERN
1415 TRUXTUN AVE.
BAKERSFIELD CA 93301-5215

232 182 01 00 1
COX JEFFREY C SR
12246 SIERRA VIEW
BORON CA 93516

232 140 09 00 9
CRANE FAMILY TRUST
4640 ADMIRALTY WY STE 500
MARINA DEL REY CA 90292

244 352 13 00 2
CRAWFORD BRENT & MONICA
P O BOX 280004
NORTHRIDGE CA 91328-0004

232 150 38 00 6
DABBAS EMIL & LEILA
PO BOX 4006
CASTAIC CA 91310-4006

244 361 12 00 5
DAVENPORT JOHN D & JESSIE N
26567 FERGUSON ST
BORON CA 93516-1905

232 140 14 00 3
DAVIS DALE FAMILY TRUST
24337 WOODFORD TEHACHAPI RD
TEHACHAPI CA 93561-9539

232 172 03 00 4
DAVIS DAVID K
24136 SAGE AV
BORON CA 93516-1332

231 190 07 00 1
DAVIS JIMMY R & JOAQUINA D
27156 COTE ST
BORON CA 93516-1621

244 010 17 00 1
DELA CRUZ MANUEL & IMELDA
2233 5 DUVALL ST
LOS ANGELES CA 90031

231 180 06 00 5 **DUP**
DENNIS DESERT LAND LLC
ADDRESS UNKNOWN

232 081 05 00 7
DESERT LAKE COMM SERVICE DIST
12200 DEL ORO ST
BORON CA 93516-1376

232 140 45 00 3
DESERT PARTNERS PROP INVEST LLC
12366 BORON AV
BORON CA 93516-1614

232 150 19 00 1
DESERT PARTNERS PROP INVS LLC
PO BOX 4006
CASTAIC CA 91310-4006

232 140 46 00 6 **DUP**
DESERT PARTNERS PROPERTY INVEST LLC
12366 BORON AV
BORON CA 93516-1614

231 180 04 00 9
DLI LLC
4825 S HIGHWAY 95 2
FORT MOHAVE AZ 86426

244 040 07 00 1
DORA LAND
PO BOX 1405
APPLE VALLEY CA 92307-0026

244 040 23 00 7 **DUP**
DORA LAND
P O BOX 1405
APPLE VALLEY CA 92307

232 140 38 00 3
DOVER GEORGE P A & HUA-CHIEN HSU
21947 JALAMA RD
APPLE VALLEY CA 92307-9335

232 184 05 00 7
DURHAM WILLIAM W
6820 AQUEDUCT RD
PHELAN CA 92371-7102

244 351 05 00 2
DUVALL KUMIKO M
P O BOX 143
BORON CA 93596-0143

232 171 25 00 1
EDMONDS WILLIAM R
3601 REDLANDS DR
BAKERSFIELD CA 93306

232 182 04 00 0
EDMONDS WILLIAM R ET AL
3601 REDLANDS DR
BAKERSFIELD CA 93306-2123

232 183 06 00 3
ELLWOOD FRAN
24152 CHAPARRAL AV
BORON CA 93516

232 171 29 00 3
ENGLISH JACK & GAIL
P O BOX 114
BORON CA 93516

232 181 23 00 8
ENGLISH MELVIN A & ROBERTA TR
24169 JOSHUA AV
BORON CA 93516

244 341 07 00 5
EPHRIAM DEBORA
4235 126TH ST APT 105
HAWTHORNE CA 90245

232 173 01 00 5 **DUP**
EPHRIAM DEBORA D
ADDRESS UNKNOWN

244 311 04 00 7
ESTRELLA MONICA
26848 NICHOLS ST
BORON CA 93516-1937

232 172 29 00 0
EVANS KIM
12400 SIERRA VIEW ST
BORON CA 93516-1343

231 180 11 00 9
EYRE JANET L
27151 ANDERSON ST
BORON CA 93516-1603

231 102 06 00 5
FAMILY DOLLAR INC
500 VOLVO PW
CHESAPEAKE VA 23320-1604

244 371 08 00 7
FENNELL J C & OPAL F FAMILY TRUST
26800 JOHN ST
BORON CA 93516-1919

232 213 04 00 5
FINDLEY MILDRED LIVING TRUST
2 PAPER MILL CREEK CT
NOVATO CA 94949

244 040 11 00 2
FINNE JOHN
2042 S CAPELLA CT
COSTA MESA CA 92626-3522

244 371 09 00 0
FIRE & GLORY INVS INC
2601 OAKDALE RD STE H2
MODESTO CA 95355-2256

232 083 24 00 6
FLAGSTONE CANYON INC
PO BOX 1823
QUITMAN TX 75783-2823

232 172 08 00 9
FLORES LOPEZ ERBIN & PENA PENA MARIA D R
10589 SHERILL ST
ANAHEIM CA 92804

244 342 01 00 4
FOLLENDORE HARTWELL D & BRENDA J FMLY TR
2828 WEST AVE 0
PALMDALE CA 93551

244 331 10 00 0
FONSECA ROSEMARY
P O BOX 70692
PT RICHMOND CA 94807-0692

232 173 04 00 4
GALLEGOS LIVING TR
27096 JEROME ST
BORON CA 93516

231 101 08 00 4
GARCIA HERNANDEZ TRINIDAD
2410 34TH ST # D
SANTA MONICA CA 90405-2162

232 184 02 00 8
GARRETT JAREN WAIN
12335 SIERRA VIEW ST
BORON CA 93516-1341

244 341 10 00 3
GARTICA ANDREW
26875 NICHOLS
BORON CA 93516

244 351 10 00 6
GENERATOR GROUP INC
15445 VENTURA BL # 50
SHERMAN OAKS CA 91403-3005

244 010 36 00 6
GENUS L P
2006 HIGHWAY 395
FALLBROOK CA 92028

232 150 40 00 1
GILL JOGINDER S
12845 STILL CREEK CT
RANCHO CUCAMONG CA 91739-9440

244 010 25 00 4
GILMORE JACKIE LEE & MONICA
36228 VILLAGE RD
YUCAIPA CA 92399-5295

244 040 03 00 9
GM GABRYCH FAMILY L P
2006 HIGHWAY 395
FALLBROOK CA 92028

231 180 08 00 1
GOIST PAUL E
26496 ANDERSON ST
BORON CA 93516

244 311 14 00 6
GOMEZ FAM TR
629 SMITHFIELD VALLEY RD
AMENIA NY 12501

231 190 05 00 5
GOMEZ MARIO
45430 GINGHAM AV
LANCASTER CA 93535-1910

244 311 07 00 6
GONZALEZ APOLONIO & LUCIANA
37635 CLUNY AV
PALMDALE CA 93550

232 081 02 00 8
GRACE LIVING STONE LLC
471 W CAMINO REAL AV
ARCADIA CA 91007-7302

244 351 06 00 5
GRANADOS GLENDA SUYAPA
26549 NICHOLS ST
BORON CA 93516-1932

232 183 02 00 1
GREEN ANNA
24086 CHAPARRAL AV
BORON CA 93516-1302

244 010 28 00 3
GURROLA DIONISIO & JUANA ET AL
3511 E 56TH ST
MAYWOOD CA 90270

232 182 23 00 5
HAGOOD KENNETH R
24129 CHAPARRAL AV
BORON CA 93516

232 183 04 00 7
HALCROMB KENT A
24124 CHAPARRAL AV
BORON CA 93596

244 352 11 00 6
HANSON JAMES & TENA
26509 JOHN ST
BORON CA 93516-1912

244 311 10 00 4
HARMON JAMES P & BONNIE M
26887 JOHN ST
BORON CA 93516

232 181 21 00 2
HARRALD VAN D
P O BX 252
BORON CA 93516

232 184 04 00 4
HAYNES CHRISTOPHER A
12301 SIERRA VIEW ST
BORON CA 93516

232 171 23 00 5
HAYNES DANNY S & LYNDA S TRUST
20825 HACIENDA BL
CALIFORNIA CITY CA 93505-2804

232 150 01 00 8
HENDERSON MICHAEL
PO BOX 342
BORON CA 93596-0342

244 332 02 00 4
HIKIN VLAD
12330 OSBORNE ST # 76
PACOIMA CA 91331-2043

244 332 07 00 9
HIKIN VLAD
12330 OSBORN # 76
PACOIMA CA 91331

244 332 14 00 9
HOBBS JAMES L & DEANNA M
26633 JOHN ST
BORON CA 93516-1914

244 332 01 00 1
HOBBS JOHNNY
26600 NICHOLS ST
BORON CA 93516-1933

244 311 12 00 0
HOBBS MARIE ANITA
26861 JOHN ST
BORON CA 93516-1918

232 171 30 00 5
HOBBS NICHOLAS C & SIDNEY K
12466 SIERRA VIEW ST
BORON CA 93516

244 332 16 00 5
HOEGNER PHILLIP J LIV TR
26601 JOHN ST
BORON CA 93516-1914

232 150 33 00 1
HOWARD DENNIS A
1027 MCDONALD AV
WILMINGTON CA 90744-3331

244 352 06 00 2
HUBBARD ARIEL LORRAINE & DONALD P
3900 E MAIN ST SP 28
VENTURA CA 93003-0336

244 352 07 00 5 **DUP**
HUBBARD ARIEL LORRAINE & DONALD P
3900 MAIN ST # 28
VENTURA CA 93003

244 352 08 00 8 **DUP**
HUBBARD ARIEL LORRAINE & DONALD P
3900 E MAIN ST # 28
VENTURA CA 93003

232 081 10 00 1
HUI JOHN
5560 S FORT APACHE RD STE 100
LAS VEGAS NV 89148

232 290 03 00 5
HUN MICHAEL & NANCY
P O BOX 250
HEMET CA 92546

244 362 02 00 3 **DUP**
IRISH DAVID F & DIANE
26620 JOHN ST
BORON CA 93516

244 362 03 00 6
IRISH DAVID F & DIANE M
26620 JOHN ST
BORON CA 93516

232 150 03 00 4
IRVING CYNTHIA A
P O BOX 446
BORON CA 93596

232 290 08 00 0
IRVING DEBBIE LYNN
24301 TWENTY MULE TEAM RD
BORON CA 93516

232 182 19 00 4
J 4 PROP GROUP LLC
4001 N DASHWOOD PL
MERIDIAN ID 83646-9077

232 172 06 00 3 **DUP**
J4 PROP GROUP LLC
4001 N DASHWOOD PL
MERIDIAN ID 83646-9077

244 331 02 00 7
JACKSON FAMILY TRUST
26596 JOHN ST
BORON CA 93516-1913

231 180 13 00 5
JAGANNATHAN THIRUPPATHI & SRIDEVI TR
124 N TUMBLEWEED TL
AUSTIN TX 78733-3221

232 172 04 00 7
JENNINGS BOBBY G & PATRICIA L TRUST
24150 SAGE AV
BORON CA 93516-1332

244 332 08 00 2
JESUS NAME TABERNACLE UTD PENT CH
PO BOX 488
BORON CA 93596-0488

232 150 41 00 4
JJJ TRUCK WASH LLC
12845 STILL CREEK CT
RANCHO CUCAMONG CA 91739-9440

232 213 03 00 2
JOB JEREMEH JUSTYN & MICHELLE LYNN
24336 CHAPARRAL AV
BORON CA 93516-1304

231 190 29 00 5
JUDD ROBERT L JR & HILDEGARD
26109 TWENTY MULE TEAM RD
BORON CA 93516

231 101 03 00 9
KARRIS PROP INC
42263 W 50TH ST # 107
QUARTZ HILL CA 93536

244 332 13 00 6
KELLY SHOUPE FAMILY TRUST
PO BOX 91
BORON CA 93596-0091

231 101 07 00 1
KIM CHONG SU
12025 GARDNER
BORON CA 93516

244 362 09 00 4
KOMETAS BARBARA P
35530 DESERT ROSE WY
LAKE ELSINORE CA 92532-2914

232 173 05 00 7
KRIZAUSKAS JOHN
12443 SIERRA VIEW
BORON CA 93516

232 172 25 00 8
KULIKOFF JULIEANN
8537 SATINWOOD AV
CALIFORNIA CITY CA 93505-3810

231 190 17 00 0
LANDAKER INVESTMENTS LLC
16510 RIDGE FIELD DR
RIVERSIDE CA 92503-0241

232 213 01 00 6
JOB BROC L & CRYSTAL L
24300 CHAPARRAL AV
BORON CA 93516

244 311 08 00 9
JOHN STREET TR
12556 SUGAR ST
BORON CA 93516-1723

244 361 01 00 3
JUSTINIANO VELEZ & ANA LIDIA BARBOSA
26500 JOHN ST
BORON CA 93516

231 190 01 00 3
KELLER GAGE SHELLEY LIV TR
PO BOX 626
BORON CA 93596-0626

244 352 10 00 3
KENNEDY CHARLES D & MELBA I
26501 JOHN ST
BORON CA 93516-1912

232 220 36 00 0
KING ILLY FAMILY TRUST
1102 VIA HISPANO
NEWBURY PARK CA 91320-6761

231 190 06 00 8
KRIGBAUM DOMINICA Y
227 ASTI WY
MADERA CA 93638

244 352 01 00 7
KRIZAUSKAS JOHN
26502 NICHOLS ST
BORON CA 93516-1931

244 331 08 00 5
LAGUNA JESSENIA D G
27095 COTE ST
BORON CA 93516-1618

231 190 36 00 5
LANDSGAARD ERIC F & DEBBIE L FAM TR
PO BOX 167
ROSAMOND CA 93560-0167

232 181 01 00 4
JOB JEREMEH & MICHELLE
24336 CHAPARRAL AV
BORON CA 93516-1308

231 090 29 00 6
JOSHUA PARK LLC
12223 HIGHLAND AV
RANCHO CUCAMONG CA 91739-2574

232 181 24 00 1
KAPUSTA ALISON M
24155 JOSHUA AV
BORON CA 93516

232 183 10 00 4
KELLEY CHARLES & TABITHA
24218 CHAPARRAL AV
BORON CA 93516

232 140 40 00 8
KIBEL ROBBIE JEAN SURIVORS TRUST
4389 TAYLOR HALL LN
ADAMS TN 37010-9181

244 341 08 00 8
KIRBY JAMES A & MARY LOU
27809 PROSPECT
BORON CA 93516

232 183 03 00 4
KRING ROGER A & ANGELA
24100 CHAPARRAL AV
BORON CA 93516

232 140 15 00 6
KRUTOFF EDWIN D FAMILY TRUST
1133 9TH ST # 101
SANTA MONICA CA 90403

232 172 24 00 5
LAKSHIMIPATHY ARUN
10645 N TATUM BL # C200
PHOENIX AZ 85028-3053

244 333 01 00 8
LANGE JERRY A
7714 N STODDARD AV
KANSAS CITY MO 64152-2193

232 182 02 00 4
LASEINDE OLUMUYIWA B
24128 JOSHUA AV
BORON CA 93516

232 183 01 00 8
LEE JOB BROC & CRYSTAL
4001 N DASHWOOD PL
MERIDIAN ID 83646-9077

232 081 04 00 4
LEE REALCORP
466 FOOTHILL BL # 317
LA CANADA FLINT CA 91011-3518

244 010 31 00 1
LENNOX FAMILY TRUST
1519 RUBENSTEIN AV
CARDIFF CA 92007

244 352 04 00 6
LEYENDECKER CHARLES F
26578 NICHOLS ST
BORON CA 93516-1931

231 190 35 00 2
LIMA ARACELY
PO BOX 836
MOJAVE CA 93502-0836

232 182 17 00 8
LIMA SAUL
8019 WHITEOAK AV
RESEDA CA 91335

231 190 20 00 8
LIZARRAGA MARIA ALICIA
PO BOX 36
MOJAVE CA 93502-0036

231 190 33 00 6
LONG ROBERTA KAY
9392 LUDERS AV
GARDEN GROVE CA 92844-2356

244 352 12 00 9
LOPEZ JOSE & ANA
20348 89TH ST
CALIFORNIA CITY CA 93505

244 361 13 00 8
LOPEZ LA HOMA LIVING TR
P O BOX 257
BORON CA 93596

232 181 20 00 9
LOPEZ MARK L
24211 JOSHUA AV
BORON CA 93516

231 101 10 00 9
LYON JAMES & TERRI
26540 NUDGENT ST
BORON CA 93516

232 182 08 00 2
LYON MASHEL & JAMES
24224 JOSHUA AV
BORON CA 93516-1323

244 342 11 00 3
MAC LEAN DANIELLE & PEREZ JOSE
26979 NICHOLS ST
BORON CA 93516-1940

232 183 09 00 2
MADERA ELIZABETH M &
INTERIANO ANGEL A C
24194 CHAPARRAL AV
BORON CA 93516

244 342 15 00 5
MADRIGAL FELIPE & MARIA Z
418 E 82ND ST
LOS ANGELES CA 90003

232 184 01 00 5
MATEIRO SHANIE L
12349 SIERRA VIEW ST
BORON CA 93516-1341

244 311 06 00 3
MICHAELS MICHAEL
9668 MILLIKEN AV STE 104
RANCHO CUCAMONG CA 91730-6136

244 342 02 00 7
MILLER JAMES LEE
26934 JESSIE ST
BORON CA 93516-1911

232 150 04 00 7
MILLER WILLIAM T & BETTY J
27095 JEROME ST
BORON CA 93516

232 150 18 00 8
MINE MINERAL & PROCESSING
WORKERS BLDG ASSN
24001 CHAPARRAL AV
BORON CA 93516

232 172 22 00 9
MOESSNER TODD & MARION
16948 HILLCREST AV
EDWARDS CA 93523

244 332 06 00 6
MONTES MARCELLA
991 W BLAINE ST # 9
RIVERSIDE CA 92507-3705

244 331 11 00 3
MONTOYA ALFONSO & JUANA
29708 SILVER ST
CASTAIC CA 91384

244 363 01 00 7
MORIDI KAMBIZ FAM TR
17458 BLUEWATER CT
RIVERSIDE CA 92503

231 190 32 00 3
MORRIS CLAUDE C
26967 ANDERSON ST
BORON CA 93516-1509

232 181 07 00 2
MORRIS FAMILY TRUST
24196 TAMARISK AV
BORON CA 93516-1346

244 331 17 00 1
MORRIS MAUREEN C
PO BOX 414
BORON CA 93596

231 190 11 00 2
MUNOZ RANDY & MELISSA JANE
26401 20 MULE TEAM RD
BORON CA 93516-1406

231 101 09 00 7
NAYERY RANDY
26586 NUGENT ST
BORON CA 93516

244 332 05 00 3
NGUYEN MIMI A
7701 DUQUESNE PL
WESTMINSTER CA 92683

244 341 13 00 2
NGUYEN TRANG THUY THI
14616 S DENKER AV
GARDENA CA 90247-2815

244 010 30 00 8
NGUYEN YEN MY
107 E MELBOURNE AV
SILVER SPRING MD 20901

232 083 21 00 7
NORTON LILLIAN M
PO BOX 858
PALO CEDRO CA 96073-0858

244 362 01 00 0
ORELLANA FRANCISCO ANTONIO
11850 PATRICIA AV
BORON CA 93516-1922

244 010 05 00 6
PACIFIC GAS & ELECTRIC CO
1 MARKET PZ STE 400
SAN FRANCISCO CA 94105-1004

244 010 11 00 3
PACIFIC TEL & TEL CO
140 NEW MONTGOMERY ST # 818
SAN FRANCISCO CA 94105-3705

244 010 04 00 3
PAK JACQUELINE H TR
10830 MARIETTA AV
CULVER CITY CA 90232-3714

231 190 16 00 7
PATEL HASMUKH B & WIBHA H REV LIV TR
26881 TWENTY MULE TEAM RD
BORON CA 93516

244 361 14 00 1
PEREZ JOSE LUIS & LOURDES
20529 FERGUSON ST
BORON CA 93516

232 150 09 00 2
PEREZ SARA ANGEL
6828 WUNDERLIN AV
SAN DIEGO CA 92114

232 182 18 00 1
PETREY AUSTIN B
24209 CHAPARRAL AV
BORON CA 93516

244 010 19 00 7
PIETRANGELO LINDA LIVING TRUST
1705 LAMPLIGHTER LN
LAS VEGAS NV 89104-3722

232 172 28 00 7
PINA BRAULIO & NARCILE
24125 TAMARISK AV
BORON CA 93516

232 184 09 00 9
PINA BRAULIO SR & NARCILE
24125 TAMARISK AV
BORON CA 93516-1345

231 090 25 00 4
PLANET BORON LLC
1752 E AVENUE J # 256
LANCASTER CA 93535

232 172 01 00 8
POE DENISE
12446 SIERRA VIEW
BORON CA 93516

244 311 02 00 1
POTTS BENTON TRUST
12555 SUGAR ST
BORON CA 93516-1722

244 331 18 00 4
POTTS ELANIE ROSELL
PO BOX 316
BORON CA 93596-0316

232 171 04 00 0
PRICE ELMER RAY TR
24150 JUNIPER AV
BORON CA 93516

232 182 24 00 8
RATLIFF ALLEN
12200 SIERRA VIEW ST
BORON CA 93516-1340

232 184 08 00 6
RATLIFF DAVID & BERZINS DORLINE
12221 SIERRA VIEW ST
BORON CA 93516-1339

231 190 10 00 9
RATLIFF TRAVIS E & BROOKE G
24452 SAGE AV
BORON CA 93516-1338

244 311 11 00 7
REAL EST PROBLEM SOLVERS CORP
1214 N HOLLY ST
ANAHEIM CA 92801-1623

244 362 07 00 8
REAL EST PROBLEM SOLVERS CORP
11815 NANCY AV
BORON CA 93516-1942

232 171 06 00 6
REAL ESTATE PROBLEM SOLVERS CORP
1214 N HOLLY ST
ANAHEIM CA 92801-1623

232 171 02 00 4
REID BEATRICE
24122 JUNIPER AV
BORON CA 93516

244 361 07 00 1
RENAUD SHARON S
26592 JOHN ST
BORON CA 93516

231 101 01 00 3
RICHARDS FMLY TR
18700 STATON AV
CASTRO VALLEY CA 94546

244 332 10 00 7
RICHARDS RICK L
26727 JOHN ST
BORON CA 93516-1916

244 361 04 00 2
RICHARDS ROY L
13657 FLINT ST
EDWARDS CA 93523-3502

244 361 03 00 9
RICHARDS ROY LEE & HEIDI DAWNELLE
26550 JOHN ST
BORON CA 93516-1913

231 180 09 00 4
RICHARDSON GEORGE E JR & NANCY DIANE
16761 FOOTHILL AV
NORTH EDWARDS CA 93523

232 181 25 00 4
RICHARDSON NANCY D & GEORGE E
16761 FOOTHILL
NORTH EDWARDS CA 93523

231 190 23 00 7
RIDDLE JOHN W & JACQUELINE J
27110 NUDGENT ST
BORON CA 93516

232 183 11 00 7
RIDDLE LAMOUR & GEORGIA
436 DAKAR ST
HENDERSON NV 89015

232 213 06 00 1
RIDDLE NANCY J
25461 PARAMOUNT DR
TEHACHAPI CA 93561-6504

244 331 01 00 4
RIVERS CONSTANCE
11931 BORON AV
BORON CA 93516-1903

231 190 08 00 4
ROBERSON MAXINE S TRUST
11 IRIS CT
BODFISH CA 93205-9677

232 181 03 00 0
ROBERSON TERRY LEE
24140 TAMARISK AV
BORON CA 93516

244 341 09 00 1
ROBERTS LEE W III & STACY L
8264 GENERAL PULLER HW
TOPPING VA 23169

244 342 10 00 0
ROBERTSON JACOB
26997 NICHOLS ST
BORON CA 93516

244 311 09 00 2
ROBERTSON LUCAS
25836 CHERRYHILL DR
BORON CA 93516

244 362 11 00 9
ROBERTSON LUCAS
12686 CLAYMINE RD APT 2
EDWARDS CA 93523-3208

232 183 13 00 3
ROCHA GUSTAVO
11572 KATHY LN
GARDEN GROVE CA 92840-1719

244 332 04 00 0
ROLYAS FAMILY TRUST
16956 DESERITA AV
NORTH EDWARDS CA 93525

232 171 28 00 0
ROLYAS TRUST
16956 DESERITA AV
NORTH EDWARDS CA 93523

232 181 08 00 5
ROQUEMORE SHAWN
24210 TAMARISK AV
BORON CA 93516-1348

232 173 02 00 8
ROQUEMORE TR
12485 SIERRA VIEW
BORON CA 93516

231 190 31 00 0
ROSALES MARIA
22709 SHERMAN WY
WEST HILLS CA 91307-2333

232 140 17 00 2
ROSOFF KAY K TR
35189 BEACH RD
CAPSTRANO BCH CA 92624

232 213 02 00 9
ROSS FAMILY TR
24304 CHAPARRAL AV
BORON CA 93596

231 101 05 00 5
RUBIO ELEAZAR SR
26596 NUDGENT ST
BORON CA 93516-1530

244 331 09 00 8
RUONA MARTTI
PO BOX 573
BORON CA 93596-0573

232 184 03 00 1
RUSSELL AUSTIN LEE
12321 SIERRA VIEW ST
BORON CA 93516-1341

232 181 31 00 1
SALAS MACLOVIO
24164 TAMARISK AV
BORON CA 93516-1346

231 103 01 00 7 **DUP**
SANTA FE
ADDRESS UNKNOWN

232 173 07 00 3
SAVAGE WOODIE F
12415 SIERRA VIEW
DESERT LAKE CA 93516

244 361 09 00 7
SCHMIDT KAREN L
P O BOX 256
BORON CA 93516

232 181 27 00 0
SCHROEDER FAM TR
360 KINLEY ST
LA HABRA CA 90631-4313

232 182 07 00 9
SEARCY AARON G
24210 JOSHUA ST
BORON CA 93516

231 190 03 00 9
SEARCY FAMILY TR
P O BOX 584
BORON CA 93596

232 173 08 00 6
SEWELL JANICE LIV TR
12401 SIERRA VIEW ST
BORON CA 93516

232 140 29 00 7
SHAFER CASE 2007 FAMILY TR
6989 ELIZABETH LAKE RD
LEONA VALLEY CA 93551-7576

244 010 15 00 5
SHEN FAMILY TRUST
1650 BOREL PL STE 105
SAN MATEO CA 94402-3540

231 190 18 00 3
SMITH ELBERT L H TR
4491 E RIDGE GATE RD
ANAHEIM CA 92807

232 183 12 00 0
SMITH JAMES
24242 CHAPARRAL AV
BORON CA 93516

232 150 06 00 3
SMITH NANCY RUTH
24147 TWENTY MULE TEAM RD
BORON CA 93516

232 171 26 00 4
SMITH NICHOLAS T
24159 SAGE ST
BORON CA 93516

244 362 08 00 1
SMITH WILMA E
26707 FERGUSON ST
BORON CA 93516-1907

244 372 03 00 9
SOLIS FORTUNATO B
1802 ONTARIO AV
NIAGARA FALLS NY 14305-2960

244 351 02 00 3
SOWERSBY ROGER L
2100 VICTORIA
FULLERTON CA 92631

244 351 03 00 6
SOWERSBY ROGER L TR
2100 VICTORIA
FULLERTON CA 92631

231 180 02 00 3
SPARKS FLORENCE J IRREV TRUST
44439 E 3RD ST
LANCASTER CA 93535-2506

232 181 32 00 4
SPEARS TRISHA
43821 REMBRANDT ST
LANCASTER CA 93535-4274

244 352 03 00 3
STARTUP DONALD W
4614 S 300TH PL
AUBURN WA 98001-2929

232 184 07 00 3
STOGNER SCOTT W & TERRI L
12235 SIERRA VIEW ST
BORON CA 93516-1339

244 010 01 00 4
SU ROSA CHEN
18207 CHARLTON LN
NORTHRIDGE CA 91326-3617

244 332 11 00 0
SWIGER ROBERT & MAURINE D
PO BOX 955
GLENDALE OR 97442-0955

244 311 05 00 0
TANG MICHAEL M
9851 BOLSA AV SP 139
WESTMINSTER CA 92683-6657

244 311 01 00 8
THOMAS CECILIA
12652 DAISY ST
BORON CA 93516

244 312 14 00 3
THOMASSON NADINE
26933 JOHN ST
BORON CA 93516-1920

244 351 12 00 2
TIETZE NORMAN A
11919 PATRICIA AV
BORON CA 93516

231 101 11 00 2
TIMBOL RODOLFO R & ELIZABETH C
2505 ANTHEM VILLAGE DR E573
HENDERSON NV 89072

244 312 06 00 0
TOVEG ISAAC
3166 CADET CT
LOS ANGELES CA 90068-1854

232 140 20 00 0
TROESTER PAUL C
800 MEADOW LN
STORM LAKE IA 50588-2755

232 140 19 00 8
TROESTER TERRY
800 MEADOW LN
STORM LAKE IA 50588-2755

232 140 21 00 3 **DUP**
TROESTER TERRY P
800 MEADOW LN
STORM LAKE IA 50588-2755

244 312 07 00 3
TROTH MICHAEL
26866 JAMISON RD
BORON CA 93516

232 183 07 00 6
TRUMBULL RITA
25824 CHERRYHILL DR
BORON CA 93516-1203

231 190 37 00 8
TURAJSKI DAVID
4541 CAMBURY DR
LA PALMA CA 90623-1918

244 361 15 00 4
TURNER THOMAS H & SHEILA M
26501 FERGUSON ST
BORON CA 93516-1905

232 081 11 00 4
U S A
450 GOLDEN GATE AVE
SAN FRANCISCO, CA 94102

232 081 15 00 6
U S BORAX INC
4700 DAYBREAK PARKWAY
SOUTH JORDAN UT 84095-5120

244 362 10 00 6
UMSTED FAMILY TRUST
P O BOX 5
BORON CA 93596

232 140 39 00 6
UNIVERSAL EXPOSURE INC
351 VERANO DR
OJAI CA 93023

232 181 26 00 7
VALDEZ HENRY FLORES & JODI RENEE
24127 JOSHUA AV
BORON CA 93516

232 173 06 00 0
VAN DE VELDE DON TR
6741 LINCOLN AV SP 124
BUENA PARK CA 90620-5649

232 172 02 00 1
VAN HORN ELMER EUGENE REV TRUST
24122 SAGE AV
BORON CA 93516-1332

232 213 05 00 8
VILLAGOMEZ JUANA
15420 COVELLO ST
VAN NUYS CA 91406-3309

244 300 09 00 2
WANG CHEN & VICTORIA R
1650 BOREL PL STE 105
SAN MATEO CA 94402-3540

244 300 10 00 4
WANG CHEN & VICTORIA R
2075 WOODSIDE RD
REDWOOD CITY CA 94061

232 150 43 00 0
WAY SHAUNNA
24144 JOSHUA ST
BORON CA 93516

232 171 03 00 7
WELBORN WENDY
26387 20 MULE TEAM RD
BORON CA 93516-1407

232 184 06 00 0
WELBORN WENDY
12249 SIERRA ST
BORON CA 93516

244 010 29 00 6
WGLANDS LLC
PO BOX 1084
HIGHLAND PARK IL 60035-7084

232 290 11 00 8
WILSON FAMILY TRUST
12165 DEL ORO ST
BORON CA 93516-1357

232 183 14 00 6
WIXOM LYNDON
24264 CHAPARRAL AV
BORON CA 93516-1306

231 090 27 00 0
WOLOWIEC MICHAEL
44453 FOXTON AV
LANCASTER CA 93535-3044

244 010 26 00 7
WON YONG HWA
1947 PEACEFUL HILLS RD
WALNUT CA 91789-4022

231 190 13 00 8
WOOD SCOTT
28005 S 855 P R
KENNEWICK WA 99338-1180

244 371 03 00 2
WYCLIFFE SEAN
11411 SILVERADO WY
YUCAIPA CA 92399

244 332 12 00 3
YOAKIM SAMIR J
2345 EVENING PRIMROSE AV
PALMDALE CA 93551-4184

232 183 15 00 9
YOUNGBLOOD ALLEN
12183 EL MIRAGE ST
BORON CA 93516-1312

232 182 22 00 2
ZUCCONI LUANNE
24143 CHAPARRAL AV
BORON CA 93516-1303

244 312 05 00 7
ALDABA JOSE R
29962 NICHOLS ST
BORON CA 93516

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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 # 2021020513

Project Title: Aratina Solar Project by 64NB 8ME LLC (8Minute Energy)

Lead Agency: Kern County Planning and Natural Resources Department — Contact Person: Ronelle Candia

Mailing Address: 2700 "M" Street Suite 100 — Phone: (661) 862-8997

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°59'31.59" N / 117° 40'36.62"W — Total Acres: 2,554

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: — Railways: BNSF — Schools: West Boron Elementary School

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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 530
☐ 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-1 (Limited Agriculture), M-1 (Light Industrial), R-1 (Low-Density Residential) *Kern County General Plan:* 7.1 (Light Industrial); 7.3 (Heavy Industrial); 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size); 8.5 (Resource Management (Minimum 20 acres)); and 8.5/2.5 ((Resource Management (Minimum 20 acres)/Flood Hazard)

Project Description: The Aratina Solar Project, as proposed by 64NB 8ME, LLC (8Minute Energy), would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 530 megawatt-alternating current (MW-AC) of renewable energy, including up to 600 megawatts of energy storage, on privately-owned land in unincorporated Kern County. The proposed project consists of five separate sites (Sites 1 through 5) located on 22 parcels and totals approximately 2,554 acres; however, it is anticipated that approximately 2,317 acres will be utilized for the construction of the solar panels and permanent facilities.

The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's Holgate Substation to the north. Alternatively, the project may interconnect at Southern California Edison's Kramer Substation to the east, located in San Bernardino County via an up to 230kV transmission line located within an Edwards Air Force Base utility corridor. 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.

The project proponent is requesting the following: four (4) zone change cases (ZCC 6, Map #192; ZCC 3, Map #208-5; ZCC 6, Map #208-6; ZCC 1, Map #209-1) from the existing Zone Districts A-1(Limited Agriculture) and R-1(Low Density Residential) to the A (Exclusive Agriculture) Zone District; six (6) conditional use permits (CUP 16, Map #192; CUP 17, Map #192; CUP 3, Map #208-5; CUP 7, Map #208-6; CUP 1, Map #209-1; CUP 1, Map #209-2) to allow the construction and operation of a photovoltaic solar facility and associated infrastructure necessary to generate up to 530 megawatt-alternating current (MW-AC) of renewable energy, including up to 600 megawatts of energy storage; and six (6) Amendments to the Circulation Element of the Kern County General Plan to remove sections and midsection line road reservations (GPA 6, Map #192; GPA 2, Map #192-35; GPA 3, Map #208-5; GPA 3, Map #208-6; GPA 1, Map #209-1; and GPA 1, Map #209-2).

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 May 28, 2021 Ending Date July 12, 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:** 05/28/2021

Ronelle Candia, Supervising Planner

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

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Draft
Environmental Impact Report

SCH# 2021020513

Volume 1

Chapters 1 through 10

ARATINA SOLAR PROJECT

by 64NB 8ME LLC *(PP20401)*

Zone Change Case No. 6, Map No. 192
Zone Change Case No. 3, Map No. 208-5
Zone Change Case No. 6, Map No. 208-6
Zone Change Case No. 1, Map No. 209-1
Conditional Use Permit No. 16, Map No. 192
Conditional Use Permit No. 17, Map No. 192
Conditional Use Permit No. 3, Map No. 208-5
Conditional Use Permit No. 7, Map No. 208-6
Conditional Use Permit No. 1, Map No. 209-1
Conditional Use Permit No. 1, Map No. 209-2
General Plan Amendment No. 6, Map No. 192 (Circulation)
General Plan Amendment No. 2, Map No. 192-35(Circulation)
General Plan Amendment No. 3, Map No. 208-5 (Circulation)
General Plan Amendment No. 3, Map No. 208-6 (Circulation)
General Plan Amendment No. 1, Map No. 209-1(Circulation)
General Plan Amendment No. 1, Map No. 209-2 (Circulation)

Kern County
Planning and Natural Resources Department
Bakersfield, California

Technical Assistance by:
Michael Baker International

May 2021

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Chapter 1
Executive Summary

1.1 Introduction

The Aratina Solar Project by 64NB 8ME LLC [8Minute Energy] (project proponent) is a proposed photovoltaic (PV) solar facility with associated infrastructure to generate up to 530 MW-AC of renewable electrical energy, including up to 600 MW of energy storage (battery) facilities. 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.

The project is sited in southeastern Kern County, straddling State Route 58 between Gephart Road on the west and the San Bernardino County line on the east. The proposed project site is in the vicinity of the unincorporated communities of Desert Lake and Boron and north of the Edwards Air Force Base boundary. (see **Figure 3-1**, *Regional Vicinity Map)*. The proposed project consists of five separate sites (Sites 1 through 5) located on 22 parcels and totals approximately 2,554 acres; however, it is anticipated that approximately 2,317 acres will be utilized for the construction of the solar panels and permanent facilities. 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 Southern California Edison's Holgate Substation to the north. Alternately, the project may interconnect at Southern California Edison's Kramer Substation to the east, located in San Bernardino County via an up to 230 kV transmission line located within an Edwards Air Force Base utility corridor.

The project proponent is requesting the following (acreages are approximate):

a) Changes in zone classifications as follows:

- Zone Change Case No. 6, Map No. 192 – from A-1 to A for 696.69 acres
- Zone Change Case No. 3, Map No. 208-5 – From A-1 to A for 299.94 acres
- Zone Change Case No. 6, Map No. 208-6 – From A-1 to A for 222.49 acres and from R-1 to A for 79.6 acres
- Zone Change Case No. 1, Map No. 209-1 from A-1 to A for 635.20 acres

b) Conditional Use Permits to allow for the construction and operation of five solar facilities with a total generating capacity of approximately 530 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 600 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 192, 208-5, 208-6, and 209-1) and the M-1 (Light Industrial) Zone District (in Zone Map 209-2) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- Site 1 (up to 70 MW)
    - Conditional Use Permit No. 3, Map No. 208-5 for 299.94 acres

- Site 2 (up to 180 MW)
  - Conditional Use Permit No. 7, Map No. 208-6 for 169.92 acres
  - Conditional Use Permit No. 1, Map No. 209-1 for 635.20 acres
- Site 3 (up to 140 MW)
  - Conditional Use Permit No. 1, Map No. 209-2 for 620.26 acres
- Site 4 (up to 80 MW)
  - Conditional Use Permit No. 16, Map No. 192 for 339.46 acres
- Site 5 (up to 60 MW)
  - Conditional Use Permit No. 17, Map No. 192 for 252.31 acres

c) General Plan Amendments (GPAs) 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:

- General Plan Amendment No. 6, Map No. 192
- General Plan Amendment No. 2, Map No. 192-35
- General Plan Amendment No. 3, Map No. 208-5
- General Plan Amendment No. 3, Map No. 208-6
- General Plan Amendment No. 1, Map No. 209-1
- General Plan Amendment No. 1, Map No. 209-2

The project proponent/operator is also requesting California Environmental Quality Act (CEQA) review for the project.

Table 1-1, *Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage*, identifies the Assessor Parcel Numbers (APN) for the project site.

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

Site	APN	Total Acreage	Existing Map Code Designation	Existing Zoning	Proposed Zoning	Zone Change Acres	CUP Acres
1	244-010-19	10.15	8.3	A-1	A	10.15	10.15
	244-010-20	10.15	8.3	A-1	A	10.15	10.15
	244-010-21	10.15	8.3	A-1	A	10.15	10.15
	244-010-22	10.15	8.3	A-1	A	10.15	10.15
	244-010-36	259.34	8.3	A-1	A	259.34	259.34
	Totals	***299.94***				***299.94***	***299.94***
2	244-010-33	302.09	8.3	A-1, R-1	A	302.09	169.92
	244-040-03	635.20	8.3	A-1	A	635.20	635.20
	Totals	***937.29***				***937.29***	***805.12***
3	244-040-07	155.00	7.1/7.3	M-1	M-1	N/A	155.00

Table 1-1, continued

Site	APN	Total Acreage	Existing Map Code Designation	Existing Zoning	Proposed Zoning	Zone Change Acres	CUP Acres
	244-040-10	20.00	7.1	M-1	M-1	N/A	20.0
	244-040-11	28.49	7.1	M-1	M-1	N/A	28.49
	244-040-12	28.49	7.1	M-1	M-1	N/A	28.49
	244-040-14	120.00	7.1	M-1	M-1	N/A	120.00
	244-040-15	158.00	7.1/7.3	M-1	M-1	N/A	158.00
	244-040-17	26.05	7.1	M-1	M-1	N/A	26.05
	244-040-19	20.00	7.1	M-1	M-1	N/A	20.0
	244-040-20	20.00	7.1	M-1	M-1	N/A	20.0
	244-040-21	16.98	7.1	M-1	M-1	N/A	16.98
	244-040-22	1.08	7.1	M-1	M-1	N/A	1.08
	244-040-23	26.17	7.1	M-1	M-1	N/A	26.17
	Totals	***620.26***				***N/A***	***620.26***
4	232-081-10	221.26	8.3	A-1	A	221.26	116.34
	232-220-36 (partial)	223.12	8.5	A-1	A	223.12	223.12
	Totals	***444.38***				***444.38***	***339.46***
5	232-220-37 (partial)	252.31	8.5/2.5	A-1	A	252.31	252.31
	Totals	***252.31***				***252.31***	***252.31***
	Project Totals for all Sites	***2,554.18***				1,933.92	2,317.09

General Plan Map Code: 2.5 = Flood Hazard Overlay; 7.1 = Light Industrial; 7.3 = Heavy Industrial; 8.3 = Extensive Agriculture (Min. 20 Acre Parcel Size); 8.5 = Resource Management (Min. 20 Acre Parcel Size)

Zone Classification: A = Exclusive Agriculture; A-1 = Limited Agriculture; M-1 = Light Industrial; R-1 = Low-Density Residential

This Environmental Impact Report (EIR) has been prepared by Kern County as the Lead Agency under CEQA. The EIR provides information about the environmental setting and impacts of the project and alternatives. It informs the public about the project and its impacts and provides information to meet the needs of local, State, and federal permitting agencies that are required to consider the project. The EIR will be used by Kern County to determine whether to approve the requested CUPs (CUP 1, Map 209-1; CUP 1, Map 209-2; CUP 3, Map 208-5; CUP 7, Map 208-6; CUP 16, Map 192; CUP 17, Map 192) and associated land use changes.

This Executive Summary summarizes the requirements of the *CEQA Guidelines*; provides an overview of the project and alternatives; identifies the purpose of this EIR; outlines the potential impacts of the project and the recommended mitigation measures; and discloses areas of controversy and issues to be resolved.

1.2 Project Summary

The project would develop a solar PV generating facility. As shown in Chapter 3, *Project Description*, **Figure 3-1**, *Regional Vicinity Map*, and **Figure 3-2**, *Project Site Boundaries*, of this EIR, the project is located in the southeastern portion of Kern County. The project would generate a combined total of 530 MW of renewable electrical energy with the capacity to store a combined total of 600 megawatt-hours (MWh) of energy, for delivery to the Statewide grid. The project will develop overhead and/or underground

gen-tie lines to transmit power to either the Holgate Substation or the Kramer Substation, as shown in **Figure 3-2**, *Project Site Boundaries*.

1.2.1 Discretionary Entitlements Required

To implement this project, depending upon site surveys and jurisdictional determinations, the following discretionary and ministerial permits/approvals may be required if applicable to the project, including but not limited to the following:

Kern County

- 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 General Plan Amendments to the Circulation Element
- Kern County grading and building permits
- Kern County encroachment permits
- Kern County Franchise Agreements (if required)
- Kern County public road(s) and easement(s) vacation(s) (if required)
- Kern County Fire Safety Plan

Other Responsible Agency Entitlements

- Edwards Air Force Base right-of-way under 10 U.S.C. 2668 (if required)
- U.S. Fish and Wildlife Service Habitat Conservation Plan (if required)
- California Department of Fish and Wildlife, 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 ultimately be required to implement the proposed project.

1.3 Relationship of the Project to Other Solar Projects

The proposed project is being developed independently of other approved or proposed solar projects in the County. If approved, the project facilities would be subject to their own use permits, conditions of approval, interconnection agreements, and power purchase agreements. Kern County understands that the project facilities would be built and operated independently of any other solar project and, if approved, would not depend on any other solar project for economic viability.

1.4 Purpose and Use of the EIR

An EIR is a public informational document used in the planning and decision-making process. This project-level EIR will analyze the environmental impacts of the project. The Kern County Planning Commission and Board of Supervisors will consider the information in this EIR, including the public comments and Staff's response to those comments, during the public hearing process. The final decision is made by the Kern County Board of Supervisors, who may approve, conditionally approve, or deny the project. The purpose of an EIR is to identify:

- The significant potential impacts on the environment and indicate the manner in which those significant impacts can be avoided or mitigated;
- Any unavoidable adverse impacts that cannot be mitigated; and
- Reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less-than-significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of past, present, and reasonably anticipated future projects. CEQA requires preparation of an EIR that reflects the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of a draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals. Reviewers of a draft EIR are requested to focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment, and ways in which the significant impacts of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental effects.

This EIR is being distributed directly to agencies, organizations, and interested groups and persons for comment during a 45-day formal review period in accordance with *CEQA Guidelines* Section 15087. The EIR process, including means by which members of the public can comment on the EIR, is discussed further in Chapter 2, *Introduction*.

1.5 Project Overview

1.5.1 Regional Setting

The project site is situated within the southeastern corner of Kern County, California, within the Antelope Valley, which sits at the western edge of the Mojave Desert. The project lies approximately 25 miles east of the Community of Mojave, and is within one-half mile of the communities of Desert Lake and Boron. The area is characterized by a large sloping valley floor, interspersed by occasional low rolling hills. Refer to **Figure 3-1**, *Regional Vicinity Map,* and **Figure 3-3**, *Aerial Photograph.*

Primary access to the area is provided by SR 58, which runs east-west and provides access to the City of Bakersfield to the west and Interstate 15 (I-15) to the east, and SR 14 and State Highway 395 which run generally north-south through the area; State Highway 395 also provides access to I-15 to the south. The region is generally characterized by small-scale rural communities, agricultural uses, and expansive tracts of undeveloped land. The U.S. Borax open pit mine, located approximately 2 miles north of the project site, is the world's largest borate mine and the largest open pit mine in California. Other heavy industrial activities involving land modifications can be seen on Leuhman Ridge, approximately 1.3 miles south of the project site. Leuhman Ridge and most of the land south and west of the site is located on federal land managed by the United States Department of Defense (Edwards Air Force Base).

The project site is located within Sections 5 and 6, Township 10N, Range 7W; Sections 1 and 2, Township 10N, 8W; and Sections 33 and 35, Township 11N, Range 8W, San Bernardino Base Meridian. Additionally, the project site is located on the Boron and Leuhman Ridge 7.5-minute USGS quadrangles. Sites 1, 2, and 3 are located within the Leuhman Ridge USGS quadrangle; Sites 4 and 5 are located within the Boron USGS quadrangle (USGS 2012; USGS 2018).

1.5.2 Surrounding Land Uses and Project Site Conditions

Land uses in the region include a mix of undeveloped land, agriculture, residential, recreational and public facilities, and renewable energy projects (solar and wind). Desert vegetation dominates the proposed project site and region. Topography across the proposed project sites is relatively flat. The major north-south route in the region is State Route 14, a four-lane highway located approximately 23 miles west of the proposed project. The major east-west route near the proposed project is State Route 58, a four-lane highway located north of the project site, except for Site 5, for which SR 58 is directly south. Other roads serving the project include Twenty Mule Team Road, Boron Avenue, and Gephart Road. Paved and unpaved roadways generally following section lines are found throughout the area. The nearest populated areas to the project site are privately owned land located northeast of the northeastern corner of Site 2 in the community of Boron, California.

The creosote bush – white bursage scrub shrubland alliance community occupies a majority of the proposed project sites. This community typically occurs on well-drained soils in alluvial fans, bajadas, and upland

slopes. Growth occurs during spring (or rarely in summer or fall) if rainfall is sufficient. The creosote bush scrub community, the dominant community in the creosote bush – white bursage scrub shrubland alliance community is one of the most widely distributed desert plant communities in the Mojave Desert, occurring from the desert floor up to approximately 3,500 feet in elevation and extending into northwestern Arizona and southern Utah. Scattered, widely spaced Joshua trees occur throughout portions of the creosote bush – white bursage scrub shrubland alliance communities present within the project site.

The foothills of the Tehachapi Range occur approximately 24 miles west northwest of the proposed project, and the Central Transverse Range occurs approximately 39 miles south of the site. The proposed project and surrounding land are mostly flat and exhibit little topographic variation.

Table 1-2, *Project Sites and Surrounding Land Uses*, presents the existing land uses, designations, and zoning classification for the project site and surrounding area.

Table 1-2. Project Sites and Surrounding Land Uses

	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
Site 1	**Undeveloped**	**8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)**	**A-1 (Limited Agriculture)**
North	Undeveloped, residential dwellings, Boron Recreation Park	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 3.1 (Parks and Recreation Areas), 5.4 (Maximum 1 Unit/Net Acre)	A (Exclusive Agriculture), A-1 (Limited Agriculture), R-1 (Low-Density Residential)
South	Undeveloped	San Bernardino County	San Bernardino County
East	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land), 8.5 (Resource Management)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped, Boron Sanitary Landfill	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 8.5 (Resource Management), 3.4 (Solid Waste Disposal Facility), 3.4.1 (Solid Waste Disposal Facility Buffer)	A-1 (Limited Agriculture), A (Exclusive Agriculture), R-1 (Low-Density Residential)
Site 2	**Undeveloped**	**8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)**	**A-1 (Limited Agriculture); R-1 (Low-Density Residential)**
North	Undeveloped, railroad, commercial	3.3 (Other Facilities), 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 7.1 (Light Industrial), 7.2 (Service Industrial)	A-1 (Limited Agriculture), R-1 (Low-Density Residential); M-1 (Light Industrial), M-2 (Medium Industrial)
South	Undeveloped, residential dwellings	5.3 (Maximum 10 Units/Net Acre), 5.4 (Maximum 4 Units/Net Acre), 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 8.5 (Resource Management)	R-2 (Medium-Density Residential), R-1 (Low-Density Residential), A-1 (Limited Agriculture)
East	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped, railroad	7.1 (Light Industrial)	M-1 (Light Industrial)
Site 3	**Undeveloped**	**7.1 (Light Industrial); 7.3 (Heavy Industrial)**	**M-1 (Light Industrial)**
North	Undeveloped, residential dwellings (Desert Lake community), railroad	7.1 (Light Industrial), 8.5 (Resource Management, Min. 20 Acre Parcel Size)	CH (Highway Commercial), C-1 (Neighborhood Commercial), C-2 (General Commercial), A-1 (Limited Agriculture), R-1 (Low-Density Residential)

Table 1-2, continued

	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
South	Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size),	A-1 (Limited Agriculture)
East	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped, railroad	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
Site 4	**Undeveloped**	**8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size); 8.5 (Resource Management, Min. 20 Acre Parcel Size)**	**A-1 (Limited Agriculture)**
North	Undeveloped	8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard), 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
East	Residential dwellings (Desert Lake community)	5.3 (Maximum 10 Units/Net Acre), 6.2 (General Commercial)	R-1 (Low Density Residential), C-1 (Neighborhood Commercial), C-2 (General Commercial)
South	Undeveloped, railroad, Edwards Air Force Base	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped	6.3 (Highway Commercial)	CH PD (Highway Commercial, Precise Development Combining)
Site 5	**Undeveloped**	**8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)**	**A-1 (Limited Agriculture)**
North	Undeveloped	8.5 (Resource Management)	A-1 (Limited Agriculture)
East	Undeveloped	8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard)	A-1 (Limited Agriculture)
South	Undeveloped	8.5 (Resource Management), 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
West	Undeveloped	6.3 (Highway Commercial)	CH PD (Highway Commercial, Precise Development Combining)

1.5.3 Project Objectives

The proposed project would provide the State of California with a renewable energy source that would assist the State of California in complying with the Renewables Portfolio Standard (RPS) under Senate Bill (SB) 350 (2015), which requires that 50 percent of all electricity sold in the State be generated from renewable energy sources by December 31, 2030. Senate Bill 100 was approved in September 2018 and would increase the RPS to a 100 percent goal by 2045. As further required by the *State CEQA Guidelines*, the specific objectives of the project are provided below:

- Construct and operate a solar energy facility capable of producing up to 530 MW of electricity and 600 MW of energy storage in an economically feasible and commercially financeable manner that can be marked to different power utilities companies.
- To provide energy to the electric grid to meet increasing demand for in-state generation.

- Assist Kern County in promoting its role as the State's leading producer of renewable energy.
- Site and design the project in an environmentally responsible manner consistent with current Kern County guidelines.
- To promote economic development and bring living-wage jobs to the region throughout the life of the proposed project.
- Support California's efforts to reduce greenhouse gas (GHG) emissions consistent with the timeline established in 2006 under California Assembly Bill 32, the Global Warming Solutions Act of 2006, which requires the California Air Resources Board to reduce statewide emissions of GHGs to at least the 1990 emissions level by 2020. This timeline was updated in 2016 under SB 32, which requires that statewide GHG emissions are reduced to at least 40 percent below the statewide GHG emissions limit by 2030.
- Support California's aggressive RPS Program consistent with the timeline established by SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") as approved by the California Legislature and signed by Governor Brown in September 2018, which established a 50 percent RPS goal by December 31, 2026, 60 percent by December 31, 2030, and a goal that 100 percent of electric retail sales to end-use customers be provided by renewable energy and zero-carbon resources by 2045.

1.5.4 Project Characteristics

The project includes the development of a 530 MW PV solar facility, up to 600 MW of energy storage, and associated infrastructure on 2,317 acres of privately-owned land in the eastern high desert region of unincorporated Kern County. The project site is shown in Chapter 3, *Project Description*, and **Figure 3-2**, *Project Site Boundaries*, of this EIR. Conceptual site plans for the project site are shown in Chapter 3, **Figures 3-10A to 3-10L**, of this EIR. The combined project facilities would include the following components:

- Installation of a total of approximately 530 MW of solar PV modules, mounted either on fixed-tilt systems, horizontal tracker systems, or a combination thereof. The mounting system for the modules will be supported by steel posts driven into the ground;
- Installation of an energy storage facility and accessories that would provide energy storage capacity of up to 600 MWh for the electrical grid;
- Underground and above ground medium voltage collections systems, both on-site and off-site;
- A collection system of cables for delivering photovoltaic energy to inverter stations generally consisting of one or more inverter modules, a unit transformer, and voltage switch gear;
- One or more on-site substation(s) or switchyard(s) which would receive electricity from inverter stations through overhead and/or underground collector lines;
- Each site may include and O&M building with associated on-site parking. The O&M building(s) may be co-located with the substation(s). The O&M building(s) may include an office, repair building/parts storage, control room, restroom, septic tank, and leach field;

- Meteorological data collection systems;
- 230 kV overhead and/or underground gen-tie lines;
- On-site access roads;
- Perimeter security fencing which would be a chain link fence with barbed wire up to eight feet high;
- Concrete pads sized and installed to accommodate the associated equipment (inverters, switchgear, transformers, etc.);
- Telecommunications equipment, including underground and overhead fiber optics, and an on-site meteorological station;
- One or more aboveground water storage tanks with a total capacity of up to 50,000 gallons (greater if required by fire department regulations) may be placed on-site near the O&M building(s);
- Shielded nighttime directional lighting; and
- The following potential stormwater and water storage-related components (the location and number of which will be determined during detailed design engineering in accordance with applicable building codes):
  - Retention pond(s). Such retention pond(s) would be unlined. The only water entering retention pond(s) would be stormwater. Other than evaporation, water will only exit the retention pond(s) by seeping into the ground. Retention pond(s) may contain stormwater throughout the year.
  - Detention pond(s). The only difference between detention pond(s) and retention pond(s) is the amount of time which stormwater would remain contained (i.e., retention pond(s) may contain stormwater throughout the year, while detention pond(s) would only hold water for a short period of time before it seeps into the ground).
  - Drainage channel(s). These channel(s) will convey stormwater to the aforementioned on-site water feature(s) (i.e., retention pond(s) and/or detention pond(s)).

Solar PV Modules

The proposed project would utilize photovoltaic panels or modules (including but not limited to concentrated photovoltaic technology (CPV) or bi-facial technology) on mounting frameworks to convert sunlight directly into electricity. Individual panels would be installed on either fixed-tilt or tracker mount systems (single- or dual-axis, using galvanized steel or aluminum). 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 10 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 3-10A** to **3-10L** show the proposed layouts of the solar panels within the respective sites.

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 station may lie within an enclosed or canopied metal structure, typically on a skid or concrete mounted pad.

Energy Storage System

Each Site may include one or more Energy Storage Systems (ESS), located at or near a substation/switchyard (on-site or shared) and/or at the inverter stations, but possibly elsewhere on-site. Such large-scale ESSs would be up to 600 MW-AC in capacity and up to 25 acres in total area. ESSs consist of modular and scalable battery packs and battery control systems that conform to U.S. national safety standards. The ESS modules, which could include commercially available lithium or flow batteries, typically consist of standard International Organization for Standardization containers (approximately 40 feet in length by 8 feet in width by 8 feet in height) housed in pad- or post-mounted, stackable metal structures, but may also be housed in a dedicated building(s) in compliance with applicable regulations. The maximum height of a dedicated structure is not expected to exceed 25 feet. The actual dimensions and number of energy storage modules and structures vary depending on the application, supplier, and configuration chosen, as well as on offtaker/power purchase agreement requirements and on County building standards. The ESS modules would have a fire rating in conformance with Kern County standards.

Substation(s)

Output from the inverter stations would be transferred via electrical conduits and electrical conductor wires to one or more on-site substation(s) or switchyard(s) (collectively referred to as a "substation"). Each substation may contain several components, including auxiliary power transformers, distribution cabinets, revenue metering systems, microwave transmission tower, and voltage switch gear. Each substation would occupy an area of approximately 200 feet by 200 feet, secured separately by an additional chain-link fence, and typically located along the perimeter of the project. The final location(s) would be determined before issuance of building permits.

Substations typically include a small control building (roughly 500 square feet) standing approximately 10 feet tall. The building is either prefabricated concrete or steel housing with rooms for the voltage switch gear and the metering equipment, a room for the station supply transformer, and a separate control technology room in which the main computer, the intrusion detection system, and the main distribution equipment are housed. Components of this building (e.g., control technology room and intrusion detection system) may alternatively be located at the operations and maintenance (O&M) building(s).

Operations and Maintenance Facilities

Each Site may include an O&M building of approximately 40 feet by 80 feet in size, and approximately 15 feet in height, with associated on-site parking (unpaved); refer to **Figure 3-11**, *Typical Solar Array and O&M Areas*. The O&M building(s) may be co-located with the substation(s) and would be steel framed, with metal siding and roof panels. The O&M building(s) may include the following:

- Office
- Repair building/parts storage
- Control room
- Restroom
- Septic tank and leach field

Roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California Accessibility Regulations.

The proposed project may share O&M facilities with any future energy projects in the area and/or may be remotely operated. Any unused O&M areas on-site may be covered by solar panels.

On-site Meteorological Station

A solar meteorological station would be located on-site, the location of which would be determined at final project design. The meteorological station would include solar energy (irradiance) meters, in addition to an air temperature sensor and wind anemometer. It is anticipated that the maximum height of this equipment would be up to 20 feet.

Transmission Line

From the proposed project's substation(s), power could be transmitted to the Southern California Edison (SCE) Holgate Substation via up to 230 kV overhead and/or underground line(s); refer to **Figure 3-2**, *Project Site Boundaries*, which shows the transmission line alignment. If aboveground, the overhead lines would be mounted on monopoles up to 150 feet in height. A franchise and/or encroachment agreement with Kern County along affected County roadways may ultimately be required for portions of the transmission line.

Alternatively, the proposed project could transmit its power to the SCE Kramer Substation located to the east in San Bernardino County, via an overhead and/or underground transmission line located within an Edwards Air Force Base utility corridor. The alignment of the transmission line being considered is illustrated in **Figure 3-2**, *Project Site Boundaries*.

Site Access and Security

The project would be accessed from various area roadways. Construction traffic would access the project site from Gephart Road, Borax Road, Boron Avenue, and/or 20 Mule Team Road. No improvements to existing off-site roadways would be required to provide construction (or permanent) access to the sites.

The perimeter of each of the 5 sites would be enclosed within a chain link fence with barbed wire measuring up to 8 feet in height (from finished grade). An intrusion alarm system comprised of sensor cables would be integrated into the perimeter fence. Additionally, the project may include security measures such as barbed wire, low voltage fencing with warning reflective signage, controlled access points, security alarms, security camera systems, sensor lights, or security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with project operations.

Controlled access gates would be maintained at the main entrances to Sites 1-5. Project access would be provided to off-site emergency response teams (i.e., fire department) that would respond in the event of an "after-hours" emergency. Enclosure gates would be manually operated with a key provided in an identified key box location.

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

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

Water Storage Tank(s)

One or more above-ground water storage tanks with a total capacity of up to 50,000 gallons (greater if required by Fire Department regulations) may be placed on-site near the O&M building(s). The storage tank(s) near the O&M building(s) would have the appropriate fire department connections to be used for fire suppression purposes.

Project Site Lighting

Proposed nighttime lighting on-site would be minimal and is anticipated to be installed at the access gates, substation(s), O&M building(s), and inverters to allow for access and emergency maintenance. 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. Additionally, motion-sensitive cameras would be installed within the solar fields in proximity to the inverters for purposes of security.

1.6 Environmental Impacts

CEQA Guidelines Section 15128 requires that an EIR contain a statement briefly indicating the reasons why any new and possibly significant effects of a project were determined not to be significant and were, therefore, not discussed in detail in the EIR. The County has engaged the public to participate in the scoping of the environmental document. The contents of this EIR were established based on a notice of preparation/initial study (NOP/IS) prepared in accordance with the *CEQA Guidelines*, as well as public and agency input that was received during the scoping process. Comments received on the NOP/IS are located in Appendix A of this EIR. Specific issues found to have no impact or less-than-significant impacts during preparation of the NOP/IS do not need to be addressed further in this EIR. Based on the findings of the NOP/IS and the results of scoping, a determination was made that this EIR must contain a comprehensive analysis of all environmental issues identified in *CEQA Guidelines* Appendix G except population and housing and recreation.

1.6.1 Impacts Not Further Considered in this EIR

As discussed in the NOP/IS (located in Appendix A of this EIR), the project was determined to have no impact with regard to the following resource areas, which are therefore not analyzed in this EIR.

- Mineral Resources
- Population and Housing
- Recreation

1.6.2 Impacts of the Project

Sections 4.1 through 4.17 in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, provide a detailed discussion of the environmental setting, impacts associated with the project, and mitigation measures designed to reduce significant impacts to less-than-significant levels, when feasible. The impacts, mitigation measures, and residual impacts for the project are summarized in **Table 1-4**, *Summary of Impacts, Mitigation Measures, and Levels of Significance*, located at the end of this chapter, and are discussed further below.

Impacts related to the following resource areas are evaluated in this EIR for their potential significance:

- Aesthetics
- Agriculture 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
- Noise
- Public Services
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfires

1.6.3 Less-than-Significant Impacts

Table 1-3, *Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation*, presents those impacts of the project that were determined to be less than significant by themselves, or less than significant with implementation of mitigation measures. Less-than-significant cumulative impacts are also included in this table. Sections 4.1 through 4.17 of this EIR present detailed analysis of these impacts and describe the means by which the mitigation measures listed in **Table 1-3**, *Summary of Project Impacts That Are Less than Significant or Less than Significant with Mitigation*, would reduce impacts to a less-than-significant level.

Table 1-3. Summary of Project Impacts That Are Less than Significant or Less than Significant with Mitigation

Impact	Mitigation Measures
Agriculture and Forestry Resources (Project and Cumulative)	No mitigation required
Biological Resources (Project)	MM 4.1-4 through MM 4.1-6, MM 4.4-1 through MM 4.4-25, MM 4.9-1, MM 4.10-1 and 4.10-2
Cultural Resources (Project and Cumulative)	MM 4.5-1 through MM 4.5-7
Energy (Project and Cumulative)	MM 4.3-1
Geology and Soils (Project and Cumulative)	MM 4.7-1 through MM 4.7-6, MM 4.10-1, and MM 4.10-2
Greenhouse Gas Emissions (Project and Cumulative)	No mitigation required
Hazards and Hazardous Materials (Project)	MM 4.9-1 through MM 4.9-4, MM 4.13-1 and MM 4.16-1
Hydrology and Water Quality (Project and Cumulative)	MM 4.9-1, MM 4.10-1 and MM 4.10-2
Land Use and Planning (Project and Cumulative)	MM 4.11-1 and MM 4.11-2
Noise (Project and Cumulative)	MM 4.12-1 through MM 4.12-4
Public Services (Project and Cumulative)	MM 4.13-1 through MM 4.13-5
Transportation (Project and Cumulative)	MM 4.14-1
Tribal Cultural Resources (Project and Cumulative)	MM 4.5-1, MM 4.5-2, MM 4.5-6, MM 4.5-7, MM 4.15-1 and 4.15-2
Utilities and Service Systems (Project and Cumulative)	MM 4.10-1, MM 4.10-2, and MM 4.16-1
Wildfire (Project)	MM 4.13-1

1.6.4 Significant and Unavoidable Impacts

CEQA Guidelines Section 15126.2(b) requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less-than-significant levels. Potential environmental effects of the project and proposed mitigation measures are discussed in detail in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR.

According to *CEQA Guidelines* Section 15355, the term cumulative impacts "… refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Individual effects that may contribute to a cumulative impact may be from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but

when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable. This EIR has considered the potential cumulative effects of the project along with other current and reasonably foreseeable projects.

Impacts for the following topics have been found to be significant and unavoidable, at the project and/or cumulative level.

- Aesthetics (Project and Cumulative)
- Air Quality (Project and Cumulative)
- Biological Resources (Cumulative)
- Hazards and Hazardous Materials (Cumulative)
- Wildfire (Cumulative)

Table 1-4, *Summary of Significant and Unavoidable Project-Level and/or Cumulative Impacts of the Solar Facility*, presents those impacts at the project level and cumulatively. Sections 4.1 *Aesthetics*, 4.3 *Air Quality*, 4.4 *Biological Resources*, 4.9 *Hazards and Hazardous Materials*, and 4.17 *Wildfire* of this EIR present detailed analyses of these impacts and describe the means by which the mitigation measures listed in **Table 1-4**, *Summary of Significant and Unavoidable Project-Level and/or Cumulative Impacts of the Solar Facility*, would reduce the severity of impacts to the extent feasible.

Table 1-4. Summary of Significant and Unavoidable Project-Level and/or Cumulative Impacts of the Solar Facility

Resources	Project Impacts	Cumulative Impacts	Mitigation Measures
Aesthetics	Implementation of the project would result in potentially significant visual impacts to the existing visual quality or character of the site and surrounding area. Mitigation Measures MM 4.1-1 through MM 4.1-3 would be incorporated to reduce visual impacts that would occur from the collection of debris along the site boundary, limit vegetation removal and plant native vegetation, and provide natural, non-glossy color treatments to buildings and structures. As required by Mitigation Measure MM 4.3-4, decorative solid dust barriers would be installed along edges of Sites 2, 3 and 4, which would also screen views of the proposed solar facilities. Mitigation Measures 4.1-4 through MM 4.1-6 would be incorporated to minimize potential light and glare impacts to a level of less than significant. However, because there are no feasible mitigation measures that can be implemented to maintain the existing open and undeveloped landscape character of the project site, impacts to visual resources would remain **significant and unavoidable**.	The project would have cumulatively significant and unavoidable aesthetic impacts related to visual character after implementation of mitigation. Although implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6 and MM 4.3-4 would reduce the adverse visual changes experienced at individual viewpoints, there are no mitigation measures that would allow for the preservation of the existing visual character of the area. The conversion of approximately 2,317 acres of privately-owned land to a solar energy production facility, together with similar land conversions in this part of the County, is considered a **significant and unavoidable** cumulative impact.	Mitigation Measures MM 4.3-4 and MM 4.1-1 through MM 4.1-6
Air Quality	Impacts from construction equipment, trucks, and work crew vehicle exhaust emissions would be less than significant, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-3. Construction dust suppression measures would be implemented in Mitigation Measures MM 4.3-2 and MM 4.3-5. Nonetheless, exposure to dust during construction could still occur which could increase the health susceptibility and increase the severity of symptoms of people with COVID-19 infections. Therefore, the project would implement Mitigation Measure MM 4.3-6 which requires implementation of a COVID-19 Health and Safety Plan in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates; however, the exact reduction from implementation of these mitigation measures cannot be quantified given existing scientific constraints. As required by Mitigation Measure 4.3-4, permanent, solid dust control barriers will be installed along the east edge of Site 4, the north edge of Site 3 and the east edge of Site 2, to minimize windblown dust that could impact the nearby communities of Desert Lake and Boron..	There are several alternative energy (wind and solar) projects being developed within the eastern Kern County geographical area. From a site-specific, project-level operational review, these projects are required to comply with all rules and regulations of the Eastern Kern Air Pollution Control District. Impacts associated with construction and operation of the proposed project are generally considered less than significant. However, given the uncertainty of the project's regional and localized health impacts associated with criteria air pollutants, such as $PM_{2.5}$ along with indirect linkages of criteria pollutants and COVID-19, on vulnerable populations, the project, together with other alternative energy projects in eastern Kern County, would result in **significant and unavoidable** cumulative level impacts, even with the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7.	Mitigation Measures 4.1-3 and MM 4.3-1 through MM 4.3-7

Table 1-4, continued

Resources	Project Impacts	Cumulative Impacts	Mitigation Measures
Biological Resources	There would be no significant and unavoidable project impacts.	Given the number of present, and reasonably foreseeable future development projects in the Antelope Valley, the proposed project, when combined with these projects, would contribute to an incremental cumulative loss of habitat for special-status species. Implementation of the mitigation measures identified in this section would reduce impacts to habitat to less than significant for the proposed project and other projects with similar impacts. However, the proposed project, when combined with other related development projects proposed throughout the County, would cumulatively impact habitat for special-status species. Therefore, cumulative impacts would be **significant and unavoidable**.	Mitigation Measures MM 4.1-4 through MM 4.1-6, MM 4.9-2, MM 4.10-1 through MM 4.10-2, and Mitigation Measures MM 4.4-1 through MM 4.4-25
Hazards and Hazardous Materials	There would be no significant and unavoidable project impacts.	Given the location of the project and its associated gen-tie liens in a rural area and with limited infrastructure, the project and related projects would have the potential to result in a cumulative impact from the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. As such, the project, in combination with other renewable energy projects in eastern Kern County, could result in a **significant and unavoidable** cumulative impact.	Mitigation Measures MM 4.9-1 through 4.9-4, MM 4.13-1, and MM 4.16-1
Wildfire	There would be no significant and unavoidable project impacts.	Given the location in a rural area and limited infrastructure, the project, in combination with other renewable energy projects in eastern Kern County, would have cumulatively **significant and unavoidable** wildfire impacts related to: the impairment of an adopted emergency response plan; the exposure of project occupants to pollutant concentrations from a wildfire; and the installation or maintenance of associated infrastructure, even after implementation of mitigation measures.	Mitigation Measure MM 4.13-1

1.6.5 Growth Inducement

The Kern County General Plan recognizes that certain forms of growth are beneficial, both economically and socially. *CEQA Guidelines* Section 15126.2(d) provides the following guidance on growth-inducing impacts:

> *A project is identified as growth-inducing if it "would foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.*

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the project would not induce substantial growth. It is estimated that up to 1,000 workers per day (during peak construction periods) would be required during construction of the proposed project. Construction workers are expected to travel to the site from various local communities and locations throughout Southern California, and the number of workers expected to relocate to the surrounding area is not anticipated to be substantial. If temporary housing should be necessary, it is expected that accommodations would be available in the nearby communities of Mojave, California City, Rosamond, Tehachapi, or Lancaster. Therefore, the project is not anticipated to directly or indirectly induce the development of any new housing or businesses. During the operational phase, each Site could require an operational staff of up to five full-time employees. Thus, the project could have up to 25 full-time equivalent (FTE) personnel (or personnel hours totaling 25 FTE positions, i.e., an average of 1,000 personnel hours per week), who would commute to the site. Existing housing stock would accommodate operations personnel should they relocate to the area. The proposed project would not result in a large increase in employment that would significantly induce growth.

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

In *Kerncrest Audubon Society v. Los Angeles Department of Water and Power*, the analysis of growth-inducing effects contained in the EIR for the Pine Tree Wind Development Project was challenged. Plaintiffs argued that the discussion was too cursory to provide adequate information about how additional electricity generated by the project would sustain further growth in the Los Angeles area. The Court of Appeals held that the additional electricity that the project would produce was intended to meet the current forecast of growth in the Los Angeles area. As such, the wind development project would not cause growth, and so it was not reasonable to require a detailed analysis of growth-inducing impacts. In addition, EIRs for similar energy projects have contained similarly detailed analyses of growth-inducing impacts. Their conclusions that increasing the energy supply would not create growth has been upheld, because: (1) the additional energy would be used to ease the burdens of meeting existing energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so multifarious that any potential connection between additional energy production

and growth would necessarily be too speculative and tenuous to merit extensive analysis. Thus, as has been upheld in the courts, the level of analysis provided in this EIR is adequate to inform the public and decision makers of the growth-inducing impacts of the project.

1.6.6 Irreversible Impacts

CEQA Guidelines Section 15126.2(c) defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Irreversible impacts can also result from damage caused by environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Build-out of the project would commit nonrenewable resources during project construction. During project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term project operations. However, assuming that those commitments occur in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan, as a matter of public policy, those commitments have been determined to be acceptable. The Kern County General Plan ensures that any irreversible environmental changes associated with those commitments will be minimized.

1.7 Alternatives to the Project

CEQA Guidelines Section 15126.6 states that an EIR must address "a range of reasonable alternatives to the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Based on the significant environmental impacts of the project, the aforementioned objectives established for the project and the feasibility of the alternatives considered, a range of alternatives is analyzed below and discussed in detail in Chapter 6, *Alternatives*, of this EIR.

1.7.1 Alternatives Considered and Rejected

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (*CEQA Guidelines* Section 15126.6(c)). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not need to be considered (*CEQA Guidelines* Section 15126(f)(2)). Kern County considered several alternatives to reduce impacts to aesthetics (project and cumulative), air quality (cumulative only), biological resources (cumulative only), hazards and hazardous materials (cumulative only), and wildfire (cumulative only). Per CEQA, the lead agency may make an initial determination as to which alternatives are feasible and warrant further consideration, and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this EIR because they do not meet project objectives or were infeasible.

Wind Energy Project Alternative

The Wind Energy Project Alternative would involve the use of wind energy as an alternative to development of solar site. Similar to solar power, energy production from the wind is an alternative to energy production from coal, oil, or nuclear sources. Wind energy provides the following benefits:

- It is a renewable and infinite resource.
- It is free of any emissions, after installation, including carbon dioxide (GHG).
- It is a free resource after the capital cost of installation (excluding maintenance).

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources. Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions. Wind turbines would also have the potential to affect avian species in the local area. In addition, in order for wind turbines to produce an equivalent 530 MW of power that the project would produce, the alternative would require more space than what the project site current accommodates. Consequently, the project site would need to be expanded.

As noted above, some of the project's objectives are to assist California in meeting its GHG emission reduction goals through establishing solar PV power-generating facilities to produce reliable electricity in an economically feasible and commercially financeable while minimizing environmental impacts and using proven and established PV technology that is efficient, requires low maintenance and is recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would substantially increase the significant aesthetic impacts associated with the project because wind turbines would be much taller than solar panels, require FAA lighting and are more visible from many viewpoints.
- It may conflict with the Mojave Air and Space Port, Kern County Airport Land Use Compatibility Plan, and the Edwards Air Force Base due to the heights of the turbines.
- It may result in additional/greater biological resources impacts to avian species than the project.
- It may generate long-term noise impacts to nearby sensitive receptors from rotating turbine blades.

Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 300 MW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation need to be considered in both design and

operation. When waste heat that results from the finite efficiency of the power cycle is not recovered and used as steam or hot water, it must be released to the atmosphere, and often uses a cooling tower as a cooling medium (especially for condensing steam). The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides. Furthermore, unlike the project, fossil fuel-powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) aesthetics and the local visual setting of the project area; (2) air quality and GHG emissions; (3) land use and planning conflicts with the rural development of the surrounding area; (4) noise from the plant operations; (5) traffic from increased employment at the facility; and (6) demand on public utilities, including water and waste disposal.

As noted above, some of the project's objectives are to assist California in meeting its GHG emission reduction goals through establishing solar PV power-generating facilities to produce reliable electricity in an economically feasible and commercially financeable while minimizing environmental impacts and using proven and established PV technology that is efficient, requires low maintenance and is recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would result in additional/greater impacts than the project including aesthetics, air quality, GHG emissions, land use and planning, noise, transportation, and public utilities, including water use and disposal.
- Depending on siting, it may also result in greater biological resources impacts than the project.
- It may conflict with the Mojave Air and Space Port, Kern County Airport Land Use Compatibility Plan, and the Edwards Air Force Base due to the heights of the cooling towers and smoke stacks.
- It would not contribute to the statewide renewable energy and GHG emission reduction objectives as this alternative would use nonrenewable energy to produce electricity.

Alternative Site

This alternative would involve the development of the project on another site located within Kern County, other than constructing rooftop distributed generation systems. Although undetermined at this time, the alternative project site would likely be located in western Antelope Valley, similar to the project. This alternative is assumed to involve construction of a 530 MW PV solar facility with up to 600 MW of energy storage on a site totaling 2,317 acres. CEQA *Guidelines* 15126.6(f)(2(a) states that the key and initial step in considering an alternative site is whether "any of the significant effects of the project would be avoided or substantially lessened" in relocating the project, while remaining consistent with the same basic objectives of the project.

Western Antelope Valley has attracted renewable energy development applications that are being proposed for vacant land or land with a history of agricultural uses. The availability of alternative sites is constrained by the renewable energy market itself. While other sites with similar size, configuration, and use history may exist in western Antelope Valley, alternative project sites in the area are likely to have similar project and cumulatively significant impacts after mitigation, including cumulatively significant impacts to

aesthetics, air quality, biological resources, hazards, and wildfire. This is based on the known general conditions in the area and the magnitude of the project.

In addition, alternative sites for the project are not considered to be "potentially feasible," as there are no suitable sites within the control of the project proponent that would reduce project impacts. The potential amount of available, similar sites is further reduced because unlike the project, alternative sites may not include sites with close proximity to transmission infrastructure. Therefore, this alternative was eliminated because it would not avoid or substantially reduce the significant environmental effects of the project.

1.7.2 Alternatives Selected for Analysis

The following alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project, but which may avoid or substantially lessen any of the significant impacts of the project. The following alternatives are analyzed in detail in this chapter of the EIR:

- Alternative 1: No Project Alternative
- Alternative 2: General Plan and Zoning Build-Out Alternative
- Alternative 3: Reduced Acreage Alternative
- Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only

Table 1-5, *Summary of Development Alternatives*, below, provides a summary of the relative impacts and feasibility of each alternative and **Table 1-6**, *Comparison of Alternatives*, provides a summary side-by-side comparison of the potential impacts of the alternatives and the project. A complete discussion of each alternative is provided below.

Table 1-5. Summary of Development Alternatives

Alternative	Description	Basis for Selection and Summary of Analysis
Project	Construction and operation of a solar facility on approximately 2,317 acres would generate up to 530 MW of electricity with the capacity to store up to 600 MWh of energy. Approval of five Conditional Use Permits (CUPs) (for construction and operation of commercial solar electrical generating facilities), Amendments to the General Plan Circulation Element, and Zone Changes (ZCCs).	N/A
Alternative 1: No Project Alternative	No development would occur on the project site. The project site would remain unchanged.	• Required by CEQA. • Avoids need for zoning changes, CUPs, and General Plan amendments. • Avoids all significant and unavoidable impacts. • Would not offset GHG emissions from nonrenewable energy generation. • Less impact in all remaining environmental issue areas. • Does not meet any of the project objectives.
Alternative 2: General Plan and Zoning Build-Out Alternative	Project site would be developed to the maximum intensity allowed under the Kern County General Plan land use designations and zoning classifications and other existing applicable restrictions.	• Avoids need for zoning changes and General Plan amendments. • Reduced impacts to agriculture and forestry resources, and wildfire. • Less impact to aesthetics, similar impact to hazards and hazardous materials, and no impact to land use and planning. • Greater overall impacts in all remaining environmental issue areas. • Does not meet any project objectives.
Alternative 3: Reduced Acreage Alternative	Construction and operation of multiple solar facilities on a portion of the proposed project site on approximately 1,544 acres. This alternative is still expected to contain enough land to construct a solar array field capable of generating approximately 355 MW, with up to approximately 402 MW of energy storage. This alternative would also require zoning changes, CUPs, and General Plan amendments.	• Reduced, but similar impacts to hazards and hazardous materials, land use and planning, noise, and public services. • Reduced benefit of offsetting GHG emissions from nonrenewable energy generation. • Less impact in all remaining environmental issue areas. • Does not meet all the project objectives.

Table 1-5, continued

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only	The construction of 530 MW of PV solar distributed on rooftops throughout western Antelope Valley. Electricity generated would be for on-site use only.	• Avoids need for zoning changes and General Plan amendments at the project site but may require other entitlements on other sites, such as a CUP or variance. • Avoids significant and unavoidable impacts associated with aesthetics, air quality, biological resources, and hazards.. • Reduced or no benefit of offsetting GHG emissions from nonrenewable energy generation. • No impacts involving land use and planning. • Similar impacts to energy and tribal cultural resources. • Less impact in all remaining issue areas. • Does not meet all the project objectives nor does it account for the energy storage component of the project.

Table 1-6. Comparison of Alternatives

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Aesthetics	Significant and unavoidable (project and cumulative)	Less (NI)	Less (SU)	Less (SU)	Less (LTS)
Agricultural and Forestry Resources	Less than significant with mitigation	Less (NI)	Less (LTS)	Less (LTS)	Less (NI)
Air Quality	Significant and unavoidable (project and cumulative)	Less (NI)	Greater (SU)	Less (SU)	Less (LTS)
Biological Resources	Less than significant with mitigation (project) Significant and unavoidable (cumulative only)	Less (NI)	Greater (SU)	Less (SU)	Less (NI)
Cultural Resources	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)
Energy	Less than significant	Less (NI)	Greater (LTS)	Less (LTS)	Similar (LTS)
Geology and Soils	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)
Greenhouse Gas Emissions	Less than significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than significant with mitigation (project) Significant and unavoidable (cumulative only)	Less (NI)	Similar (SU)	Less (SU)	Less (LTS)
Hydrology and Water Quality	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)
Land Use and Planning	Less than significant (project) Less than significant with mitigation (cumulative)	Less (NI)	Less (NI)	Similar (LTS)	Less (NI)
Noise	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Public Services	Less than significant with mitigation	Less (NI)	Greater (SU)	Similar (LTS)	Less (LTS)

Table 1-6, continued

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Transportation and Traffic	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Tribal Cultural Resources	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (NI)
Utilities and Service Systems	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Wildfires	Significant and unavoidable (cumulative only)	Less (NI)	Greater (SU)	Less(SU)	Less (SU)
Meet Project Objectives?	All	None	None	Partially	Partially
Reduce Significant and Unavoidable Impacts?	N/A	All	None	None	Some

NI = No Impact
LTS = Less than Significant
SU = Significant and Unavoidable

1.7.3 Alternative 1: No Project Alternative

The CEQA *Guidelines* require EIRs to include a "No Project Alternative" for the purpose of allowing decision makers to compare the effects of approving or denying a project altogether. Accordingly, Alternative 1 assumes that the development of the up to 530 MW solar facility with up to 600 MW energy storage capacity on the approximately 2,317-acre site would not occur. The No Project Alternative would not require 4 zoning changes, 6 CUPs, and 6 General Plan amendments for construction and operation of the proposed solar and energy storage project. The No Project Alternative would maintain the current zoning, land use classifications, and existing land uses, which consist mostly of undeveloped desert vegetation. No physical changes would be made to the project site.

1.7.4 Alternative 2: General Plan and Zoning Build-Out Alternative

Alternative 2, the General Plan and Zoning Build-Out Alternative, would develop the project site to the maximum intensity allowed under the existing Kern County General Plan land use and zoning classifications. According to the Kern County General Plan, the 4.1 (Accepted County Plan Areas) land use designation applies to areas where specific land use plans have already been prepared and approved. In the case of the project site, Sites 1 and 2 are located adjacent to the Boron Specific Plan boundary and Site 3 abuts the Desert Lake Specific Plan boundary; however, no portion of the project site is within a specific plan area. Existing land use and zoning for the proposed project sites are provided in **Table 1-1**, *Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage*.

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone classifications (Zone Districts A-1, R-1, and M-1) for agricultural, residential, and industrial uses. No solar facilities would be developed under this alternative and, therefore, no zone changes for solar facility construction and operation would be required.

1.7.5 Alternative 3: Reduced Acreage Alternative

Alternative 3 would involve a reduced footprint of the solar development facilities, including solar panels, collector lines, transformers, substations, energy storage facilities, access roads, and O&M facilities. The purpose of the Reduced Acreage Alternative is to avoid or minimize adverse effects associated with project proximity to receptors, vegetation removal, ground disturbance, construction air emissions, and the extent project facilities would be visible from sensitive viewing locations. Reducing acreage of the project to achieve these goals can be achieved through a number of different footprint configurations. While a portion of the proposed project's environmental resource conditions and impacts are consolidated or based on the presence of fixed features (i.e., receptor locations), others are not consolidated (i.e., biological resources) in a manner that clearly indicates which portions of the proposed project site could be eliminated to reduce the project's environmental effects across all parameters to the greatest extent possible. The Reduced Acreage Alternative targets an overall reduction of the project footprint by approximately one third (33 precent), which is intended to reduce impacts associated with project development roughly proportionally. A hypothetical reduced footprint configuration was developed for the Reduced Acreage Alternative that

meets this reduction target, as discussed below; however, the County, acting within its role as CEQA lead agency when making its decision to approve or deny the project, may determine that a different footprint configuration would be more appropriate at reducing the project footprint under the Reduced Acreage Alternative that also achieves the target reduction of approximately 33 percent or greater in total area. This could be based on considerations of operational feasibility and/or effectiveness, giving more weight to certain environmental objectives versus others, or possibly other considerations.

Under Alternative 3, the hypothetical footprint configuration for the Reduced Acreage Alternative, involves eliminating all of Sites 4 and 5, the portions of Sites 2 and 3 (herein referred as 2a and 3a) north of the Burlington Northern and Santa Fe Railway located immediately south of the Desert Lake Specific Plan area. All of Site 1 and the remaining portions of Sites 2 and 3 (herein referred as 2b and 3b) would be developed similar to the proposed project with solar panels and associated solar energy facilities, including the substations, energy storage system features, O&M facilities, collector lines, gen-tie lines, and other ancillary components (refer to Chapter 3, Project Description, for full details). **Chapter 6**, *Alternatives*, **Table 6.4-3**, *Project Footprint Analyzed for the Reduced Acreage Alternative*, summarizes the project site acreages analyzed under the Reduced Acreage Alternative and the percentage of area that would be eliminated from the project. The Reduced Acreage Alternative would reduce the project acreage from approximately 2,317 acres to approximately 1,544 acres, which is 66 percent of the proposed project. Based on the reduced area, the energy generation and storage capacities would be reduced roughly proportionally. The generation capacity would change from approximately 530 MW to 355 MW, and the storage capacity would change from approximately 600 MW to 402 MW. Similar to the project, this alternative would require plan amendments and permits upon project approval for construction and operation of a commercial solar electrical generating facility.

1.7.6 Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only

Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative, would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatt-hours to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout western Antelope Valley. Under this alternative, no new land would be developed or altered. However, depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (i.e., greater than 2,317 acres of total rooftop area) may be required to attain project's capacity of 530 MW of solar PV generating capacity. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed in a freestanding utility-scale solar PV project and, therefore, would not attain the same level of efficiency with respect to solar PV generation. Alternative 4 would generate 530 MW of electricity, but it would be for on-site use only. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. Similar to the project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would typically be consumed on-site by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities.

1.7.7 Environmentally Superior Alternative

As presented in the comparative analysis above, and as shown in **Table 1-6**, *Comparison of Alternatives*, there are a number of factors in selecting the environmentally superior alternative. An EIR must identify the environmentally superior alternative to the project. Alternative 1, the No Project Alternative, would be environmentally superior to the project on the basis of its minimization or avoidance of physical environmental impacts. However, CEQA Guidelines Section 15126.6(e)(2) states:

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be the No Ground-Mounted Utility-Solar Development Alternative. This alternative would avoid significant and unavoidable impacts to aesthetics, air quality, biological resources, and noise. Offsets of GHG emissions generated at fossil fuel-based electrical generating facilities would be reduced under this alternative due to the lower efficiency of the distributed systems, which would not include solar tracking technology or up to 600 MW of energy storage. However, this alternative would result in less impact to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, public services, transportation, tribal cultural resources, utilities and service systems, and wildfire hazards. Thus, this alternative would result in fewer environmental impacts, both short-term and long-term, when compared to the project.

It is important to note that it is considered to be impracticable and infeasible to construct the No Ground-Mounted Utility-Solar Development Alternative within the same time frame and/or with the same efficiency as the project because the project proponent lacks control and access to the sites required to develop 530 MW of distributed solar generated electricity on building rooftops and the required land to support up to 600 MW of energy storage. In addition, this alternative would not achieve the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because this alternative reduces impacts to a greater degree than the General Plan and Zoning Build-Out Alternative and Reduced Acreage Alternative, the No Ground-Mounted Utility-Solar Development Alternative is considered the Environmentally Superior Alternative.

1.8 Areas of Controversy

Areas of controversy were identified through written agency and public comments received during the scoping period. Public comments received during the scoping period are provided in Appendix A. In summary, the following issues were identified during scoping and are addressed in the appropriate sections of Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*:

- Impacts related to aesthetics

- Impacts related to air quality
- Impacts related to biological resources
- Impacts related to hazards and hazardous materials
- Impacts related to hydrology and water quality
- Impacts related to land use conflicts
- Impacts related to transportation
- Impacts related to tribal cultural resources
- Impacts related to water supply

1.9 Issues to Be Resolved

CEQA Guidelines Section 15123(b)(3) requires that an EIR contain issues to be resolved, which includes the choices among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

- Determine whether the EIR adequately describes the environmental impacts of the project;
- Choose among alternatives;
- Determine whether the recommended mitigation measures should be adopted or modified; and
- Determine whether additional mitigation measures need to be applied to the project.

1.10 Summary of Environmental Impacts and Mitigation Measures

Table 1-7, *Summary of Impacts, Mitigation Measures, and Level of Significance*, summarizes the environmental impacts of the project, mitigation measures, and unavoidable significant impacts identified and analyzed in Sections 4.1 through 4.17 of this EIR. Refer to the appropriate EIR section for additional information.

Table 1-7. Summary of Impacts, Mitigation Measures, and Levels of Significance

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.1 Aesthetics			
Impact 4.1-1: The project would have a substantial adverse effect on a scenic vista.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.1-2: The project would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.1-3: The project would, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.	Potentially Significant	Implementation of Mitigation Measure MM 4.3-4 would be required to provide permanent solid dust barriers that would screen views into Sites 2, 3 and 4 (see Section 4.3, *Air Quality*, for full mitigation measure text). **MM 4.1-1:** Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted for review and approval to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following: a. The project proponent/operator shall clear debris from the project area at least four times per year; this can be done in conjunction with regular panel washing and site maintenance activities. b. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department. c. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash	Significant and Unavoidable

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		receptacles during operation of the project shall be shown on final plans. d. Trash and food items shall be contained in closed secured containers at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. **MM 4.1-2:** Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall submit a proposed color scheme and treatment plan, for review and approval by the Kern County Planning and Natural Resources Department, that will ensure all project facilities including operations and maintenance buildings, gen-tie poles, array facilities, etc. blend in with the colors found in the natural landscape. All color treatments shall result in matte or nonglossy finishes. **MM 4.1-3:** Wherever possible, within the proposed project boundary, the natural vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All natural vegetation adjacent to the proposed project boundary shall remain in place as permitted by Fire Code. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include the measures detailed below. a. In areas temporarily disturbed during construction and decommissioning (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants (including Mohave creosote scrub habitat) and/or allowed to re-vegetate with the existing native seed bank in the topsoil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads or under arrays do not require revegetation. b. The plan must include but is not limited to: (1) the approved California native seed mix that will be used on-site; (2) a timeline for seeding the site; (3) the details of which areas are to be revegetated; (4) a list of the consultation efforts completed;(5) the methods and schedule for installation of fencing that complies with wildlife agency regulations; and, (6) a clear prohibition of the use of toxic rodenticides.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish re-vegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time). d. Vegetation/ground cover shall be continuously maintained on the site by the project operator. e. The re-vegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year periods, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department for each of the three years. Should efforts to revegetate with the existing native seed bank in the top soil prove in the second year to not be successful by 75 percent cover rate, re-evaluation of revegetation methods shall be made in consultation with the Kern County Planning and Natural Resources Department and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.	
Impact 4.1-4: The project would create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	Potentially significant	**MM 4.1-4:** Prior to final activation of the solar facility, the project proponent shall demonstrate to Kern County Planning and Natural Resources Staff that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance), and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields. **MM 4.1-5:** Prior to the issuance of building permits, the project proponent shall demonstrate the solar panels and hardware are designed to minimize	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department for review and final approval. **MM 4.1-6:** Prior to final activation of the solar facility, the project operator shall demonstrate that all on-site buildings utilize non-reflective materials, as approved by the Kern County Planning and Natural Resources Department.	
Impact 4.1: Cumulative Impacts	Potentially Significant	Implementation of Mitigation Measure MM 4.3-4 would be required to provide permanent solid dust barriers that would screen views into Sites 2, 3 and 4 (see Section 4.3, *Air Quality*, for full mitigation measure text). Implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6 is required.	Significant and unavoidable (Visual Character) Less than significant (Scenic Vista, Scenic Resource; Light and Glare)
4.2 Agriculture and Forestry Resources			
Impact 4.2-1: The project would conflict with existing zoning for agricultural use or Williamson Act Contract.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.2: Cumulative Impacts	Less than significant	No mitigation would be required	Less than significant
4.3 Air Quality			
Impact 4.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.	Potentially significant	**MM 4.1-3:** Preserve and replace existing vegetation to extent feasible, which would reduce potential for surface erosion and dust generation, as defined in Section 4.1, *Aesthetics.* **MM 4.3-1:** To control NO_X and PM emissions during construction, the project proponent/operator and/or its contractor(s) shall implement the	Less than significant

Table 1-7, continued

		following measures during construction of the project, subject to verification by the County: a. Off-road equipment engines over 25 horsepower shall be equipped with EPA Tier 3 or higher engines, unless Tier 3 construction equipment is not locally available. b. All equipment shall be maintained in accordance with the manufacturer's specifications. c. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes. d. Notification shall be provided to trucks and vehicles in loading or unloading queues that their engines shall be turned off when not in use for more than 5 minutes. e. Electric equipment shall be used to the extent feasible in lieu of diesel or gasoline-powered equipment. f. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_X emissions. g. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines. h. Existing electric power sources shall be used to the extent feasible. This measure would minimize the use of higher polluting gas or diesel generators. i. The hours of operation of heavy-duty equipment and/or the quantity of equipment in use shall be limited to the extent feasible. **MM 4.3-2:** The project proponent/operator shall ensure construction of the project shall be conducted in compliance with applicable rules and regulations set forth by the Eastern Kern Air Pollution Control District. Dust control measures outlined below shall be implemented where they are applicable and feasible. The list shall not be considered all-inclusive and any other measures to reduce fugitive dust emissions may be required by appropriate agencies to respond to urgent issues on site: All soil being actively excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		coverage of disturbed soils areas. Watering shall take place a minimum of three times daily where soil is being actively disturbed, unless dust is otherwise controlled by rainfall or use of a dust suppressant. a. Vehicle speed for all onsite construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site. Signs identifying construction vehicle speed limits shall be posted along onsite roadways at the site entrance and exit and along unpaved site access roads. b. Vehicle speeds on all offsite unpaved project-site access roads (i.e., outside the project boundary) construction vehicles shall not exceed 25 mph. Signs identifying vehicle speed limits shall be posted along unpaved site access roads and at the site entrance/exit. c. All onsite unpaved roads and offsite unpaved project-site access road(s) shall be effectively stabilized of dust emissions using water or Eastern Kern Air Pollution Control District-approved dust suppressants/palliatives sufficient to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. If water is used, watering shall occur a minimum of three times daily, sufficient to keep soil moist along actively used roadways. During the dry season, unpaved road surfaces and vehicle parking and staging areas shall be watered immediately prior to periods of high use (e.g., worker commute periods, truck convoys, etc.) Reclaimed (non-potable) water shall be used to the extent available. d. Reduce and/or phase the amount of the disturbed area (e.g., grading, excavation) where possible. e. All disturbed areas shall be sufficiently watered or stabilized by an Eastern Kern Air Pollution Control District- approved methods to prevent excessive dust. On dry days, watering shall occur a minimum of three times daily on actively disturbed areas. Watering frequency shall be increased whenever wind speeds exceed 15 miles per hour or, as necessary, to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. Reclaimed (non-potable) water shall be used to the extent available. f. All clearing, grading, earth moving, and excavation activities will cease during periods when dust plumes of 20 percent or greater opacity affect public roads or nearby occupied structures.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		g. All disturbed areas anticipated to be inactive for periods of 30 days or more shall be treated to minimize wind-blown dust emissions. Treatment may include but is not limited to the application of an Eastern Kern Air Pollution Control District-approved chemical dust suppressant, gravel, hydro-mulch, revegetation/seeding, or wood chips. h. All active and inactive disturbed surface areas shall be compacted where feasible. i. Limit equipment and vehicle access to disturbed areas. j. Where applicable, permanent dust control measures shall be implemented as soon as possible following completion of any soil disturbing activities. k. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate methods sufficient to reduce visible dust emissions to a limit of 20 percent opacity. If necessary and where feasible, three-sided barriers shall be constructed around storage piles and/or piles shall be covered by use of tarps, hydro-mulch, woodchips, or other materials sufficient to minimize wind-blown dust. l. Water shall be applied prior to and during the demolition of onsite structures sufficient to minimize wind-blown dust. m. Where acceptable to the fire department, weed control will be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering. n. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or shall maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with California Vehicle Code Section 23114. o. Gravel pads, grizzly strips, or other material track-out control methods approved for use by the Eastern Kern Air Pollution Control District shall be installed where vehicles enter or exit unpaved roads onto paved roadways. p. Haul trucks and off-road equipment leaving the site shall be washed with water or high pressure air and/or use rocks/grates at the Project entry points when necessary to remove soil deposits and to minimize the track-out/deposition of soil onto nearby paved roadways.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		q. Paved road surfaces located adjacent to the site access road(s), including adjoining paved aprons, shall be cleaned as necessary to remove visible accumulations of track-out material. If dry sweepers are used, the area shall be sprayed with water prior to sweeping to minimize the entrainment of dust. Reclaimed water shall be used to the extent available. r. Portable equipment, 50 horsepower or greater, used during construction activities (e.g., portable generators, concrete batch plant) will require California statewide portable equipment registration (issued by the California Air Resources Board) or an Eastern Kern Air Pollution Control District permit. s. The Fugitive Dust Control Plan shall identify a designated person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize the transport of dust offsite and to ensure compliance with identified fugitive dust control measures. Their duty hours shall include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the Eastern Kern Air Pollution Control District Compliance Division prior to the start of any grading, earthwork, or demolition. t. Signs shall be posted at the project site entrance and written notifications shall be provided a minimum of 30 days prior to initiation of project construction to residential land uses located within 1,000 feet of the project site. The signs and written notifications shall include the following information: (1) project name; (2) anticipated construction schedule(s); and (3) telephone number(s) for designated construction activity monitor(s) or, if established, a complaint hotline. u. The designated construction monitor will document and immediately notify Eastern Kern Air Pollution Control District of any air quality complaints received. If necessary, the applicant and/or contractor will coordinate with Eastern Kern Air Pollution Control District to identify any additional feasible measures and/or strategies to be implemented to address public complaints. **MM 4.3-3:** If construction of all Sites (Sites 1 through 5) occur concurrently, the project proponent/operator and/or its contractor(s) shall restrict worker roundtrips to 250 per day per construction activity. Prior to	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		issuance of grading permits, the project proponent/operator and/or its contractor(s) shall prepare a detailed plan for reducing worker trips, including but not limited to worker rideshare programs or other travel demand management strategies. The plan shall be submitted to and approved by the Kern County Planning and Natural Resources Department prior to the issuance of grading permits.	
Impact 4.3-2: The project would expose sensitive receptors to substantial pollutant concentrations.	Potentially significant	Implementation of Mitigation Measures MM 4.1-4 (*Aesthetics*) and MM 4.3-1 through MM 4.3-3 would be required. **MM 4.3-4:** Prior to the issuance of building and grading permits, the project proponent shall submit materials showing the final design plans for a 6-foot tall solid barrier (fence or wall) in the locations shown on **Figure 4.3-2**, *Solid Barrier Location*, to the Kern County Natural Resources Department for review and approval. Any barrier used shall be a natural color, such as light brown, that will blend with the desert environment. White, bright green, blue or other colors will not be accepted. A copy of the final design plans shall also be provided to the California Department of Fish and Wildlife. The approved barrier shall be fully installed prior to the last inspection by Kern County Public Works. No extensions of time for construction installation shall be granted. The applicant shall continuously comply with the following: a. As part of routine maintenance, on-site staff shall monitor the buildup of wind-blown materials around the base of the fence and clear out debris and tumbleweeds on both sides of the barrier on an as-needed basis; and b. The solid barrier shall be maintained during the life of the project in good condition, graffiti free and replaced as needed to remain effective. **MM 4.3-5:** To minimize personnel and public exposure to potential Valley Fever–containing dust on and off site, the following control measures shall be implemented during project construction: a. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved off site to other work locations. b. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground.	Significant and unavoidable

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area. d. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying. e. To the greatest extent feasible, heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system. f. Workers shall receive training in procedures to minimize activities that may result in the release of airborne *Coccidioides immitis* spores, to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days of the training session. g. A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department. h. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health–approved respirators shall be provided to onsite personal, upon request. When exposure to dust is unavoidable, provide appropriate National Institute for Occupational Safety and Health-approved respiratory protection to affected workers. If respiratory protection is deemed necessary, employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144). **MM 4.3-6:** At the time of project implementation, a COVID-19 Health and Safety Plan should be prepared in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. A copy of the COVID-19 Health and Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department for review and approval.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.3-7: Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs.	
Impact 4.3-3: The project would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less than significant	No mitigation would be required.	Less than significant
Cumulative Impacts **Impact 4.3-4:** The project would result in a cumulatively considerable net increase of any criteria pollutant for which the projects' region is nonattainment under applicable federal or State ambient air quality standards.	Potentially significant	Implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7 would be required.	Significant and unavoidable
4.4 Biological Resources			
Impact 4.4-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially significant	Implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6 would be required to reduce potential light and glare impacts that could impact nocturnal wildlife behavior and avian flyovers (see Section 4.1, *Aesthetics*, for full mitigation measure text). **MM 4.4-1:** Prior to the issuance of grading or building permits, the project operator shall retain a Lead Biologist who meets the qualifications of an Authorized Biologist as defined by the United States Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species. The project Lead Biologist shall be on-site during all fencing and ground disturbance activities throughout the construction phase. The project Lead Biologist shall have the right to halt all activities that are in violation of the special-status species protection measures described herein. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. The project Lead Biologist shall have in her/his possession a copy of all the compliance measures while work is being conducted on-site. **MM 4.4-2:** Prior to the issuance of grading or building permits, and for the duration of construction activities, all new construction workers at the project site shall attend a Worker Environmental Awareness Program, developed and presented by the project Lead Biologist. As part of the	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Worker Environmental Awareness Program training, the project Lead Biologist shall perform the following training-related tasks: a. Provide the training materials for Worker Environmental Awareness Program training. These materials shall include the measures and mitigation requirements for protected plant and wildlife species (e.g., avoidance and buffer requirements, nighttime construction limitations); and applicable fire protection measures. Worker Environmental Awareness Program training shall also include driver training to avoid and minimize collision risks with protected species, and reporting protocols in the event that any dead or injured wildlife are discovered. b. Send a copy of all Worker Environmental Awareness Program training materials to the Kern County Planning and Natural Resources Department. c. Maintain a list on-site of all employees who have undergone Worker Environmental Awareness Program training. A copy of this list shall be provided to the Kern County Planning and Natural Resources Department as necessary. **MM 4.4-3:** The Worker Environmental Awareness Program shall be presented by the Lead Biologist and shall include information on the life history of each federal and state-listed species, as well as other special-status wildlife, natural communities, and plant species that may be encountered during construction activities, their legal protections, the definition of "take" under the federal and State Endangered Species Acts, measures the project operator is implementing to protect special-status species, reporting requirements, specific measures that each worker shall employ to avoid take of special-status wildlife species, and penalties for violation of the acts. Training shall be documented as follows: a. An acknowledgement form signed by each worker indicating that environmental training has been completed. b. A sticker that shall be placed on hard hats indicating that the worker has completed the environmental training. Construction workers shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. A copy of the training transcript/training video and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgements forms shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.4-4:** During construction and decommissioning the anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Construction-related activities outside of the impact zone shall be avoided. The construction crews and contractor(s) shall be held responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits. **MM 4.4-5:** New and existing roads that are planned for either construction or widening shall not extend beyond the planned impact area. All vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, a biological resources survey shall be conducted by the Lead Biologist or by biological monitor(s) under the Lead Biologist's supervision to determine if listed or special-status species would be impacted. Impacts shall be avoided to the maximum extent practicable or shall be fully mitigated for. Construction shall not begin until the route is cleared for biological resources. The route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction and use. **MM 4.4-6:** Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas shall be marked to define the limits where stockpiling can occur. Standard best management practices shall be employed to prevent loss of habitat due to erosion caused by project-related impacts (i.e., grading or clearing for new roads). All detected erosion shall be remedied within two days of discovery. **MM 4.4-7:** All ground disturbance construction and decommissioning activities shall be monitored by the qualified Lead Biologist or by biological monitors under the Lead Biologist's supervision to ensure compliance with avoidance and minimization measures.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.4-8: The project operator and/or contractor shall implement the following during project decommissioning: a. All applicable construction phase general protection measures shall be implemented during decommissioning. b. A 25-mile-per-hour speed limit on paved or stabilized unpaved roads shall be applied for travel during decommissioning activities. Travel shall be confined to existing roads and previously disturbed areas. c. If any special-status wildlife is detected in the work area during decommissioning activities, no work shall be conducted until the individual moves on its own outside of the work area. d. Work outside areas with desert tortoise exclusion fencing shall only occur during daylight hours. **MM 4.4-9.** During construction and decommissioning the project operator and/or contractor shall implement the following general avoidance and protective measures: a. Prior to issuance of grading or building permits but after consulting with the California Department of Fish and Wildlife and, obtaining a project Section 2081 permit for incidental take, if required, the entire solar facility project site shall be fenced with a permanent desert tortoise exclusion fence to keep any desert tortoise that may be using habitat adjacent to the facility from entering during construction, operations and maintenance, and dismantling and restoration (decommissioning) phases. The fencing type shall follow current fence specifications established by the United States Fish and Wildlife Service. Desert tortoise-proof gates shall be established at all photovoltaic solar facility entry points. Workers installing the exclusion fencing shall have undergone the worker training program mandated in Mitigation Measure MM 4.4-2 and a biological monitor under the authority of the project Lead Biologist shall be present during exclusion fencing installation. b. The fencing shall be inspected monthly and immediately after all major rainfall events. Any damage to the fencing shall be repaired immediately or no later than 2 days following the observation. c. Following the construction of desert tortoise exclusion fencing, around the solar facility perimeter as described above, clearance surveys shall be conducted by the Lead Biologist to ensure that no	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		desert tortoises or other listed wildlife species are trapped within the fenced area. The Lead Biologist may be assisted by biological monitors under the supervision of the Lead Biologist. Clearance surveys shall adhere to the current United States Fish and Wildlife Service clearance survey protocols described in the Desert Tortoise Field Manual, including a minimum of two clearance passes to be completed after desert tortoise-proof fencing is installed, which shall coincide with heightened desert tortoise activity from late March through May and September through October. d. If a desert tortoise is found on the site during project construction, operations, or decommissioning, active construction or operations shall cease in the vicinity of the animal and the desert tortoise shall be passively restricted to the area encompassing its observed position on the construction site and its point of entry shall be determined if possible. The Lead Biologist shall install a temporary tortoise-proof fence around this area. Concurrent with this effort, United States Fish and Wildlife Service and California Department of Fish and Wildlife shall be consulted regarding any additional avoidance, minimization, or mitigation measures that may be necessary. Once the desert tortoise is observed leaving the site, work in the area can resume. A report shall be prepared by the Lead Biologist to document the activities of the desert tortoise within the site; all fence construction, modification, and repair efforts; and movements of the desert tortoise once again outside the permanent tortoise-proof fence. This report shall be submitted to wildlife and resource agency representatives and the Kern County Planning and Natural Resources Department. e. Outside permanently fenced desert tortoise exclusion areas, the project operator shall limit the areas of disturbance in desert tortoise habitat. Parking areas; new roads; pulling sites; and staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas. f. The Lead Biologist or biological monitor shall monitor any ground-disturbance activities that occur outside the desert tortoise exclusion fencing. Work outside areas with desert tortoise exclusion fencing shall only occur during daylight hours.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.4-10: During construction the project operator and/or contractor shall implement the following general avoidance and protective measures: a. The Lead Biologist or biological monitor shall monitor all ground-disturbance activities. Work shall only occur during daylight hours as practicable. Specialized testing activities and/or continuous operations (i.e. well drilling) may be conducted at night when necessary. Prior to conducting vegetation removal or grading activities inside the fenced area, a Lead Biologist or biological monitor under the supervision of a Lead Biologist shall survey the area immediately prior to conducting these activities to ensure that no listed or special-status animals or plants are present. The project Lead Biologist shall have the right to halt all activities that are in violation of the desert tortoise or other special species protection measures. Work shall proceed only after hazards to desert tortoise or other special species are removed and the species is no longer at risk. The project biologist shall have in her/his possession a copy of all the compliance measures while work is being conducted on-site. b. At the end of each work day, the Lead Biologist shall ensure that all trenches, bores, and other excavations outside the permanently fenced area have been inspected for the presence of desert tortoise and backfilled, if no tortoise is present. If backfilling is not feasible, these excavations shall be modified to ensure that they cannot potentially entrap desert tortoises (e.g., equipped with desert tortoise escape ramps, covered to prevent desert tortoise access, enclosed with a desert tortoise exclusion fence). All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods and with a diameter of four inches or greater shall be thoroughly inspected for listed and special-status wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a special-status animal is discovered inside a pipe that section of pipe shall not be moved until the animal has moved off on its own. If the animal does not move in a timely manner, then the appropriate resource agency shall be consulted. c. Any construction pipe, culvert, or similar structure stored within desert tortoise habitat (i.e., outside areas with desert tortoise exclusion fencing) shall be inspected for desert tortoise before the material is moved, buried, or installed.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		d. Water used for dust abatement shall be minimized, as allowed by Kern County Engineering, Surveying, and Permit Services Department, or managed in such a manner as to prevent the formation of puddles that could attract common ravens, predators, and other wildlife species to or near the site. e. No vehicle or equipment parked outside the fenced areas shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of desert tortoise. If present, the desert tortoise shall be left to move on its own. f. Vehicular traffic to and from the project site shall use existing routes of travel. Cross country vehicle and equipment use outside designated work areas shall be prohibited. Vehicle speeds within the project site shall not exceed 25 miles per hour on roads within desert tortoise habitat. g. All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Lead Biologist shall be informed of any hazardous spills immediately and hazardous spills shall be cleaned up as soon as practical and the contaminated soil shall be properly disposed of at a licensed facility. h. A long-term trash abatement program shall be established for construction, operations, and decommissioning. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. i. Workers shall be prohibited from bringing pets and firearms to the project and from feeding wildlife. j. Intentional killing or collection of either plant or wildlife species, including listed species, in the project site and surrounding areas shall be prohibited. The Lead Biologist, wildlife and resource agency representatives and Kern County Planning and Natural Resources Department shall be notified of any such occurrences within 24 hours. k. Ongoing monitoring shall be conducted by either the Lead Biologist or by biological monitors under the Lead Biologist's supervision. The biological monitors shall have experience in monitoring for special-status wildlife.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		l. During construction, daily monitoring reports shall be prepared by the monitoring biologists. The Lead Biologist shall prepare a summary monitoring report for the wildlife and resource agencies and Kern County Planning and Natural Resources Department on a monthly basis, documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report shall also provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/pre-activity surveys, monitoring activities, and any observed special-status species, including injuries and fatalities. **MM 4.4-11:** The introduction of exotic plant species shall be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources shall include measures such as implementing Trackclean or other method of vehicle cleaning for vehicles coming and going from the site. Earthmoving equipment shall be cleaned prior to transport to the project site. Weed-free rice straw or other certified weed-free straw shall be used for erosion control. Weed populations introduced into the site during construction shall be eliminated by chemical and/or mechanical means approved by California Department of Fish and Wildlife and the United States Fish and Wildlife Service. **MM 4.4-12:** In the event ground disturbance does not commence within two (2) years of the last rare plant surveys, the project operator and/or contractor shall conduct preconstruction special-status plant survey(s) during the appropriate blooming period in accordance with the guidelines established by California Department of Fish and Wildlife (2009). Copies of these preconstruction surveys shall be provided to the appropriate wildlife agency and to the Kern County Planning and Natural Resources Department. If any special-status plant species is found during the preconstruction surveys, the project operator and/or contractor shall delay ground disturbance activities and contact California Department of Fish and Wildlife for consultation. If required, in consultation with California Department of Fish and Wildlife, a Habitat Mitigation Plan shall be prepared that includes, at a minimum, the following:	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. Wherever feasible, if special-status plant species are observed within the proposed project footprint, the proposed project shall be designed by the Lead Biologist, to reduce impacts to the species through the establishment of preservation areas and buffers. If avoidance or minimization measures are implemented on-site, a Habitat Mitigation Plan shall be developed to ensure adequate management and conservation of botanical resources on-site over the long term. A copy of the Habitat Mitigation Plan shall be submitted to the Kern County Planning and Natural Resources Department. b. If the proposed project would eliminate more than 10 percent of a local special-status plant population, the Habitat Mitigation Plan would also include the following: 1. A figure illustrating the area of the population to be preserved, and the area of the population to be removed; 2. Identification of on-site or off-site preservation, restoration, or enhancement location(s); 3. Methods for preservation, restoration, enhancement, and/or population translocation; 4. A replacement ratio and success standard of 1:1 for occupied habitat lost unless a lower mitigation ratio and/or alternative mitigation is agreed to in coordination with California Department of Fish and Wildlife; 5. A five-year monitoring program to ensure mitigation success; 6. Adaptive management and remedial measures in the event that performance standards are not achieved; and 7. Financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity. c. Prior to the commencement of ground disturbance activities, a final set of focused botanical surveys for special-status plant species, including species protected by the California Desert Native Plants Act shall be conducted. The surveys shall be conducted within potentially suitable habitat within the sites and along the utility rights-of-way that would be directly affected, permanently or temporarily, by the proposed project. Copies of all surveys and communications with the	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		appropriate agencies shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.4-13:** Prior to the issuance of grading or building permits, the project operator shall: a. Provide evidence to the Kern County Planning and Natural Resources Department that consultation with the Kern County Agricultural Commissioner has taken place regarding removal of plants protected under the California Desert Native Plants Act; b. If the Agricultural Commissioner determines that a permit is not required, the project operator shall provide a letter describing the consultation process and Commissioner's determinations, indicating that such authorization is not required. The letter shall also identify the Commissioner's points of contact and contact information; c. If required by the Agricultural Commissioner, the project operator shall provide evidence to the Kern County Planning and Natural Resources Department that a California Desert Native Plants Act removal permit has been obtained. **MM 4.4-14:** The following measures shall be implemented to reduce direct impacts to Sensitive Natural Communities. To the extent feasible, the following avoidance and minimization measures shall be implemented: a. Where feasible, the project shall be designed to avoid disturbance of *Atriplex spinifera* shrubland alliance and Joshua tree woodland identified within the project site. b. Where it is not feasible to avoid direct impacts the *Atriplex spinifera* shrubland alliance and Joshua tree woodland identified within the project site, the project operator shall implement the following measures: c. Compensatory mitigation for impacts to Sensitive Natural Communities shall occur either on-site or off-site and would occur at a ratio no less than 1:1 for each Sensitive Natural Community impacted. A Habitat Mitigation and Monitoring Plan shall be prepared that outlines the compensatory mitigation in coordination with the California Department of Fish and Wildlife.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		d. If on-site mitigation is proposed, the Habitat Mitigation and Monitoring Plan shall identify those portions of the site that contain suitable characteristics for restoration or enhancement of sensitive habitat. Determination of mitigation adequacy shall be based on comparison of the restored or enhanced habitat with similar, undisturbed habitat in the vicinity of the development site. If mitigation is implemented off-site, compensatory lands shall contain similar or more well-developed habitat and preferably be located in the vicinity of the site or watershed. Off-site land shall be preserved through a conservation easement and the Plan shall identify an approach for funding assurance for the long-term management of the compensatory land. e. Where direct impacts to Joshua trees are unavoidable, if Joshua tree is listed as a 'candidate,' 'threatened,' or 'endangered' species under the California Endangered Species Act at the time of issuance of a building or grading permit in areas that would involve the removal of western Joshua trees, the project applicant may pursue one of the following mitigation options: 1. The project operator shall provide evidence to the Kern County Planning and Natural Resources Department demonstrating that impacts to western Joshua tree have been mitigated in accordance with Section 2084 of the California Fish and Game Code. 2. Prior to initiating ground- or vegetation-disturbing activities that would result in take of western Joshua tree on the project site, the project operator shall mitigate for permanent impacts to western Joshua tree, should an Incidental Take Permit be required from California Department of Fish and Wildlife, through an approved mitigation bank, in-lieu fee program, or other California Department of Fish and Wildlife-approved process. Compensatory mitigation for permanent impacts to western Joshua tree shall be determined and acquired in consultation with the wildlife or resource agency. Verification of compliance shall be submitted to the Kern County Planning and Natural Resources Department prior to project construction in areas that would involve removal of Joshua trees. As-built development plans shall also be submitted to the California Department of Fish and	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Wildlife within 90 days of completion of construction and ground-disturbing activities. **MM 4.4-15:** The project operator and /or contractor shall implement the following prior to the issuance of grading or building permits: a. Following the construction of exclusion fencing around the solar facility perimeters, clearance surveys shall be conducted by the Lead Biologist to ensure that no desert tortoises, Mohave ground squirrel, or other wildlife are trapped within the fenced area. The Lead Biologist may be assisted by biological monitors under the supervision of the Lead Biologist. Clearance surveys shall adhere to the current United States Fish and Wildlife Service clearance survey protocols described in the Desert Tortoise Field Manual, including a minimum of two clearance passes to be completed after desert tortoise-proof fencing is installed, which shall coincide with heightened desert tortoise activity from late March through May and September through October. b. If a desert tortoise or Mohave ground squirrel is found on the site during project construction, operations, or decommissioning, activity shall cease in the vicinity of the animal. The Lead Biologist shall contact the United States Fish and Wildlife Service and California Department of Fish and Wildlife shall be consulted regarding any additional avoidance, minimization, or mitigation measures that may be necessary. Work shall not resume at the site until both the United States Fish and Wildlife Service and California Department of Fish and Wildlife respond, and all recommended measures are taken. A report shall be prepared by the Lead Biologist to document the activities of the desert tortoise or Mohave ground squirrel within the site; all fence construction, modification, and repair efforts; and movements of the animal once again outside the permanent tortoise-proof fence. This report shall be submitted to wildlife and resource agency representatives and the Kern County Planning and Natural Resources Department. c. Outside permanently fenced desert tortoise exclusion areas, the project operator shall limit the areas of disturbance in desert tortoise and Mohave ground squirrel habitat. Parking areas, new roads, pulling sites, and locations for staging, storage, and excavation shall be confined to the smallest areas possible. These areas shall be flagged,	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and disturbance activities, vehicles, and equipment shall be confined to these flagged areas. **MM 4.4-16:** The measures listed below shall be implemented prior to and during construction, operations, and decommissioning at the project sites. a. The project operator shall mitigate for permanent impacts to suitable desert tortoise and Mohave ground squirrel habitat, should an incidental take permit be required from California Department of Fish and Wildlife, through an approved mitigation bank, or in-lieu fee program. Compensatory mitigation acreage for permanent impacts to western burrowing owl nesting, occupied, and satellite burrows and/or western burrowing owl habitat shall be determined and acquired in consultation with the wildlife or resource agency. Compensatory mitigation lands purchased may provide habitat for all three species, as well as rare plants and State Waters (only if impacted by the project). Verification of compliance shall be submitted to the Kern County Planning and Natural Resources Department. b. Prepare a Habitat Mitigation and Monitoring Plan (if required, should an incidental take permit be required for the project) that outlines all project compensatory mitigation for desert tortoise, western burrowing owl, and Mohave ground squirrel, in coordination with the California Department of Fish and Wildlife and the Regional Water Quality Control Board. 1. Compensatory lands shall be of similar or better quality than habitat lost, and preferably shall be located in the vicinity of the site. 2. Compensatory lands shall be permanently preserved through a conservation easement. 3. The plan shall identify conservation actions to ensure that the compensatory lands are managed to ensure the continued existence of the species. 4. The plan shall identify an approach for funding assurance for the long-term management of the conserved land. **MM 4.4-17:** The following measures shall be implemented during project construction, operations/maintenance, and decommissioning activities with respect to western burrowing owls.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. A project Lead Biologist shall be on-site during all construction activities in potential burrowing owl habitat. A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows no less than 14 days prior to construction and/or prior to desert tortoise exclusion fencing installation. The survey methodology shall be consistent with the methods outlined in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012), and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls (and may be combined with other pre-construction surveys). As burrows are searched, biologists shall also look for signs of American badger and desert kit fox. Copies of the survey results shall be submitted to California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department. b. If no burrowing owls are detected, no further mitigation is necessary. If burrowing owls are detected, no ground-disturbing activities, such as road construction or installation of solar arrays or ancillary facilities, shall be permitted within the distances specified in Table 2 of the Staff Report from an active burrow during the nesting and fledging seasons (April 1 to August 15 and August 16 to October 15, respectively), unless otherwise authorized by California Department of Fish and Wildlife. The specified buffer distance ranges from 656 feet to 1,640 feet, according to the time of year and the level of disturbance. Buffers shall be established in accordance with the table provided in Mitigation Measure MM 4.4-17c), below, and occupied burrows shall not be disturbed during the nesting season unless a qualified biologist approved by California Department of Fish and Wildlife, verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season (April 1 to October 15).	

Table 1-7, continued

<table>
<tr><th>Impact</th><th>Level of Significance before Mitigation</th><th>Mitigation Measures</th><th>Level of Significance after Mitigation</th></tr>
<tr><td></td><td></td><td>
c. During the nonbreeding (winter) season (October 16 to March 31), consistent with the table below (Western Burrowing Owl Burrow Buffers), all ground-disturbing work shall maintain a distance ranging from 164 feet to 1,640 feet from any active burrows depending on the level of disturbance. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be displaced from winter burrows according to recommendations made in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012).

Western Burrowing Owl Burrow Buffers
<table>
<tr><th rowspan="2">Location</th><th rowspan="2">Time of Year</th><th colspan="3">Level of Disturbance (in feet)</th></tr>
<tr><th>Low</th><th>Medium</th><th>High</th></tr>
<tr><td>Nesting Sites</td><td>April 1-Aug 15</td><td>656</td><td>1640</td><td>1640</td></tr>
<tr><td>Nesting Sites</td><td>Aug 16 - Oct 15</td><td>656</td><td>656</td><td>1640</td></tr>
<tr><td>Any occupied burrow</td><td>Oct 16 - Mar 31</td><td>164</td><td>328</td><td>1640</td></tr>
<tr><td colspan="5">Source: California Department of Fish and Game 2012.</td></tr>
</table>
d. Burrowing owls should not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by the Lead Biologist and approved by the applicable local California Department of Fish and Wildlife office and submitted to the Kern County Planning and Natural Resources Department. The plan shall include, at a minimum:

1. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;

2. Type of scope to be used and appropriate timing of scoping to avoid impacts;

3. Occupancy factors to look for and what shall guide determination of vacancy and excavation timing (one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can’t escape i.e., look for sign immediately inside the door).
</td><td></td></tr>
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Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		4. How the burrow(s) shall be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow); 5. Removal of other potential owl burrow surrogates or refugia on-site; and, 6. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency. e. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take; f. How the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete. g. Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows to ensure take is avoided. Conduct daily monitoring for one week to confirm young of the year have fledged if the exclusion shall occur immediately after the end of the breeding season. h. Excluded burrowing owls are documented using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight). i. In accordance with the Burrowing Owl Exclusion Plan, a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or heavy material shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow. Forty-eight hours after the installation of the one-way doors, the doors can be removed, and ground-disturbing activities can proceed. Alternatively, burrows can be filled to prevent reoccupation. j. During construction and decommissioning activities, monthly and final compliance reports shall be provided to California Department	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		of Fish and Wildlife, the Kern County Planning and Natural Resources Department, and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project. **MM 4.4-18:** Should burrowing owls be found on-site: a. Compensatory mitigation for lost breeding and/or wintering habitat shall be implemented off-site in accordance with the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012) and in consultation with California Department of Fish and Wildlife. At a minimum, the following recommendations shall be implemented: 1. Temporarily disturbed habitat shall be restored, if feasible, to pre-project conditions, including de-compacting soil and revegetating. 2. Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis and shall include: 3. Permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. 4. Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a California Department of Fish and Wildlife-approved burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits. b. Develop and implement a mitigation land management plan in accordance with the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012) guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment. 2. Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to CDFW-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed. 3. Mitigation lands should be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present. 4. Consult with the CDFW when determining off-site mitigation acreages. **MM 4.4-19:** Prior to the issuance of grading or building permit the following shall be implemented: a. Preconstruction surveys shall be conducted by a qualified biologist for the presence of desert kit fox and American badger dens prior to installation of desert tortoise exclusion fencing. Copies of the completed surveys shall be submitted to Kern County Planning and Natural Resources Department. b. The survey shall be conducted in areas of suitable habitat for American badger and desert kit fox, which includes fallow agricultural land and scrub habitats. Surveys shall not be conducted for all areas of suitable habitat at one time; they shall be phased so that surveys occur within two weeks prior to disturbance of that portion of the site. If no potential American badger or desert kit fox dens are present, no further mitigation is required. c. If potential dens are observed, the following measures are required to avoid potential adverse effects to American badger and desert kit fox: 1. If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers or foxes from reuse during construction.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		2. Passive relocation shall be prohibited during the pupping season, which is February 15 to June 1 for both species. If the qualified biologist determines that potential dens outside the breeding season may be active, the biologist shall notify the California Department of Fish and Wildlife. Entrances to the dens shall be blocked with soil, sticks, and debris for three to five days to discourage use of these dens prior to project disturbance. The den entrances shall be blocked to an incrementally greater degree over the three- to five-day period. After the qualified biologist determines that badgers and foxes have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction. The collapsing of active desert kit fox dens shall not occur without prior consultation with the CDFW. A biologist shall remain on-call throughout construction in the event that badger or desert kit fox are present on the site. 3. Construction activities shall not occur within 50 feet of active badger dens. The project operator shall contact California Department of Fish and Wildlife immediately if natal badger dens are detected to determine suitable buffers and other measures to avoid take. 4. Construction activities shall not occur within 100 feet of active kit fox dens. The project operator shall contact California Department of Fish and Wildlife immediately if pupping kit fox dens are detected to determine suitable buffers and other measures to avoid take. **MM 4.4-20:** Prior to the issuance of a grading or building permit and prior to decommissioning preconstruction avian nesting surveys shall be implemented as follows: a. Not more than 14 days prior to site clearing and/or ground disturbance, a qualified biologist shall conduct a preconstruction avian nesting survey. Copies of the completed surveys shall be submitted to Kern County Planning and Natural Resources Department. b. Surveys shall not be conducted for an entire project site at one time; they shall be phased so that surveys occur shortly before a portion of the site is disturbed. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		intrusive disturbance. The survey shall cover all reasonably potential nesting locations on and within 300 feet of the project site—this includes ground nesting species. c. If construction is scheduled to occur during the non-nesting season (August 2 to January 31), no preconstruction surveys for birds or additional measures are required. d. If construction begins in the non-breeding season and proceeds continuously into the breeding season, no surveys are required. However, if there is a break of 14 days or more in construction activities during the breeding season, a new nesting bird survey shall be conducted before construction begins again. e. If active nests are found a 250-foot, no-disturbance buffer (or as otherwise determined in consultation with California Department of Fish and Wildlife) shall be created around the active nests. If the nest(s) are found in an area where ground disturbance is scheduled to occur, the project operator shall avoid the area either by delaying ground disturbance in the area until a qualified wildlife biologist has determined that the birds have fledged or by relocating the project component(s) to avoid the area. f. All vertical tubes used in project construction, such as solar mounts and chain link fencing poles shall be temporarily or permanently capped at the time they are installed to avoid the entrapment and death of special-status birds. **MM 4.4-21:** Prior to issuance of a grading or building permit, the project operator shall provide evidence that the following measures shall be implemented with respect to the construction and installation of power lines: a. Construct all power transmission lines to the 2006 Avian Power Line Interaction Committee Guidelines specifications to protect birds from electrocution and collision. Appropriate notes regarding these specifications shall be included on any grading permit, building permit or final map. b. Submit written documentation to the Kern County Planning and Natural Resources Department verifying that all power lines are constructed to Avian Power Line Interaction Committee Guidelines. The project operator shall conform to the latest practices (as outlined	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		in the 2006 Avian Power Line Interaction Committee Guidelines document) to protect birds from electrocution and collision. c. Install power collection and transmission facilities utilizing Avian Power Line Interaction Committee standards for collision reducing techniques as outlined in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee 2006). **MM 4.4-22:** The project operator shall develop a site-specific Common Raven Management Plan in accordance with United States Fish and Wildlife Service guidelines and shall implement management measures for ravens in the project area. These measures may include but are not limited to designing structures to eliminate perches, waste management, road kill management, management of ponded water during construction and operations, and nest removal on structures within the photovoltaic solar facility site and along the transmission line.	
Impact 4.4-2: The project could have a substantial adverse effect on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS.	Potentially significant	Implementation of Mitigation Measure MM 4.4-14 (see Impact 4.4-1, above).	Less than significant
Impact 4.4-3: The project would 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.	Potentially significant	Implementation of Mitigation Measures MM 4.9-1, MM 4.10-1, MM 4.10-2, and MM 4.4-11 (see Section 4.9, *Hazards and Hazardous Materials*, and Section 4.10, *Hydrology and Water Quality*, for full text). **MM 4.4-23:** Prior to issuance of any grading or building permit, the project proponent/operator shall submit a final Jurisdictional Delineation report. A copy of this report shall also be provided to the Lahontan Regional Water Quality Control Board, California Department of Fish and Wildlife, and the County. The report shall include information as shown below as a plan if necessary and shall outline compliance to the following: a. Delineation of all jurisdictional features at the project site. Potential jurisdictional features (ephemeral drainages) within the project boundary identified in the jurisdictional delineation report that are not	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		anticipated to be directly impacted by project related activities shall be avoided. This may be shown in plan form. b. Any material/spoils generated from project activities shall be located away from jurisdictional areas or special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. c. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from the top of bank. d. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed. For all spills, the project foreman or designated environmental representative will be notified. **MM 4.4-24:** Prior to ground disturbance activities that would impact aquatic features, the project proponent/operator shall be subject to provisions as identified below: a. The project proponent/operator shall file a complete Report of Waste Discharge with the Lahontan Regional Water Quality Control Board to obtain Waste Discharge Requirements and shall also consult with California Department of Fish and Wildlife on the need for a streambed alteration agreement. Copies of reports shall be submitted to the County. b. Based on consultation with Lahontan Regional Water Quality Control Board and California Department of Fish and Wildlife, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources. c. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or California Department of Fish and Wildlife, which shall be provided to the County. d. Copies of any coordination, permits, etc., with RWQCB and California Department of Fish and Wildlife shall be provided to the County.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.4-25: The following measures shall be implemented within the project area to ensure that direct or indirect effects to jurisdictional waters are minimized: a. Any laydown areas and/or material and spoils from project activities shall be located away from jurisdictional areas or sensitive habitat and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. b. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakages from contaminating the ground and generally at least 50 feet from the top of bank. c. Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned and any contaminated materials properly dispose of. For all spills the project foreman or designated environmental representative shall be notified. d. All work within the drainages shall be conducted to avoid periods of flowing water. Construction within drainages shall be timed to occur during the dry season (generally April 15 – October 15) and shall avoid periods in the summer when convective thunderstorms are predicted. e. If required, compensatory mitigation for Arizona-style crossings, within waters subject to the jurisdiction of California Department of Fish and Wildlife or the Lahontan Regional Water Quality Control Board, shall occur either on-site or off-site at a ratio no less than 1:1. As outlined in Mitigation Measure MM 4.4-12, if required, a Habitat Mitigation and Monitoring Plan shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and California Department of Fish and Wildlife. f. If mitigation is required and on-site mitigation is proposed, the Habitat Mitigation and Monitoring Plan shall identify those portions of the site that contain suitable characteristics (e.g., hydrology) for restoration or enhancement of desert wash scale broom scrub habitat. Determination of mitigation adequacy shall be based on comparison of the restored or enhanced habitat with similar, undisturbed habitat in the site vicinity (such as up or downstream of the site). If mitigation is implemented off-site, mitigation lands shall be comprised of similar	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		or more well-developed desert wash and preferably be located in the vicinity of the site or watershed. Off-site land shall be preserved through a conservation easement and the Plan shall identify an approach for funding assurance for the long-term management of the conserved land. g. Copies of correspondences and determinations by the Lahontan Regional Water Quality Control Board and California Department of Fish and Wildlife shall be submitted to the Kern County Planning and Natural Resources Department. It is noted that the final mitigation ratio required by the Lahontan Regional Water Quality Control Board and California Department of Fish and Wildlife for acquisition of regulatory permits may differ from that proposed in this environmental impact report.	
Impact 4.4-4: The project would 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 native wildlife nursery sites.	Potentially significant	Implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6, MM 4.4-1 through MM 4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-20, and MM 4.4-22 would be required (see 4.1, *Aesthetics*, for full text).	Less than significant
Impact 4.4-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant	No mitigation would be required	Less than significant
Impact 4.4: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.4-1 through 4.4-25, and MM 4.1-4 through MM 4.1-6 would be required (see Section 4.1, *Aesthetics*, for full text), and MM 4.10-1 through MM 4.10-2 would be required (see Section 4.10 *Hydrology and Water Quality*, for full text).	Significant and unavoidable
4.5 Cultural Resources			
Impact 4.5-1: The project would cause a substantial adverse change in the significance of a historical resource, as defined in *CEQA Guidelines* Section 15064.5.	Potentially significant	**MM 4.5-1:** Prior to issuance of building or grading permits for each of the project Sites 1 through 5 and the Holgate gen-tie route, the project proponent/operator shall: a. Retain a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards as	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		published in Title 36, Code of Federal Regulations, part 61 (36 CFR Part 61) to carry out all mitigation measures related to archaeological and historical resources. b. The services of a qualified archaeological monitor and Native American monitor shall be retained by the project proponent/operator to monitor all ground-disturbing activities associated with the construction of the proposed project. The Native American monitor shall be selected from a list of Native American contacts with traditional ties to the project area, provided by the Native American Heritage Commission and/or consultation with Native American tribal groups who may have interest in the project area. The archaeological monitor shall work under the supervision of the qualified archaeologist. c. The qualified archaeologist, archaeological monitor, and Native American monitor shall be provided all project documentation related to cultural resources prior to commencement of ground disturbance activities. Project documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the qualified archaeologist, archaeological monitor and Native American monitor. **MM 4.5-2:** Prior to the issuance of grading or building permits for each of the project Sites 1 through 5 and the Holgate gen-tie route, and for the duration of construction activities, a Construction Worker Environmental and Cultural Awareness Training Program shall be provided to all new construction workers within one week of employment at the project site, laydown area and/or transmission routes. The training shall be prepared and conducted by the qualified archaeologist and may include participation of the Native American monitor. The training may be in video format. The qualified archaeologist shall be available to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended but must resume when construction activities resume. The training shall include, but not be limited to: a. A discussion of applicable cultural resources statues, regulations and related enforcement provisions;	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		b. An overview of the prehistoric and historic environmental setting and context, as well as current cultural information regarding local tribal groups, provided by the Native American Monitor or tribal leader; c. A summary of the effects of the proposed project on cultural resources; d. Samples or visuals of artifacts that might be found in the project area; e. A discussion of what such artifacts may look like when partially or totally buried and then freshly exposed; f. A discussion of what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction; g. Instruction that in the event cultural resources are unearthed during ground-disturbing activities, the qualified archaeologist, the archaeological monitor and/or Native American monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the site until the qualified archaeologist has evaluated the find, determined whether the find is culturally sensitive, and designs an appropriate short-term and long term treatment plan. The qualified archaeologist, in consultation with the Planning and Natural Resources Department and Native American Monitor shall establish an appropriate protocols and procedures for minimizing impacts during construction and future impacts during project operation and maintenance; h. An informational guide that identifies the reporting procedures in the event of a discovery; i. Other information as deemed necessary by the qualified archaeologist or Native American Monitor; j. An acknowledgement form signed by each working indicating that environmental/ cultural training has been completed. k. A sticker that shall be placed on hard hats indicating that the worker has completed the environmental/ cultural training. Construction workers shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker; l. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.5-3:** Prior to issuance of grading permits for Project Site 4 and the Holgate Substation gen-tie route containing California Register of Historic Resources-eligible-resource Site S-008, and in coordination with the qualified archaeologist, a 100-foot buffer shall be established to avoid Site S-008. the construction zone shall be narrowed or otherwise altered to avoid Site S-008. The area within 100 feet of Site S-008 shall be designated Environmentally Sensitive Area and marked with exclusion markers to ensure avoidance. Protective fencing shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts. In addition, a long-term cultural resources management plan shall be developed for this resource during project construction, in order to minimize future impacts during project operation and maintenance. A copy of the cultural resources management plan shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.5-4** Prior to issuance of grading permits for the Holgate Substation gen-tie route containing California Register of Historic Resources-eligible resource Site S-004, and in coordination with the qualified archaeologist, a 100-foot buffer shall be established to avoid Site S-004. The area within 100 feet of Site S-004 shall be designated Environmentally Sensitive Area and marked with exclusion markers to ensure avoidance. Protective fencing shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts. In addition, a long-term cultural resources management plan shall be developed for this resource during project construction, in order to minimize future impacts during project operation and maintenance. A copy of the cultural resources management plan shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.5-5:** Prior to issuance of grading permits for the Holgate Substation gen-tie route containing California Register of Historic Resources-eligible resource Site S-006, and in coordination with the qualified archaeologist, a 100-foot buffer shall be established to avoid Site S-006. The area within 100 feet of Site S-006 shall be designated Environmentally Sensitive Area and marked with exclusion markers to ensure avoidance. Protective fencing	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts. In addition, a long-term cultural resources management plan shall be developed for this resource during project construction, in order to minimize future impacts during project operation and maintenance. A copy of the cultural resources management plan shall be submitted to the Kern County Planning and Natural Resources Department.. **MM 4.5-6:** In the event archaeological materials are encountered during the course of grading or construction for any project components, the project contractor shall cease all work within 100 feet of the find. The area of the discovery shall be marked off by temporary fencing that encloses a 100-foot radius from the location of discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area and all entrances to the area shall be avoided until the discovery is assessed by a qualified archaeologist meeting Secretary of the Interior standards. Work on the other portions of the project outside of the buffered area may continue during the assessment period. Additionally, the Native American Monitgor shall be contacted regarding any pre-contact and/or post-contact finds and shall be provided information after the qualified archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment. The qualified archaeologist in consultation with the Native American monitor, if appropriate, shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with California Environmental Quality Act Guidelines Section 15126.4(b)(3)(C), if significant pre-contact and/or post-contact cultural resources, as defined by the California Environmental Quality Act, are discovered and avoidance cannot be ensured, the qualified archaeologist shall develop a Monitoring and Treatment Plan, the draft of which shall be provided to the appropriate Native American representatives for review and comment. The qualified archaeologist shall monitor the remainder of the project and implement the Plan accordingly.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The qualified archaeologist, in consultation with a designated Native American monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.	
Impact 4.5-2: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.	Potentially significant	Implement Mitigation Measures MM 4.5-1 through MM 4.5-6 would be required.	Less than significant
Impact 4.5-3: The project would disturb human remains, including those interred outside of formal cemeteries.	Potentially significant	**MM 4.5-7:** If human remains are uncovered during project construction, the project contractor shall immediately halt work and an Environmentally Sensitive Area physical demarcation/barrier shall be constructed. The Kern County Planning and Natural Resources Department shall also be notified of the discovery. The County and the applicant/developer shall then immediately contact the County Coroner evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the California Environmental Quality Act Guidelines. If the County Coroner determines that the remains are Native American, the project operator shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). Per Public Resources Code Section 5097.98, the project operator shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (Public Resources Code Section 5097.98), with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et seq.) directing identification of the next-of-kin will apply. The Most Likely Descendant, identified by the Native American Heritage Commission, shall be allowed, under California Public Resources Code	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		§5097.98(a), to: 1) inspect the site of the discovery; and 2) make determinations as to how the human remains and funerary objects shall be treated and disposed of with appropriate dignity. The Most Likely Descendant, County, and project proponent shall agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes. The Most Likely Descendant shall complete its inspection and make recommendations within 48 hours of the site visit, as required by California Public Resources Code §5097.98. Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code §5097.98 (a) and (b). The Most Likely Descendant in consultation with the project proponent, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All parties shall be aware that the Most Likely Descendant may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The project proponent shall accommodate on-site reburial in a location mutually agreed upon by the parties. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The County Coroner, project proponent, and County shall be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code §6254(r).	
Impact 4.5: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-7 would be required.	Less than significant
4.6 Energy			
Impact 4.6-1: The project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Potentially significant	Implementation of Mitigation Measure MM 4.3-1 (see Section 4.3, *Air Quality*, of this EIR, for full mitigation measure text).	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.6-2: The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.6: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measure MM 4.3-1 would be required (see Section 4.3, *Air Quality*, of this EIR, for full mitigation measure text).	Less than significant
4.7 Geology and Soils			
Impact 4.7-1: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.7-2: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic ground shaking.	Potentially significant	**MM 4.7-1:** Prior to the issuance of building or grading permits for the proposed project, the project proponent/operator shall conduct a final geotechnical study to confirm the findings of the preliminary geotechnical engineering report regarding soil conditions and geologic hazards on the project site. a. The final geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but not limited to the following: 1. Location of fault traces and potential for surface rupture and ground shaking potential; 2. Maximum considered earthquake and associated ground acceleration; 3. Potential for seismically induced liquefaction, landslides, differential settlement, and mudflows; 4. Stability of any existing or proposed cut-and-fill slopes; 5. Collapsible or expansive soils;	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		6. Foundation material type; 7. Potential for wind erosion, water erosion, sedimentation, and flooding; 8. Location and description of unprotected drainage that could be impacted by the proposed development; and, 9. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground and any seismic hazards. b. The project proponent/operator shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The project proponent/operator shall not locate project facilities on or immediately adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate the fault trace(s) to avoid siting improvements on or close to these fault structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed. c. The final geotechnical report shall be submitted for review and approval by the Kern County Department of Public Works. The Kern County Department of Public Works shall evaluate final facility siting design prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. Final design requirements shall also be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design shall be submitted to the Kern County Planning and Natural Resources Department.	
Impact 4.7-3: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: seismic-related ground failure including liquefaction.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.7-4: The project would directly or indirectly cause potential	Less than significant	No mitigation would be required.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
substantial adverse effects, including the risk of loss, injury, or death involving: landslides.			
Impact 4.7-5: The project would result in substantial soil erosion or the loss of topsoil.	Potentially significant	Implementation of Mitigation Measures MM 4.7-1, MM 4.10-1 and MM 4.10-2 would be required (see Section 4.10, *Hydrology and Water Quality*, of this EIR, for full mitigation measure text).	Less than significant
Impact 4.7-6: The project would 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.	Potentially significant	Implementation of Mitigation Measure MM 4.7-1 would be required.	Less than significant
Impact 4.7-7: The project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	Potentially significant	Implementation of Mitigation Measure MM 4.7-1 would be required.	Less than significant
Impact 4.7-8: The project would 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.	Potentially significant	**MM 4.7-2:** Prior to the issuance of any building permit for the operation and maintenance facility, the project operator shall obtain all required permits and approvals from Kern County Environmental Health Services Division and shall implement all required conditions regarding the design and siting of the septic system and leach fields.	Less than significant
Impact 4.7-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially significant	**MM 4.7-3:** Prior to the commencement of ground-disturbing activities, a qualified professional paleontologist shall be retained to prepare and implement a Paleontological Resources Mitigation Plan (PRMP) for the project. A Qualified Paleontologist is an individual who meets the education and professional experience standards as set forth by the Society of Vertebrate Paleontology (SVP) (2010), which recommends the paleontologist shall have at least a master's degree or equivalent work experience in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The PRMP shall describe mitigation recommendations in detail, including paleontological monitoring procedures; communication	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		protocols to be followed in the event that an unanticipated fossil discovery is made during project development; and preparation, curation, and reporting requirements. **MM 4.7-4:** The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards (SVP, 2010), to carry out all mitigation measures related to paleontological resources. a. Prior to the start of any ground disturbing activities, the qualified paleontologist shall prepare a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. b. Paleontological Resources Awareness Training may be conducted in conjunction with other awareness training requirements. c. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources. d. The Paleontological Resources Awareness Training Guides shall be kept onsite and available for all personnel to review and be familiar with as necessary. **MM 4.7-5:** A qualified paleontologist or designated monitor shall be onsite initially to spot-check excavations below a depth of one-foot below the ground surface in a given area. If it is determined that sediments consist of older alluvium, then full-time paleontological monitoring shall ensue. If sediments are determined to consist of Holocene Quaternary alluvium, paleontological monitoring shall be suspended until an excavation depth of five feet below the ground surface is reached in the area.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. The duration and timing of monitoring shall be determined by the qualified paleontologist in consultation with the Kern County Planning and Natural Resources Department and shall be based on a review of geologic maps and grading plans. 1. During the course of monitoring, if the paleontologist can demonstrate based on observations of subsurface conditions that the level of monitoring should be reduced, the paleontologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances, as warranted. b. Paleontological monitoring shall include inspection of exposed rock units during active excavations within sensitive geologic sediments. The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary. c. Following the completion of construction, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources onsite. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, recovery and curation efforts, and the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository such as the Natural History Museum of Los Angeles County. **MM 4.7-6:** If a paleontological resource is found, the project contractor shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials. Accompanying notes, maps, and photographs shall also be filed at the repository.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.7: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.7-1 through MM 4.7-6, MM 4.10-1, and MM 4.10-2 would be required (see Section 4.10, *Hydrology and Water Quality*, of this EIR, for full mitigation measure text).	Less than significant
4.8 Greenhouse Gas Emissions			
Impact 4.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.8-2: The project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.8: Cumulative Impacts	Less than significant	No mitigation would be required.	Less than significant
4.9 Hazards and Hazardous Materials			
Impact 4.9-1: The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Potentially significant	Implementation of Mitigation Measure MM 4.16-1 is required (see Section 4.16, *Utilities and System Services*, for full mitigation measure text). **MM 4.9-1:** During the life of the project, including decommissioning, the project operator shall prepare and maintain a Hazardous Materials Business Plan, as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System at http://cers.calepa.ca.gov/ for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. a. The Hazardous Materials Business Plan shall: 1. Delineate hazardous material and hazardous waste storage areas; 2. Describe proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials;	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		3. Describe methods to be used to avoid spills and minimize impacts in the event of a spill; 4. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; 5. Establish public and agency notification procedures for spills and other emergencies including fires; and 6. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site. b. The project proponent/operator shall provide the Hazardous Materials Business Plan to all contractors working on the project and shall ensure that one copy is available at the project site at all times. c. A copy of the approved Hazardous Materials Business Plan shall be submitted to the Kern County Planning and Natural Resources Department prior to issuance of a building permit.	
Impact 4.9-2: The project would 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.	Potentially significant	Implementation of Mitigation Measures MM 4.9-1 and MM 4.16-1 would be required (see Section 4.16, *Utilities and System Services*, for full mitigation measure text). **MM 4.9-2:** During project construction and operation, the project proponent/operator shall continuously comply with the following: a. The construction contractor or project personnel shall use herbicides that are approved by the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Personnel applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions. c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife. d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		if it is raining at the site, rain is imminent, or the target area has puddles or standing water. e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated. f. A written record of all herbicide applications on the site, including dates and amounts shall be furnished to the Kern County Planning and Natural Resources Department. **MM 4.9-3:** Prior to the issuance of grading permits or commencement of any ground disturbance activities within Site 2, (CUP 1, Map 209-1 and CUP 7, Map 208-6), which contains Historical Target Site PB-9, the project proponent shall prepare and implement a Construction Support Plan to address future ground disturbance on or near Historical Target Site PB-9. A copy of the Construction Support Plan shall be provided to Edwards Airforce Base and the Kern County Planning and Natural Resources Department. Measures identified in the Construction Support Plan shall include, but may not be limited to: a. All site workers shall be given unexploded ordinance awareness training by a U.S. Department of Defense Explosives Safety Board Technical Paper 18 qualified unexploded ordnance technician as part of the safety program. This training shall focus on the munitions items that have previously been identified and associated with the site, including the condition they are likely to be found in. b. Identification of proper notification procedures in the event that munitions are recovered during project ground disturbing activities. In the event a munitions item is recovered, notification procedures identified in the unexploded ordnance awareness training shall be implemented and employees shall "Recognize, Retreat, and Report" the munitions item. The initial report shall be provided to the California Highway Patrol office in Bakersfield, California at phone number (661) 396-6600. The California Highway Patrol shall make notification to the Edwards Air Force Base Explosive Ordnance Disposal unit. c. Any ground disturbance activities occurring within 1,000 feet of the historical PB-9 target shall include construction support by a	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		minimum of two U.S. Department of Defense Explosives Safety Board Technical Paper 18 qualified unexploded ordnance technicians to allow for real-time surveillance of ground disturbing activities and an immediate assessment of anomalous debris. Compliance with this measure shall be verified by the Kern County Planning and Natural Resources Department.	
Impact 4.9-3: The project would emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9-4: The project would 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, create a significant hazard to the public or the environment.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9-5: The project would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9-6: The project would expose people or structures either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Potentially significant	Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).	Less than significant
Impact 4.9: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, MM 4.13-1, and MM 4.16-1 would be required (see Sections 4.13, *Public Services*; 4.16, *Utilities and System Services*, respectively, for full mitigation measure text).	Significant and Unavoidable (for wildfire hazards only)

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.10 Hydrology and Water Quality			
Impact 4.10-1: The project would violate water quality standards or waste discharge requirements, or otherwise degrade surface or groundwater water quality.	Potentially significant	Implementation of Mitigation Measure MM 4.9-1 would be required (see Section 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text). **MM 4.10-1:** Prior to issuance of a grading permit, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) for review and approval by the Regional Water Quality Control Board—Lahontan Region. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving off-site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following: a. Minimization of vegetation removal. b. Implementing sediment controls, including silt fences as necessary. c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas. d. Properly containing and disposing of hazardous materials used for construction on-site. e. Properly covering stockpiled soils to prevent wind erosion. f. Proper protections and containment for fueling and maintenance of equipment and vehicles. g. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter. h. Cleanup of silt and mud on adjacent street due to construction activity. i. Checking all lined and unlined ditches after each rainfall. j. Restore all erosion control devices to working order to the satisfaction of the Lahontan Regional Water Quality Control Board after each rainfall runoff. k. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.10-2: Prior to the issuance of a grading permit, the project proponent/operator shall submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department. The final hydrologic study and drainage plan shall be designed to evaluate and minimize potential increases in runoff from the project site. The final hydrologic study and drainage plan shall include but not be limited to the following: a. Numerical stormwater model for the project site and would evaluate existing and proposed (with project) drainage conditions during storm events ranging up to the 100- year event. b. The study shall consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation. c. The drainage plan would include engineering recommendations to be incorporated into the project and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on-site or off-site. d. The final design of the solar arrays shall include 1-foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar module sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than 1-foot or as required by Kern County's Floodplain Ordinance. e. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code, Kern County Development Standards, Kern County Hydrology Manual and Kern County Floodplain Ordinance, and approved by the Kern County Public Works Department prior to the issuance of grading permits.	
Impact 4.10-2: The project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the	Less than significant	Implementation of Mitigation Measure MM 4.10-2 would be required.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
project may impede sustainable groundwater management of the basin.			
Impact 4.10-3: The project would substantially alter the existing drainage patterns 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 than would result in substantial erosion and/or sedimentation on-site or off-site.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-4: The project would substantially alter the existing drainage patterns 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 that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-5: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-6: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of	Potentially significant	Implementation of Mitigation Measure MM 4.10-2 would be required.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
impervious surfaces, in a manner which would impede or redirect flood flows.			
Impact 4.10-7: The project would result in a flood hazard, tsunami, or seiche zone, that would risk release of pollutants due to project inundation.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.10: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.9-1, MM 4.10-1 and MM 4.10-2 would be required (see 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text).	Less than significant
4.11 Land Use			
Impact 4.11-1: The project would 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.	No Impact	No mitigation would be required	Less than significant
Impact 4.11-2: The project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.11: Cumulative Impacts	Potentially significant	**MM 4.11-1:** Prior to the issuance of any building permit, the project proponent/operator shall provide the Kern County Planning and Natural Resources Department with a Decommissioning Plan for review and approval. The plan shall be carried out by the proposed operator or a County-contracted consulting firm(s) at a cost to be borne by the project proponent/ operator.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. The Decommissioning Plan shall include, but is not limited to, the following: 1. Factor in the cost to remove the solar panels and support structures, replacement of any disturbed soil from the removal of support structures (including all underground equipment), and control of fugitive dust on the remaining undeveloped land. 2. Salvage value for the solar panels and support structures shall be included in the financial assurance calculations. 3. The assumption, when preparing the estimate, is that the project proponent/ operator is incapable of performing the work or has abandoned the solar facility, thereby resulting in the County hiring an independent contractor to perform the decommission work. b. In addition to submittal of a Decommissioning Plan, the project proponent/operator shall post or establish and maintain with the County financial assurances related to the deconstruction of the site as identified on the approved Decommission Plan should at any point in time the project proponent/operator determine it is not in their best interest to operate the facility. The financial assurance required prior to issuance of any building permit shall be established using one of the following: 1. An irrevocable letter of credit; 2. A surety bond; 3. A trust fund in accordance with the approved financial assurances to guarantee the deconstruction work will be completed in accordance with the approved decommissioning plan; or 4. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department. c. The financial assurances documents shall include the following verbiage, including any required verbiage through Kern County Planning and Natural Resources Department's consultation and review with Kern County Counsel:	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Financial institution or Surety Company shall give the County a minimum of 120 days' notice of intent to terminate the letter of credit or bond. 2. Financial assurances shall be reviewed annually by the respective counties or County-contracted consulting firm(s) at a cost to be borne by the project proponent/operator to substantiate those adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved Decommissioning Plan. 3. Should the project proponent/operator deconstruct the site on their own, the County will not pursue forfeiture of the financial assurance. 4. Financial institution or Surety Company shall be licensed to conduct business in the state of California. d. Once deconstruction has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted will be adjusted or returned accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project proponent/operator. e. Should any portion of the solar field not be in operational condition for a consecutive period of twenty-four (24) months, that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project proponent/operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project proponent/operator may provide the County a written request and justification for an extension for an additional twelve (12) months. The Kern County Planning and Natural Resources Department Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance. f. In no case shall a solar field which has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the solar facility was first deemed abandoned. **MM 4.11-2:** Prior to the operation of the solar facility, the operator shall consult with the Department of Defense to identify the appropriate	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Frequency Management Office officials to coordinate the use of telemetry to avoid potential frequency conflicts with military operations.	
4.12 Noise			
Impact 4.12-1: The project would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Potentially significant	**MM 4.12-1:** To reduce temporary construction-related noise impacts, the following shall be implemented by the project proponent/operator: a. In the event a noise-sensitive receptor is located within 1,000 feet of the project site: 1. Equipment staging and laydown areas shall be located at the furthest practical distance from nearby residential land uses. To the extent possible, staging and laydown areas should be located at least 500 feet of existing residential dwellings. 2. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise-sensitive receptor, where feasible. b. Haul trucks shall not be allowed to idle for periods greater than five minutes, except as needed to perform a specified function (e.g., concrete mixing). c. Construction equipment shall be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer. On-site vehicle speeds shall be limited to 15 miles per hour, or less (except in cases of emergency). d. Back-up beepers for all construction equipment and vehicles shall be broadband sound alarms or adjusted to the lowest noise levels possible, provided that the Occupational Safety and Health Administration and California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters shall be employed. e. The construction contractor shall establish a Noise Disturbance Coordinator for the proposed project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground disturbing activities. f. During all construction or decommissioning phases of the proposed project, the construction contractor shall limit all onsite noise-producing activities to the hours of 6:00 a.m. to 9:00 p.m., Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturdays and Sunday or as required through the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36.020). g. If construction-related activities must occur outside of permitted hours per Section 8.36.020 of the Kern County Code, the project proponent/operator shall obtain approval from the development services agency director or designated representative for project construction activities occurring between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, within 1,000 feet of an occupied residential building, if audible to a person with average hearing ability at a distance of 150 feet from a construction site. If construction activity is proposed outside of permitted hours, the project proponent/operator shall implement a noise control plan including appropriate noise-reduction measures to the satisfaction of the development services agency director or designated representative, which may include the measures listed above. In addition, the noise control plan may include a requirement to restrict the duration of construction activities outside of permitted hours within 1,000 feet of an occupied residential building. **MM 4.12-2:** The construction contractor shall establish a Noise Disturbance Coordinator for the project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground disturbing activities.	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.12-3: Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), the project proponent/operator shall provide written notice to the public through mailing a notice, which shall include: a. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include the construction schedule and a telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator. b. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site, or adjacent to the nearest public access to the main construction entrance, throughout construction activities that shall provide the construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator. c. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department. **MM 4.12-4:** Adequate noise shielding shall be provided to the project's onsite transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.	
Impact 4.12-2: The project would generate excessive groundborne vibration or groundborne noise levels.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.12-3: The project would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	Less Than Significant	Mitigation Measure MM 4.12-4 would be required.	Less Than Significant
Impact 4.12: Cumulative Impacts	Potentially significant	Mitigation Measures MM 4.12-1 through MM 4.12-4 would be required.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.13 Public Services			
Impact 4.13-1: The project would result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services, law enforcement protection and law enforcement services, schools, parks, or other public facilities.	Potentially significant	**MM 4.13-1:** Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following: a. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order. b. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition. c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. e. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. f. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel. **MM 4.13-2:** The following Cumulative Impact Charge (CIC) shall be implemented as payment on approved Conditional Use Permit acreage. a. Submittal of Building Permit and Phasing	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Any building permit submitted shall be accompanied by a map and legal description showing a defined phase for which permits are being requested. All phases shall be numbered sequentially for identification. 2. The map for either the total project or a phase shall calculate the Cumulative Impact Charge (CIC) net acreage as follows: A. Total gross acreage (Phase) B. Total acres for Operations and Maintenance building permanent accessory improvements C. Total acres for Energy Storage structure and permanent accessory improvements D. Total acres of recorded easements 3. Formula: Net Acreage = (2)A minus the sum of [(2)B+(2)C+(2)D]. 4. Temporary storage areas or non-permanent commercial coaches or cargo containers for construction or operations are not eligible for inclusion under (2)B or (2)C above. 5. All areas of buildings, accessory improvements and easement used in the calculations shall be shown on the submitted Phase Map. 6. Any property included in the approved Conditional Use Permit that is not included in a phase must be included in the last phase or a formal modification processed to remove it from the Conditional Use Permit. b. Calculation and Payment of Cumulative Impact Charge (CIC) 1. A payment of $620 per net acre for the map shown with the building permit submittal shall be paid upon issuance of the first building permit. If it is not paid within 30 days after the issuance of the first building permit for the phase regardless of the total number of building permits or type of building permit issued, all such permits shall be suspended until the fee is paid in full. 2. Payments shall be made to the Planning and Natural Resources Department for transfer directly to the County Administrative	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Office Fiscal Division (CAO) and labeled Cumulative Impact Charge (CIC) with the project name and phase number. 3. Any acres denoted for an operation and maintenance building or energy storage that are not built, cannot be used for solar panels unless payment is provided for the Cumulative Impact Charge (CIC). **MM 4.13-3:** Written verification of ownership of the project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then a Supplemental Cumulative Impact Charge (SCIC) shall be paid for the difference annually up to $3,00 per megawatt. The SCIC payments shall be made annually directly to the County Administrative Office Fiscal Division (CAO) and labeled "Supplemental Cumulative Impact Charge (SCIC)" with the project name and phase number. **MM 4.13-4:** The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes. **MM 4.13-5:** Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. The project operator shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs, notifying the training	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		programs of job availability, all in conjunction with normal hiring practices of the contractor.	
Impact 4.13: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.13-1 through MM 4.13-5 would be required.	Less than significant
4.14 Transportation			
Impact 4.14-1: The project would conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, as follows: Kern County General Plan LOS "D."	Less than significant	No mitigation would be required	Less than significant
Impact 4.14-2: The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).	Less than significant	No mitigation would be required.	Less than significant
Impact 4.14-3: The project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Potentially significant	**MM 4.14-1:** Prior to the issuance of construction or building permits, the project proponent/operator shall: a. Obtain all necessary encroachment permits for work within the road right-of-way or use of oversized/overweight vehicles that will utilize County-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved Construction Traffic Control Plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department and the Kern County Public Works Department Development Review, prior to the commencement of construction or decommissioning activities. b. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the State and/or Kern County. c. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 9, as appropriate, for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues: 1. Timing of deliveries of heavy equipment and building materials; 2. Directing construction traffic with a flag person; 3. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic; 4. Ensuring access for emergency vehicles to the project site; 5. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections; 6. Maintaining access to adjacent property; and, 7. Specifying both construction-related vehicle travel and oversize load haul routes, minimizing construction traffic during the AM and PM peak hours, distributing construction traffic flow across alternative routes to access the project sites, and avoiding residential neighborhoods to the maximum extent feasible. d. Institute construction work hours as necessary, such that the arrival and/or departure times of workers would be staggered as necessary. e. Identifying vehicle safety procedures for entering and exiting site access roads. f. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-County maintained roads that may result from construction activities. The project proponent/operator shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department Development Review and the Kern County Planning and Natural Resources Department. g. Within 30 days of completion of construction, the project proponent/operator shall submit a post-construction video log and inspection report to the County. This information shall be submitted in electronic format. The County, in consultation with the project	

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		proponent/operator's engineer, shall determine the extent of remediation required, if any.	
Impact 4.14-4: The project would result in inadequate emergency access.	Potentially significant	Implementation of Mitigation Measure MM 4.14-1 would be required.	Less than significant
Impact 4.14: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measure MM 4.14-1 would be required.	Less than significant
4.15 Tribal Cultural Resources			
Impact 4.15-1a: The project would 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 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).	Potentially significant	Implement Mitigation Measures MM 4.5-1 to MM 4.5-2 and MM 4.5-6 to MM 4.5-7 (refer to 4.5, *Cultural Resources*, for full mitigation measure text). **MM 4.15-1:** During project ground-disturbing activities on project Sites 1 through 5 and the Holgate gen-tie route, the project proponent shall contact the appropriate Native American representatives in the event of any pre-contact and/or post-contact cultural resources discovered during project implementation, and shall provide information regarding the nature of the find so as to allow for Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by the California Environmental Quality Act (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the contracted project archaeologist, in coordination with the appropriate Native American representatives and all subsequent finds shall be subject to the Plan. The Plan shall allow for a monitor to be present that represents the appropriate Native American representatives for the remainder of the project construction phase, should the appropriate Native American representatives elect to place a monitor on-site. **MM 4.15-2:** During and subsequent to the project construction phase, any and all archaeological/cultural documents created as a part of the project (i.e., isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the County, acting as the lead agency, for dissemination to the appropriate Native American representatives. The County shall, in good faith, consult with the appropriate Native American representatives throughout the life of the project.	Less than significant
Impact 4.15-1b: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2 and MM 4.5-6 to MM 4.5-7 would be required (see 4.5, *Cultural Resources*, for full mitigation measure text), and MM 4.15-1 to MM 4.15-2..	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
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 that is 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.			
Impact 4.15: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7 would be required (see 4.5, *Cultural Resources*, for full mitigation measure text), and MM 4.15-1 to MM 4.15-2..	Less than significant
4.16 Utilities and Service Systems			
Impact 4.16-1: The project would 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.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).	Less than significant
Impact 4.16-2: The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.	Less than significant	No mitigation would be required.	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.16-3: The project would 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.	Potentially significant	**MM 4.16-1:** During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible. The provisions listed below shall apply to the project. a. An onsite Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance and Decommissioning, Trash Abatement and Pest Management Program. b. The Recycling Coordinator shall facilitate recycling of all construction waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. c. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal d. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits. e. The project proponent/operator shall provide a storage area for recyclable materials within the fenced project area that is clearly identified for recycling. This area shall be maintained on the site during construction, operations and decommissioning. A site plan showing the recycling storage area shall be submitted prior to the issuance of any grading or building permit for the site.	Less than significant
Impact 4.16-4: The project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste.	Potentially significant	Implementation of Mitigation Measure MM 4.16-1 would be required.	Less than significant
Impact 4.16: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.10-1, MM 4.10-2, and MM 4.16-1 would be required (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).	Less than significant

Table 1-7, continued

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.17 Wildfire			
Impact 4.17-1: The project would substantially impair an adopted emergency response plan or emergency evacuation plan.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.17-2: The project would, 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.	Potentially significant	Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).	Less than significant
Impact 4.17-3: The project would 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.	Potentially significant	Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).	Less than significant
Impact 4.17: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).	Significant and unavoidable

Chapter 2
Introduction

2.1 Intent of the California Environmental Quality Act

The Kern County Planning and Natural Resources Department, as lead agency, has determined that an EIR must be prepared for the proposed Aratina Solar Project (project). The project proponent proposes to develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 530 megawatts (MW) of renewable energy on approximately 2,317 acres of privately owned land. The project site consists of five sites (Sites 1 through 5) located on 22 parcels. The project would be supported by a 230 kV overhead and/or underground electrical transmission line(s) (gen-ties) originating from one or more on-site substations and terminating at Southern California Edison's Holgate Substation. Alternatively, the proposed project may transmit its power to the Kramer Substation located in San Bernardino County, via a transmission line located within an Edwards Air Force Base utility corridor. The project's permanent facilities would include service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, project substations, inverter stations, energy storage system(s) (with up to 600 MW capacity), and operations and maintenance (O&M) facilities.

The project would require approval of General Plan Amendments to the Circulation Element of the Kern County General Plan; changes in Zone Classifications for the project site from A-1 (Limited Agriculture), M-1 (Light Industrial), and R-1 (Low-Density Residential) to A (Exclusive Agriculture); and multiple Conditional Use Permits (CUPs) to allow for the construction and operation of a solar energy electrical facility and battery energy storage system. The project is described in detail in Chapter 3, *Project Description*.

This EIR has been prepared pursuant to the following:

- CEQA (Public Resources Code, Section 21000 et seq.);
- *CEQA Guidelines* (California Code of Regulations [CCR], Title 14, Chapter 3, Section 15000 et seq.); and,
- Kern County CEQA Implementation Document

The overall purpose of the CEQA process is to:

- Identify the significant effects to the environment of a project, identify alternatives and indicate the manner in which those significant effects can be avoided or mitigated;
- Provide for full disclosure of the project's environmental effects to the public, the agency decision-makers who will approve or deny the project, and responsible and trustee agencies charged with managing resources (e.g., wildlife, air quality) that may be affected by the project; and,
- Provide a forum for public participation in the decision-making process with respect to environmental effects.

2.2 Purpose of this Environmental Impact Report

An EIR is a public informational document used in the planning and decision-making process. The Kern County Planning Commission and Board of Supervisors will consider the information in the EIR, including the public comments and staff response to those comments, during the public hearing process. As a legislative action, the final decision is made by the Board of Supervisors, who may approve, conditionally approve, or deny the project. The purpose of an EIR is to identify:

- The significant potential impacts of the proposed project on the environment and indicate the manner in which those significant impacts can be avoided or mitigated;
- Any unavoidable adverse impacts that cannot be mitigated; and
- Reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less than significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of the project when taken into consideration with past, present, and reasonably anticipated future projects.

CEQA requires that an EIR reflect the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. An EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of an EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting mitigation measures and alternatives capable of avoiding or reducing the significant effects of the project, while still attaining most of the basic objectives of the project.

Issues to be Resolved

Section 15123(b) (3) of the *CEQA Guidelines* requires that an EIR contain issues to be resolved, which includes the choices among alternatives and whether or how to mitigate significant impacts. The major issues to be resolved for the proposed project are to:

- Determine whether the EIR adequately describes the environmental impacts of the project;
- Identify preferred choice among alternatives;
- Determine whether the recommended mitigation measures should be adopted or modified; and
- Determine whether additional mitigation measures need to be applied to the proposed project.

2.3 Terminology

To assist reviewers in understanding this EIR, the following terms are defined:

- *Project* means the whole of an action that has the potential for resulting in a physical change in the environment, directly or indirectly.
- *Environment* refers to the physical conditions that exist in the area and that would be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of

historical or aesthetic significance. The area involved is where significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and man-made (artificial) conditions.

- *Impacts* analyzed under CEQA must be related to a physical change. Impacts are:
  - Direct or primary impacts that would be caused by the proposed project and would occur at the same time and place; or
  - Indirect or secondary impacts that would be caused by the proposed project and would be later in time or farther removed in distance, but would still be reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use; population density or growth rate; and related effects on air and water and other natural systems, including ecosystems.
- *Significant impact on the environment* means a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. An economic or social change by itself is not considered a significant impact on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
- *Mitigation* consists of measures that avoid or substantially reduce the proposed project's significant environmental impacts by:
  - Avoiding the impact altogether by not taking a certain action or parts of an action;
  - Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
  - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
  - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
  - Compensating for the impact by replacing or providing substitute resources or environments.
- *Cumulative impacts* are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The following statements also apply when considering cumulative impacts:
  - The individual impacts may be changes resulting from a single project or separate projects.
  - The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over time.

This EIR uses a variety of terms to describe the level of significance of adverse impacts. These terms are defined as follows:

- *Less than significant.* An impact that is adverse but that does not exceed the defined thresholds of significance. Less than significant impacts do not require mitigation.
- *Significant.* An impact that exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less than significant level.

- *Significant and unavoidable.* An impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less than significant level through the implementation of mitigation measures.

2.4 Decision-Making Process

CEQA requires lead agencies to solicit and consider input from other interested agencies, citizen groups, and individual members of the public. CEQA also requires the project to be monitored after it has been permitted to ensure that mitigation measures are carried out.

CEQA requires the lead agency to provide the public with a full disclosure of the expected environmental consequences of the proposed project and with an opportunity to provide comments. In accordance with CEQA, the following is the process for public participation in the decision-making process:

- **Notice of Preparation (NOP)/Initial Study (IS).** Kern County prepared and circulated an IS/NOP for a minimum of 30 days to responsible, trustee, and local agencies for review and comment beginning on August 14, 2020 and ending on September 14, 2020. Subsequently, a change was made to the project boundary to reduce development by 15 percent and distance the proposed improvements from nearby residential uses. A revised IS/NOP was therefore prepared to reflect such changes and was circulated for a minimum 30-day period from February 26, 2021 to March 29, 2021.

- **Draft EIR Preparation.** A Draft EIR is prepared, incorporating public and agency responses to the IS/NOP and the scoping process. The Draft EIR is circulated for review and comment to appropriate agencies and additional individuals and interest groups who have requested to be notified of EIR projects. Per Section 15105 of the *CEQA Guidelines*, Kern County will provide for a 45-day public review period on the Draft EIR. Kern County will subsequently respond to each comment on the Draft EIR received in writing through a Response to Comments chapter in the Final EIR. The Response to Comments will be provided to each agency or person who provided written comments on the EIR a minimum of 10 business days before the scheduled Planning Commission hearing on the Final EIR and project.

- **Preparation and Certification of Final EIR.** The Kern County Planning Commission will consider the Final EIR and the project, acting in an advisory capacity to the Kern County Board of Supervisors. Upon receipt of the Planning Commission's recommendation, the Board of Supervisors will also consider the Final EIR, all public comments, and take final action on the project. At least one public hearing will be held by both the Planning Commission and Board of Supervisors to consider the Final EIR, take public testimony, and then approve, conditionally approve, or deny the project.

Initial Study/Notice of Preparation

Pursuant to Section 15082 of the *CEQA Guidelines*, as amended, the Kern County Planning and Natural Resources Department circulated an IS/NOP to the State Clearinghouse, public agencies, special districts, and members of the public for a minimum 30-day period from August 14, 2020 to September 14, 2020 for the project as initially designed, and from February 26, 2021 to March 29, 2021 for the revised project design (currently the "proposed project"). The IS/NOP was also posted in the Kern County Clerk's office for 30 days and sent to the State Clearinghouse at the Governor's Office of Planning and Research during both public review periods to solicit statewide agency participation in determining the scope of the EIR.

The purpose of the IS/NOP is to formally convey that the Kern County Planning and Natural Resources Department, as the lead agency, solicited input regarding the scope and proposed content of the EIR. The IS/NOP and all comment letters are provided in Appendix A of this EIR.

Scoping Meeting

Pursuant to Section 15082 (c)(1) of the *CEQA Guidelines*, for projects of statewide, regional, or area-wide significance, the lead agency is required to conduct at least one scoping meeting. The scoping meeting is for jurisdictional agencies and interested persons or groups to provide comments regarding, but not limited to, the range of actions, alternatives, mitigation measures, and environmental effects to be analyzed. Kern County hosted a virtual scoping meeting on Friday, September 4, 2020 at 1:30 p.m. relative to the initial IS/NOP, and a subsequent virtual scoping meeting on Friday, March 19, 2021 at 1:30 p.m. relative to the IS/NOP for the project as currently designed. Both virtual meetings were facilitated using the Microsoft Teams online application.

Initial Study/Notice of Preparation and Scoping Meeting Results

Verbal comments were received at the September 4, 2020 public scoping meeting from one individual, Ronald Austin. Mr. Austin expressed concern regarding the project location near Boron; heights of solar panels; potential for glare impacts for military aircraft; property values; construction air quality impacts and mitigation measures; environmental justice; and noticing of the IS/NOP. A more detailed account of the scoping meeting is provided in Appendix A, in the Summary of Proceedings from the Scoping Meeting.

Verbal comments were also received at the March 19, 2021 public scoping meeting from Mr. Thomas Barhs. Mr. Barhs inquired as to local benefits of the project; potential hazards or risks resulting with the energy produced; fencing options (versus fencing with barbed wire) for aesthetic purposes where the project boundaries are adjacent to residences; opportunities for local employment; and potential for energy generated off-site to be sent to the site for sale. An additional attendee (anonymous) inquired as to whether the project applicant had previously developed similar solar projects in Kern County. A more detailed account of the scoping meeting is provided in Appendix A, in the Summary of Proceedings from the Scoping Meeting.

Initial Study/Notice of Preparation Written Comments

The following specific environmental concerns listed in **Table 2-1**, *Summary of Public Comments Received on the Initial Study/Notice of Preparation Circulated August 14, 2020 to September 14, 2020*, were received in writing by the County in response to the IS/NOP public review period commencing on August 14, 2020 and ending on September 14, 2020. Additionally, **Table 2-2**, *Summary of Public Comments Received on the Initial Study/Notice of Preparation Subsequent to the August 14, 2020 to September 14, 2020 Public Notice Period*, provides a summary of comment letters that were received in writing by the County in response to this same IS/NOP public review period, but were received after the close of the comment period.

Additionally, environmental concerns listed in **Table 2-3**, *Summary of Public Comments Received on the Initial Study/Notice of Preparation Circulated February 26, 2021 to March 29, 2021,* were received in writing by the County in response to the IS/NOP public review period commencing on February 26, 2021 and ending on March 29, 2021.

All comments relative to CEQA that were received during public review of either document (if still relevant to the current project design), including those comments received outside of the public comment period, will be considered by the County in preparation of the EIR. Refer also to Appendix A for a copy of all comments received during the second public review periods.

Table 2-1. Summary of Public Comments Received on the Initial Study/Notice of Preparation Circulated August 14, 2020 to September 14, 2020

Commenter/Date	Summary of Comment
State Agencies	
Antelope Valley - East Kern Water Agency September 14, 2020	The commenter indicates that it is a water purveyor to the Antelope Valley and East Kern County, supplying water from the California Water Project and transmitting it through a distribution system covering a 2,400 square mile service area. Further, the commenter requests further information concerning protections of its pipelines during construction and operations located in the following areas: 1) There is AVEK property and a pipeline on the north side of Site 5, along Hampton Road and on the east side of Site 2, along S. Wesley Street; 2) AVEK maintains a permanent easement along the eastern boundary of Site 1, where there is a 10-inch underground water transmission pipeline.
California Department of Transportation District 9 August 31, 2020	The commenter states that the EIR's evaluation of potential impacts on the roadway system from construction-related trips should address the need for a traffic management plan and the adequacy of the Gephart Road/SR 58 and Borax Road/SR 58 interchanges for geometrics, queueing, and structural integrity, at a minimum. No direct access to SR 58 would be allowed, even for temporary access. The commenter states that details concerning gen-tie crossings of SR 58 (as required for Site 4 of the proposed project) can be found in Section 600 Utility Permits of the Encroachment Permit Manual.
Lahontan Regional Water Quality Control Board August 28, 2020	The commenter suggests the applicant consider design alternatives that are compatible with low-impact development (LID). These alternatives include maintaining natural drainage paths and landscape features; managing runoff as close to the source as possible; and maintaining vegetated areas for stormwater management and on-site filtration. The commenter also recommends that natural drainage channels and flow paths be maintained throughout the project site. The commenter further recommends that the project incorporate stormwater control measures that are compatible with LID such as bioretention swales, pervious pavement, and vegetated infiltration basins. The commenter states that the environmental document should include a mitigation measure that requires the preparation and implementation of a comprehensive Spill Prevention and Response Plan, which outlines the site-specific monitoring requirements and lists the best management practices (BMPs) necessary to prevent hazardous material spills or to contain and cleanup a hazardous spill should one occur. The commenter recommends that the proposed project identify and list the beneficial uses of all water resources within the project area, such as the Antelope Hydrologic Unit and Antelope Valley Groundwater Basin. The commenter states that all excess soil excavated as part of the project that is not used on-site should be stockpiled in an upland location with an adequate combination of sediment and erosion control BMPs until the soil can be reused or permanently stabilized.

Table 2-1, continued

Commenter/Date	Summary of Comment
	The commenter states the project has the potential to impact waters of the State and that required permits may include the following: • Clean Water Act (CWA) 402(p) stormwater permit, including a National Pollution Discharge Elimination System (NPDES) General Construction Storm Water permit (General Permit); • CWA Section 401 water quality certification for impacts to federal waters or dredge and fill waste discharge requirements for impacts to non-federal waters.
Local Agencies	
Kern County Public Works Department, Floodplain Management Section August 18, 2020	The commenter states that stormwater runoff from the site will be increased due to impervious surfaces generated by the proposed development and the project site being subject to flooding. The commenter recommends that the following are included as conditions of approval for the project: • The applicant shall provide a plan for the disposal of drainage waters originating on-site and from adjacent road rights-of-way (if required), subject to approval of the Kern County Public Works Department. • Associated flood hazard requirements should be incorporated into the project design per the Kern County Floodplain Management Ordinance.
Kern County Public Health Services – Environmental Health September 2, 2020	The commenter states that an account on the California Environmental Reporting System should be created; that the method of water supply and sewage disposal for the proposed project should be approved by the Kern County Environmental Health Division; and that if any abandoned wells are found during the grading and construction process, the applicant shall contact the Kern County Land and Water Division for permitting and destruction procedures.
Kern County Superintendent of Schools September 9, 2020	The commenter states that the proposed project would not result in a significant impact to schools or district facilities so long as statutory school facilities fees, if any, are collected as required by law and that no further mitigation measures regarding school facilities are necessary.
Kern County Fire Department September 9, 2020	The commenter states that the KCFD will need to conduct a plan review prior to project construction and that the project must meet requirements set forth in KCFD Solar Panel Standard #503-507. Additionally, all stationary energy storage systems must be applied for directly with KCFD for separate permitting and preconstruction approval.
Interested Parties	
Ron Austin August 19, 2020	The commenter states that he did not receive notice for the proposed project even though he lives within 1,000 feet of the project site and owns APN 231-351-09.
Pacific Gas and Electric (PG&E) Company August 31, 2020	The commenter states that a plan review process does not replace an application process for gas or electric service. The commenter requests that, if this project is part of a larger project, the entire scope of the project be submitted. The commenter states that an engineering deposit may be required for project plan review. Additionally, any proposed uses within the PG&E fee strip and/or easement may include a California Public Utilities Commission (CPUC) Section 851 filing.

Table 2-1, continued

Commenter/Date	Summary of Comment
Kern Audubon Society September 1, 2020	The commenter states that the proposed project may have impacts on the desert cymopterus (*Cymopterus deserticola*) which is ranked by the California Native Plant Society (CNPS) as extremely rare and has been identified on Edwards Air Force Base to the south of the project site. The commenter requests that the EIR identify and evaluate potential adverse impacts to protected species that may utilize the desert saltbush scrub areas that exist in the project site. The undeveloped areas in the project site, such as the saltbush scrub, have potential to support desert kit fox, American badger, western burrowing owl, Swainson's hawk, Mohave ground squirrel, and desert tortoise. The commenter states that a biological site evaluation should be done by a qualified biological consultant using appropriate protocols and performed during the appropriate time of year to discern species presence. The commenter also stated the opinion that such evaluation should incorporate the project's potential to enhance and support raven populations that depredate the endangered desert tortoise.
Defenders of Wildlife and Desert Tortoise Council September 3, 2020	The commenters state that the proposed project is within the range of desert tortoise and is specifically within the Western Mojave Recovery Unit under the Revised Recovery Plan for the Mojave Population of the Desert Tortoise. The commenters further state that the project site is located within a habitat linkage for the desert tortoise that connects populations in the Fremont-Kramer and Superior Cronese Critical Habitat Units. The commenters recommend that a U.S Fish and Wildlife standards-based survey for the desert tortoise be performed and if the species is observed on or adjacent to the project site based on the survey, the Project applicant should be advised to apply for and obtain an incidental take permit from the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (CDFW) as soon as possible. In addition, if the species occurs on or adjacent to the site, measures to avoid, minimize, or compensate for unavoidable impacts should be incorporated into the EIR. The commenters state that the project site is located within a portion of the Desert Linkage Network, which is associated with the Mohave ground squirrel. The commenters recommend that the EIR address the impacts of the project on the Mohave ground squirrel, including on its populations and habitat linkages. They further recommend that should the species be considered present and the project applicant be required to obtain incidental take permits from the Region 4 CDFW office. The commenters anticipate that these take permits will include terms and conditions to avoid, minimize, or mitigate impacts and that mitigation will require acquisition and permanent protection of private land habitat occupied by the species for adverse impacts that cannot be avoided. If the species is not assumed present, the commenters recommend protocol-level surveys to be performed to ascertain absence of the species.
Debora Ephriam September 4, 2020	The commenter requests information on when further communication regarding this project will be sent; whether any residents will have to move from their homes; how long this project has been in development; and whether the project will add significant employment to the area.
Deburah Brown September 10, 2020	The commenter states opposition to the proposed project due to its potential effects on the community of Boron, stating the project will make the area less desirable as well as causing Boron to be "landlocked." The commenter further states that there are other locations in the area that could be used.

Table 2-1, continued

Commenter/Date	Summary of Comment
David Eyre September 13, 2020	The commenter states general opposition to the project and states the opinion that project implementation would result in the destruction of habitat for wildflowers.
Basin and Range Watch September 14, 2020	The commenter expresses concern about the project's impacts on fugitive dust emissions, avian mortality, biological resource impacts, aesthetic impacts, the necessity of the project, and the alternatives to the project. The commenter requests a complete evaluation of the impacts to state and federally designated sensitive species as well as the development of a desert tortoise mitigation plan. The commenter supports the No Project Alternative.
James Hanson September 14, 2020	The commenter expresses opposition to the project and requests setbacks from residences, an establishment of a fund for local schools using solar development revenue, and no grading of construction sites.
Tena Hanson September 14, 2020	The commenter expresses opposition to the project and requests setbacks from residences, an establishment of a fund for local schools using solar development revenue, and no grading of construction sites.
Charles Kennedy September 14, 2020	The commenter expresses opposition to the project and requests setbacks from residences, an establishment of a fund for local schools using solar development revenue, and no grading of construction sites.
Melba Kennedy September 14, 2020	The commenter expresses opposition to the project and requests setbacks from residences, an establishment of a fund for local schools using solar development revenue, and no grading of construction sites.
Joyce Nash September 14, 2020	The commenter expresses general opposition to the project and asks that setbacks be considered, and no grading of construction sites occurs.
Roger Sowersby September 14, 2020	The commenter states that notice should have been sent to more local residents and that the proposed project will have aesthetic and traffic impacts.
Patricia Eyre September 15, 2020	The commenter states the opinion that potential flooding is an issue to be considered and that project-related construction traffic would worsen road conditions in the area. The commenter states that the project would impact property values in the area. The commenter points out that Joshua trees are being evaluated for protection, which would impact the feasibility of the project. The commenter also expresses general concerns for environmental impacts, increases to temperature, impacts to aesthetics, and impacts to Boron residents' way of life.

Table 2-2. Summary of Public Comments Received on the Initial Study/Notice of Preparation Subsequent to the August 14, 2020 to September 14, 2020 Public Notice Period

Commenter/Date	Summary of Comment
State Agencies	
California Department of Fish and Wildlife November 20, 2020	The commenter provides information on the role and responsibilities of the California Department of Fish and Wildlife (CDFW). The commenter then stated that, due to the location and habitat present at the project sites, there is a potential for desert tortoise to occur on-site and/or to be impacted by project activities. The commenter recommends that a qualified biologist conduct surveys during the appropriate time and following the protocol established by the USFWS to determine the potential for the desert tortoise to use the project site and surrounding area. Survey results are advised to be submitted to both CDFW and the United States Fish and Wildlife Service's (USFWS) If desert tortoises are found within the project site, the commenter states that consultation with CDFW is advised to avoid take or to acquire an Incidental Take Permit prior to any ground-disturbing activities. The commenter also notes that the Mohave ground squirrel (MGS) is known to occur on the project site. The commenter recommends that a qualified biologist, following CDFW's Mohave Ground Squirrel Survey Guidelines, conduct protocol-level surveys over the project-site to determine the extent and density of the MGS. Due to the size of the project site, the commenter recommends the project proponent propose a surveying methodology that includes the additional use of remote camera stations. They further recommend that this methodology be submitted to CDFW for review and approval prior to implementation. Once protocol surveys are completed, results should be submitted to CDFW and consultation with CDFW is recommended to avoid take or to acquire an Incidental Take Permit prior to any ground-disturbing activities. The commenter also advises that Sites 4 and 5 are located within the North of Edwards MGS core population and Sites 1, 2, and 3 are located within a corridor movement area for MGS. The commenter suggests that the EIR address how the project will conserve habitat and MGS movement corridors in the project area and prevent the project from significantly impacting MGS and degrading the core habitat and movement corridors. The commenter notes that the Fish and Game Commission listed the western Joshua tree as a candidate species under CESA on September 22, 2020. The commenter recommends that a qualified biologist conduct the surveys and implement the minimization and mitigation measures as described in the Emergency Regulatory Language found in Title 14 of the California Code of Regulations, commencing with section 749.10. The commenter recommends that all areas with potentially suitable habitat be surveyed for special-status plants by a qualified botanist using CDFW protocols prior to taking any activities that could result in disturbance to the habitat. The commenter advises the project to avoid special-status plant species by a 50-foot no-disturbance buffer around the outer edge of plant population(s) or specific habitat type(s) that support special-status plant species in the site. The commenter recommends that this no-disturbance buffer include indirect impacts. If buffers cannot be maintained, consultation should be held with CDFW to determine appropriate minimization and mitigation measures. If plant species listed pursuant to the California Endangered Species Act or the Native Plant Protection Act are identified during botanical surveys, consultation with CDFW is advised to avoid take or to acquire an Incidental Take Permit or approval of an NCCP. The commenter also recommends consulting with the USFWS on potential impacts to federally listed species well in advance of project implementation.

Table 2-2, continued

Commenter/Date	Summary of Comment
	The commenter requests that special-status species and natural communities detected during project surveys should be reported to the California Natural Diversity Database. The commenter notes that the project, as proposed, would require the assessment of CDFW filing fees.
Interested Parties	
Millie Ashpaugh September 25, 2020	The commenter states her opposition to the project, by noting a variety of undesirable effects, including: destruction of the desert landscape, clearing of natural vegetation such as Joshua trees, consuming scarce water resources, encroachment into sensitive wildlife habitat, "boxing" in of off-road vehicle enthusiasts from Boron and Desert Lake, no economic benefit to local communities, anticipate higher energy bills.
Lynn Black September 26, 2020	The commenter states her opposition to the project, stating it is too close to neighboring homes.
Deric English September 26, 2020	The commenter states his opposition to this project.
Donna Fort September 27, 2020	The commenter states a number of concerns about potential impacts, including: harm to protected species, loss of Joshua trees, removing vegetation that would create dust and activate Valley fever spores, too close to homes, no economic benefits to the local community.
Lu Royce September 28, 2020	The commenter asks if the project would provide jobs for local residents and if so, how many.
Crystal Job September 30, 2020	The commenter states her opposition to the project, stating it would be too close to and incompatible with the community of Boron.
Margaret Leary September 30, 2020	The commenter states a number of concerns about potential impacts, including: negative effects on home values, harm to protected wildlife species, increased traffic, and generally too close to Boron.
Richard Cornwell October 3, 2020	The commenter states his opposition to the project, stating there would be use of dangerous chemicals, it would infringe on the community ,create dust and an air quality problem, kill Joshua trees.
Charlene Sims October 3, 2020	The commenter states her opposition to the project, stating that there has been no information provided to local residents.
Randy Tolle September 28, 2020	The commenter states his opposition to the project by noting the various developments in and around the community of Boron and stating that the community should have a small amount of undisturbed natural desert habitat.

Table 2-3. Summary of Public Comments Received on the Initial Study/Notice of Preparation Circulated February 26, 2021, to March 29, 2021

Commenter/Date	Summary of Comment
State Agencies	
Native American Heritage Commission (NAHC) March 1, 2021	The commenter recommends consultation with the California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project as early as possible. In addition to compliance with AB 52 and SB 18, the commenter recommends contacting the appropriate regional California Historical Research Information System (CHRIS) center for an archaeological records search. If an archaeological inventory survey is required, the commenter recommends that the final report be submitted immediately to the County Planning and Natural Resources Department; all information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure; and the final written report should be submitted within three months after completion to the appropriate regional CHRIS center. The commenter recommends that NAHC be contacted for a Sacred Lands File search and a Native American Tribal Consultation List, but notes that tribes do not always record their sacred sites in the Sacred Lands File as they are not required to do so. The commenter notes that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence. The commenter recommends that this be remembered and considered in developing a mitigation and monitoring report. The commenter further indicates that lead agencies are recommended to include provisions for the identification and evaluation of inadvertently discovered archaeological resources, the disposition of recovered cultural items that are not burial-associated in consultation with culturally affiliated Native Americans, and the treatment and disposition of inadvertently discovered Native American human remains in the mitigation and monitoring reporting program plan.
California Department of Transportation District 9 March 11, 2021	The commenter states that the EIR's evaluation of potential impacts on the roadway system from construction-related trips should address the need for a traffic management plan and the adequacy of the Gephart Road/SR 58 and Borax Road/SR 58 interchanges for geometrics, queuing, and structural integrity, at a minimum. The commenter states that details concerning gen-tie crossings of SR 58 (as required for Site 4 of the proposed project) can be found in Section 600 Utility Permits of the Encroachment Permit Manual. Any security fence placed along SR 58 right-of-way (R/W) should be on Project property at a sufficient distance from the R/W fence to allow for its maintenance from within Project property.
California Department of Fish and Wildlife Region 4 (Central Region) March 29, 2021	The commenter states that there are special-status species documented in the project vicinity that may need to be evaluated and addressed prior to any approvals that would allow ground-disturbing activities or land use changes. The commenter expresses concern regarding potential impacts to special-status species and recommends that the County require species-specific surveys to be conducted according to acceptable protocols to adequately assess any potential impact to biological resources. The commenter provides specific comments and recommendations for several aspects of the project. The commenter states that potentially significant impacts may result from project-related activities on the desert tortoise, Mohave ground squirrel, Swainson's hawk, burrowing owl, special-status plant species, and other species of special concern. The commenter provides recommended mitigation measures to reduce the impacts to each of these species/groups.

Table 2-3, continued

Commenter/Date	Summary of Comment
	The commenter recommends that the EIR include measures to help ensure the project avoids the take of desert kit fox and further recommends that the County require a qualified biologist to conduct surveys for desert kit fox and to consult with the CDFW should any active or potential dens be found on the site. The commenter recommends consulting with USFWS on potential impacts to federally listed species including, but not limited to, the desert tortoise, well in advance of any ground-disturbing activities. The commenter encourages project implementation at individual project sites to occur during the bird non-nesting season if suitable nesting bird habitat is present. If ground-disturbing activities must occur during breeding season, the applicant is responsible for ensuring that project implementation does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes. The commenter recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground disturbance. These surveys should cover a sufficient area around the work site to identify nests and determine their status. The commenter further recommends a qualified biologist continuously monitor nests to detect behavioral changes resulting from the project. If changes occur, it is recommended that the work causing said changes cease and CDFW be consulted. If continuous monitoring is not feasible, it is recommended that a minimum no-disturbance buffer of 250 feet be established around non-listed bird species nests and a 500-foot buffer around active nests of non-listed raptors. The commenter requests a report on any special-status species and natural communities detected during the project surveys to the California Natural Diversity Database. The commenter states that, if the project has the potential to impact biological resources, an assessment of filing fees will be necessary.
Lahontan Regional Water Quality Control Board March 29, 2021	The commenter suggests the applicant consider design alternatives that are compatible with low-impact development (LID). These alternatives include maintaining natural drainage paths and landscape features; managing runoff as close to the source as possible; and maintaining vegetated areas for stormwater management and on-site filtration. The commenter also recommends that natural drainage channels and flow paths be maintained throughout the project site. The commenter further recommends that the project incorporate stormwater control measures that are compatible with LID such as bioretention swales, pervious pavement, and vegetated infiltration basins. A project-specific stormwater pollution prevention plan should be developed and implemented during both construction and post-construction phases. Temporary best management practices (BMPs) should be implemented for the project until vegetation has been restored to pre-project conditions or permanent BMPs are in place. The commenter states that the environmental document should include a mitigation measure that requires the preparation and implementation of a comprehensive Spill Prevention and Response Plan, which outlines the site-specific monitoring requirements and lists the BMPs necessary to prevent hazardous material spills or to contain and cleanup a hazardous spill should one occur. The commenter recommends that the proposed project identify and list the beneficial uses of all water resources within the project area, such as the Antelope Hydrologic Unit and Antelope Valley Groundwater Basin. The commenter states that all excess soil excavated as part of the project that is not used on-site should be stockpiled in an upland location with an adequate combination of sediment and erosion control BMPs until the soil can be reused or permanently stabilized. The commenter states the project has the potential to impact waters of the State, and required permits may include the following:

Table 2-3, continued

Commenter/Date	Summary of Comment
	• CWA 402(p) stormwater permit, including an NPDES General Construction Storm Water permit. • CWA Section 401 water quality certification for impacts to federal waters or dredge and fill waste discharge requirements for impacts to non-federal waters.
Local Agencies	
Kern County Public Works Department (Brian R. Blacklock, County Surveyor) March 5, 2021	The commenter recommends the following conditions be placed on the Conditional Use Permits: • Prior to issuance of a building or grading permit, all survey monuments shall be tied out by a licensed land surveyor. A corner record for each monument or record of survey shall be submitted to the County surveyor for review and processing, per Section 8771 of the Professional Land Surveyors' (PLS) Act. • Prior to final inspection, all survey monuments that were destroyed during construction shall be reset or have a suitable witness corner set. A postconstruction corner record for each monument reset or a record of survey shall be submitted to the County surveyor for processing, per Section 8771 of the PLS. • Upon completion of the project, all survey monuments shall be accessible by a licensed land surveyor or their representatives, with prior notice, per Section 8774 of the PLS and Civil Code 846.5(a).
Kern County Superintendent of Schools March 8, 2021	The commenter states that the proposed project would not result in a significant impact to schools or district facilities so long as statutory school facilities fees, if any, are collected as required by law and that no further mitigation measures regarding school facilities are necessary.
Kern County Public Works Department Floodplain Management Section March 9, 2021	The commenter states that the runoff of stormwater from the site will be increased due to the increase in impervious surface generated by the proposed development and that the proposed project site is subject to flooding. The commenter recommends the following to be included as conditions of approval for the project: • The applicant shall provide a plan for the disposal of drainage waters originating on-site and from adjacent road rights-of-way (if required), subject to approval of the Public Works Department. • Associated flood hazard requirements will need to be incorporated into the design of this project per the Kern County Floodplain Management Ordinance.
East Kern Airport District Mojave Air and Space Port March 12, 2021	The commenter notes that the proposed project appears to be outside the Airport Influence Area for the Mojave Air and Space Port (MASP), as designated by the Kern County Airport Land Use Compatibility Plan. The commenter would like to review the forthcoming EIR to identify and prevent potential project-related effects (e.g. obstructions to navigable air space due to location of gen-tie lines, glare, etc.) on MASP operations.
Kern County Fire Department March 16, 2021	The commenter states that the KCFD will need to conduct a plan review prior to project construction and that the project must meet requirements set forth in KCFD Solar Panel Standard #503-507. Additionally, the commenter states that all stationary energy storage systems must be applied for directly with KCFD for separate permitting and preconstruction approval. All proposed batteries must be UL9540A 2019 Edition tested for large scale burns to determine adequate design and mitigation measures.

Table 2-3, continued

Commenter/Date	Summary of Comment
Interested Parties	
James Lyon February 20, 2021	The commenter requests that the project be built elsewhere and states that he will see the mirrors when looking out from his backyard.
Millie and Rob Ashpaugh March 3, 2021	The commenter states that the location of the solar panels in the project is still unacceptable. The commenter expresses their belief that the solar panels do not benefit the local area, are large and have a hazardous potential. The commenter states that the solar panels would ruin the landscape, displace habitat, use groundwater, kill Joshua trees, start fires, increase the temperature of the area, pollute the air, and more. The commenter provides an itemized list of reasons they are opposed to the project, which includes the aforementioned impacts as well as several more, including the commenter's belief that: the output of the project would be impacted by weather conditions; the land for the project would be unusable for other purposes; the materials used to make the solar panels could cause pollution; project construction would disturb the land; which can cause serious health concerns such as Valley Fever; the solar fields would become fire hazards; the solar panels would invite vandalism; the project would impact desert tortoise and other animals; off-road vehicle paths and easements that have been in place for years would be blocked off; the solar project would not benefit the area; and energy bills would double. The commenter expresses their belief that the majority of Boron residents are opposed to the project and that the project should be implemented at or near a previous solar site farther into the desert.
Deburah Brown March 3, 2021	The commenter states their opposition to the project. Further, the commenter states that the project will cause the community of Boron to be covered with dust when the wind blows. The commenter notes that the project would virtually land lock the community of Boron, which would hurt the development of local housing. The commenter notes that there is a large abandoned solar field in the area and recommends this site be used instead.
Deric English March 3, 2021	The commenter asks that the project be halted due to the loss of habitat, the project's proximity to housing, the loss of prime business locations, and other undefined issues. The commenter further states the opinion that this is a viewpoint held by the majority of Boron residents.
Charlene Sims March 3, 2021	The commenter believes all Boron residents should receive notice concerning this project. Further, the commenter believes this project will impact everyone from the San Bernardino County line to North Edwards.
Millie and Rob Ashpaugh March 4, 2021	The commenter sent an additional letter to follow up on previous correspondence with pictures taken from the project applicant's website and pictures that the commenter states are from locations within the perimeter of the proposed project site.
Bob and Pat Jennings March 4, 2021	The commenter states their objection to the location of the proposed project due to the proximity of the solar fields to the homes in Boron.
Sharon Burgess March 5, 2021	The commenter requests that the proposed project not be approved due to the project's impact on Joshua trees, wildlife in the area, Boron and Desert Lake from the sand and dust

Table 2-3, continued

Commenter/Date	Summary of Comment
	that the wind will blow because of the project, the spread of Valley Fever, driving conditions, and aesthetics.
Diana Wise March 5, 2021	The commenter asks that the proposed project not be approved.
Jamie Leal March 6, 2021	The commenter began a petition on change.org to oppose the proposed project.
Millie Ashpaugh March 6, 2021	The commenter provides an updated version of her comment letter dated March 3, 2021in opposition of the project. The commenter states the same reasons for opposition to the project as in the March 3, 2021 letter, but further indicates that the project would: negatively affect global warming in the region and potentially the world; increase potential fire hazards for nearby residents; and potentially impact additional desert species including bobcat, snakes, coyotes, jackrabbits, roadrunners, and/or chuckwallas, The commenter further states that the community is already underserved; that the project would preclude future residential and other types of growth; and suggests that the solar panels be located elsewhere such as rooftops or shade structures in parking lots within areas to be served the energy generated. The commenter also states concern that a former solar project was abandoned in the area and left in place, and further expresses concern if the project (overhead connection lines) were to affect existing area views or vistas. The commenter also states the opinion that the project would impact the natural environment and habitat of the area and restates opposition to the project.
Crystal Job March 9, 2021	The commenter expresses their opposition to the proposed project. The commenter objects to the project's location and its proximity to homes in Boron.
Broc Job March 10, 2021	The commenter states their opposition to the proposed project due to impacts on aesthetics. The commenter also states that the project would decrease the value of their rental properties.
Kern Audubon Society March 10, 2021	The commenter states that the proposed project may have impacts on the desert cymopterus (Cymopterus deserticola), which is ranked by the CNPS as extremely rare and has been identified on Edwards Air Force Base, south of the project site. The commenter requests that the EIR identify and evaluate potential adverse impacts to protected species that may utilize the desert saltbush scrub areas that exist in the project site. The undeveloped areas in the project site, such as the saltbush scrub, have potential to support desert kit fox, American badger, western burrowing owl, Swainson's hawk, Mohave ground squirrel, and desert tortoise. The commenter states that a biological site evaluation should be done by a qualified biological consultant using appropriate protocols and performed during the appropriate time of year to discern species presence. The commenter states that the evaluation should also incorporate the project's potential to enhance and support raven populations that depredate the endangered desert tortoise. The commenter further states that, due to the size of the project and its proximity to other solar developments in the region, cumulative impacts to biological resources should be included in the project's analysis.

Table 2-3, continued

Commenter/Date	Summary of Comment
Pacific Gas and Electric Company March 12, 2021	The commenter states that a plan review process does not replace an application process for gas or electric service. The commenter requests that, if this project is part of a larger project, the entire scope of the project be submitted. The commenter states that an engineering deposit may be required to review plans for a project. Additionally, the commenter indicates that any proposed uses within the PG&E fee strip and/or easement may include a CPUC Section 851 filing. In addition, attachments regarding development standards that must be implemented such that project impacts on PG&E's gas and electric facilities are minimized.
Roy Richards March 12, 2021	The commenter writes in opposition to the proposed project. The commenter states that the project is flawed and could endanger members of the community. The commenter notes that there could be traffic issues if a train blocks the tracks near the project site during a shift change, which could also impact emergency services. The commenter further notes that the access road to Section 2 requires traffic to go through an area with many homes, a park, and several school bus stops. The commenter notes that the increased traffic would also damage roads in the area. The commenter believes that the "after" images in the proposal and on the website are misleading as they still show Joshua trees that would be removed.
David Eyre March 16, 2021	The commenter expresses their general opposition to the project and proposes other locations to install small-scale solar. The commenter expresses concern over potential aesthetic impacts of the project.
IBEW Labor Union March 16, 2021	Multiple members (12 in total) of the IBEW Labor Union signed letters stating their support for the proposed project.
LiUNA! Labor Union March 17, 2021	Multiple members (185 in total) of the LiUNA! Local 220 Labor Union signed letters stating their support for the proposed project.
Fernando Espinoza March 18, 2021	The commenter states they own a nearby parcel and would like to know how the proposal will affect their property.
Tony Montanna March 19, 2021	The commenter is a member of the IBEW Labor Union and is writing in support of the proposed project.
Randy Tolle March 23, 2021	The commenter responds to add additional information to previous communication sent September 28, 2020 (after the close of the original NOP public review period). This September letter expressed opposition to the project and is discussed in more detail in **Table 2-1**. The March letter included a link to a video and stated that there is little dumping except from military aircraft away from roadways located in the area. The commenter states the opinion that it is easy to find old ordinance casings, with some as old as 92 years old.
Thomas Bahrs March 25, 2021	The commenter lists several questions and comments on the project. Questions include how the project benefits Boron and Desert Lake, why the sites were chosen, if there is any danger due to the amount of energy to be produced and stored, operational noise level, whether there will be sufficient emergency services, whether there can be an aesthetic appropriate fence instead of barbed wire, if employment of local residents can be required and how this would be verified, if other property owners could be allowed to produce solar energy and sell to or

Table 2-3, continued

Commenter/Date	Summary of Comment
	through the proposed project, and how the offset of money due to the tax-exempt status of the project will be calculated and managed. The commenter also states that public notice should be in the form of billboards in the areas of Boron and Desert Lake and that projects near these communities should be carefully considered with regard to safety of the residents.
Joe Barnard March 25, 2021	The commenter expresses their opposition to the proposed project and states that many other local residents are similarly opposed. The commenter states that they have received conflicting statements and that Kern County Staff could speak to local residents. The commenter states concerns over the project benefitting aesthetic impacts and possible health hazards.
Defenders of Wildlife and Desert Tortoise Council March 25, 2021	The commenters state that the proposed project is within the range of desert tortoise and is specifically within the Western Mojave Recovery Unit under the Revised Recovery Plan for the Mojave Population of the Desert Tortoise. The commenters further state that the project site is located within a habitat linkage for the desert tortoise that connects populations in the Fremont-Kramer and Superior Cronese Critical Habitat Units. The commenters recommend that a U.S. Fish and Wildlife Service standards-based survey for the desert tortoise be performed and if the species is observed on or adjacent to the project site based on the survey, the Project applicant should be advised to apply for and obtain an incidental take permit from the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (CDFW) as soon as possible. In addition, if the species occurs on or adjacent to the site, measures to avoid, minimize, or compensate for unavoidable impacts should be incorporated into the EIR. The commenters state that the project site is located within a portion of the Desert Linkage Network, which is associated with the Mohave ground squirrel. The commenters recommend that the EIR address the impacts of the project on the Mohave ground squirrel, including on its populations and habitat linkages. The commenters further recommend that the species be considered present and the project applicant be required to obtain incidental take permits from the Region 4 CDFW office. The commenters anticipate that these take permits will include terms and conditions to avoid, minimize, or mitigate impacts and that mitigation will require acquisition and permanent protection of private land habitat occupied by the species for adverse impacts that cannot be avoided. If the species is not assumed present, the commenters recommend protocol-level surveys to be performed to ascertain absence of the species.
Jamie Leal March 25, 2021	The commenter expresses concern over the proposed project and has stated that they have begun a ***change.org – Oppose Aratina Solar Project*** petition in opposition to the project. The commenter states that the project will impact residents of Boron and Desert Lake in multiple ways, such as impacts to aesthetics and scenic resources. The commenter also questions why other counties have not built projects similar to the proposed project. The commenter further notes that the project would destroy flora, especially Joshua trees. The commenter states that the notice of preparation identifies impacts to air quality, biological resources, aesthetics, and possibly hazardous material leaks or spills. The commenter questions if there will be a town meeting, whether the communities of Boron and Desert Lake will have a part in making decisions on the project, and whether there will be an EIR. The commenter states that impacts will be severe, with residents being landlocked, and notes that future development would be restricted due to the area being surrounded. The commenter also states that they are reaching out to media outlets.

Table 2-3, continued

Commenter/Date	Summary of Comment
Melissa Munoz March 26, 2021	The commenter expresses concern over the proposed project due to the impacts it would have on their family and the community of Boron. The commenter states the opinion that the project would diminish property value and quality of life, and that the project would take away scenic resources and prevent outdoor activities.
Center for Biological Diversity March 29, 2021	The commenter states that the scoping notice is unclear about the number of substations needed for the proposed project. The commenter further states that transmission lines to either SCE's Kramer or Holgate substations need to be underground to reduce impacts to avian species and reduce perching opportunities for avian predators that prey on juvenile desert tortoises. The commenter notes that the proposed project is habitat for and provides movement corridor opportunities for threatened and endangered species. The commenter stresses the importance of documenting current seasonal site resources and that adequate meaningful mitigation is required for any unavoidable impacts. Seasonally appropriate surveys should be performed for sensitive plant species, vegetation communities, and animal species. The commenter requests that these surveys be done under the direction and supervision of the County and resource agencies. The commenter indicates that all species that have agency-identified survey protocols should have those protocol-level surveys required, implemented, and disclosed in the EIR, and that survey methods should be completely disclosed and the commenter states that confidentiality agreements should not be allowed for surveys in support of the proposed project. Surveys for plants and plant communities should follow California Native Plant Society and CDFW survey guidelines and a floral inventory of all species encountered should be included in the EIR. Surveys for animals should include an evaluation of the California Wildlife Habitat Relationship System's Habitat Classification Scheme, and all rare species need to be documented in the California Natural Diversity Database. The commenter states that vegetation and habitat mapping should be provided at a scale to provide accurate accounting of habitat types, with a half-acre minimum mapping unit size being recommended. The commenter states that the EIR must identify the number of Western Joshua trees on the site and identify how the impact area was calculated. They further state that the EIR must evaluate all direct, indirect, and cumulative impacts to sensitive habitats. The commenter identifies several species that have a high probability to occur on the site and that if they are found to occur, the EIR must address the impacts and propose effective ways to avoid, minimize, and mitigate impacts to these biological resources. The commenter states that the EIR must analyze how the project complies with the recommendations of the Desert Tortoise Recovery Plan and the Mohave Ground Squirrel Conservation Plan. The commenter recommends that, for rare plants, avoidance should be the primary mitigation strategy. If transplantation is to be part of the mitigation strategy, a detailed plan, including methodology and monitoring, must be included as part of the EIR. The commenter requests that the EIR evaluate impacts on locally rare species, not just federal and state-listed threatened and endangered species. The commenter states that the EIR must clarify the impacts to the jurisdictional Waters of the U.S. and Waters of the State of California. Further, the commenter requests that an evaluation of the effect of additional groundwater pumping on the water quality in the basin and surface water resources be conducted and included in the EIR. The commenter states the opinion that the County must establish an independent set of objectives that do not unreasonably limit the EIR's analysis of feasible alternatives. The commenter states the opinion that greenhouse gas emissions should be quantified and offset, and that the EIR should also evaluate air quality and traffic impacts.

Table 2-3, continued

Commenter/Date	Summary of Comment
	Further, the commenter states that the EIR must identify and evaluate impacts to species and ecosystems from invasive exotic species. The commenter notes that the project needs a thorough evaluation of the project impacts on wildlife movement and that this evaluation should include direct, indirect, and cumulative impacts, and should cover movement of small and large mammals, birds, reptiles, amphibians, invertebrates, and vegetation communities. Additional factors to evaluate within the EIR include, but are not limited to the following: habitat suitability, size of suitable habitat patches in relation to species average territory size; which species would or would not utilize wildlife movement corridors pre- and post-development; and, whether any proposed wildlife movement corridors are wide enough to minimize edge effects and allow natural processes of disturbance and subsequent recruitment to function. The commenter requests that an analysis of projects, not just in Kern County, but also in San Bernardino County and on Edwards Air Force Base, be included in the cumulative analysis of the EIR.
California Native Plant Society March 29, 2021	The commenter recommends complete full-floristic surveys, documenting all plant species that occur on the project site, with the surveys being conducted by a qualified botanist. Impacts to all plants included on the CDFW Special Vascular Plants, Bryophytes, and Lichens List need to be evaluated as well as plants in the CNPS Rare Plant Inventory. The commenter states the opinion that the EIR should address cumulative impacts to any rare plants found on the site. The commenter recommends that botanical surveys be conducted following adequate amounts of precipitation and timed so that rare plants are detectable. The commenter states that vegetation types and sensitive natural communities on the project site should be mapped to the alliance level and that special care should be taken to delineate any wetlands, riparian areas, and washes that may be impacted by the project. Finally, the commenter recommends that, if the project has unavoidable impacts to plants, mitigation measures that reduce impacts to less than significant should be planned and implemented; adequate monitoring should be a part of this mitigation.

Availability of the EIR

This EIR is being distributed directly to agencies, organizations, and interested groups and persons for comment during a 45-day formal review period in accordance with Section 15087 of the *CEQA Guidelines*. This EIR and the full administrative record for the project, including all studies, are available for review during normal business hours Monday through Friday at the Kern County Planning and Natural Resources Department, located at:

Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301-237
Phone: (661) 862-8600; Fax: (661) 862-8601

This EIR is also available on the Kern County Planning and Natural Resources Department website: https://kernplanning.com/planning/environmental-documents/.

Additionally, this EIR is available at the following library:

Kern County Library/Beale
Local History Room
701 Truxtun Avenue
Bakersfield, CA 93301

2.5 Format and Content

This EIR addresses the potential environmental effects of the proposed project and was prepared following input from the public and the responsible and affected agencies, through the EIR scoping process, as discussed previously. The contents of this EIR were established based on the findings in the IS/NOP, and public and agency input. Based on the findings of the IS/NOP, a determination was made that an EIR was required to address potentially significant environmental effects concerning the following topics:

- Aesthetics
- Agriculture 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
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfires

With respect to the following resources areas, which were discussed in the IS/NOP, it was determined that no impacts would occur that would require analysis in this EIR:

- Mineral Resources
- Population and Housing
- Recreation

Both IS/NOPs determined that the proposed project area does not contain mineral resources of regional or statewide significance, nor is the project site designated by the Kern County General Plan or the State Department of Conservation, Geologic Energy Management Division for mineral resources activities; therefore, the project would not have an impact on mineral resources. The proposed project would require up to 25 full-time equivalent (FTE) personnel, which the local housing stock would be adequate to accommodate should they relocate to the area. The proposed project would not directly or indirectly induce substantial unplanned growth and it would not displace any persons or housing as the project site does not support any existing housing units. Even if the 25 FTE personnel were hired from out of the area and relocated to eastern Kern County, the addition of any such families to the project area would not result in a

substantial increase in the number of users at local parks or recreational facilities and would therefore not cause a substantial new demand for or physical deterioration of recreational facilities.

Additionally, no comments were received during circulation of the IS/NOP indicating that the lead agency's determination of no impact to those identified resources was inappropriate. No further discussion of these topics is warranted. For a complete analysis of these impacts, please refer to **Appendix A** of this EIR.

Required EIR Content and Organization

This EIR includes all of the sections required by CEQA. **Table 2-4** contains a list of sections required under CEQA, along with a reference to the chapter in which they can be found in this EIR document.

Table 2-4. Required EIR Contents

Requirement (CEQA Guidelines Section)	Location in EIR
Table of contents (Section 15122)	Table of Contents
Summary (Section 15123)	Chapter 1
Project Description (Section 15124)	Chapter 3
Significant environmental impacts (Section 15126.2)	Sections 4.1 - 4.17
Environmental setting (Section 15125)	Sections 4.1 - 4.17
Mitigation measures (Section 15126.4)	Sections 4.1 - 4.17
Cumulative impacts (Section 15130)	Sections 4.1 - 4.17
Growth-inducing impacts (Section 15126.2)	Chapter 5
Effects found not to be significant (Section 15128)	Chapters 1 and 5
Significant irreversible changes	Chapter 5
Unavoidable significant environmental impacts (Section 15126.2)	Chapter 5
Alternatives to the project (Section 15126.6)	Chapter 6
Response to Comments (Section 15132)	Chapter 7
Organizations and persons consulted	Chapter 8
List of preparers (Section 15129)	Chapter 9
References (Section 15129)	Chapter 10

The content and organization of this EIR are designed to meet the requirements of CEQA and the *CEQA Guidelines*, as well as to present issues, analysis, mitigation, and other information in a logical and understandable way. This EIR is organized into the following sections:

- Chapter 1, *Executive Summary*, provides a project description and a summary of the environmental impacts and mitigation measures.
- Chapter 2, *Introduction*, provides CEQA compliance information, an overview of the decision-making process, organization of the EIR, and a responsible and trustee agency list.
- Chapter 3, *Project Description*, provides a description of the location, characteristics, objectives, and the relationship of the project to other plans and policies.

- Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, contains a detailed environmental analysis of the existing conditions, project impacts, mitigation measures, and cumulative impacts.
- Chapter 5, *Consequences of Project Implementation (Mandatory CEQA Sections)*, presents an analysis of the project's cumulative and growth-inducing impacts and other CEQA requirements, including significant and unavoidable impacts and irreversible commitment of resources.
- Chapter 6, *Alternatives*, describes a reasonable range of alternatives to the project that could reduce the significant environmental effects that cannot be avoided.
- Chapter 7, *Responses to Comments*, is reserved for responses to comments on the EIR.
- Chapter 8, *Organizations and Persons Consulted*, lists the organizations and persons contacted during preparation of this EIR.
- Chapter 9, *Preparers*, identifies persons involved in the preparation of the EIR.
- Chapter 10, *Bibliography*, identifies reference sources for the EIR.
- *Appendices* provide information and technical studies that support the environmental analysis contained within the EIR.

The analysis of each environmental category in Chapter 4 is organized as follows:

- "Introduction" provides a brief overview on the purpose of the section being analyzed with regard to the project.
- "Environmental Setting" describes the physical conditions that exist at this time and that may influence or affect the topic being analyzed.
- "Regulatory Setting" provides State and federal laws and the Kern County General Plan goals, policies, and implementation measures that apply to the topic being analyzed.
- "Impacts and Mitigation Measures" discusses the impacts of the project in each category, presents the determination of the level of significance, and describes the feasible mitigation measures to reduce any impacts.
- "Cumulative Setting, Impacts, and Mitigation Measures" discusses the cumulative geographic area for each resource area, and analysis of whether the project would contribute to a significant cumulative impact, and if so, identifies cumulative mitigation measures.

2.6 Responsible and Trustee Agencies

Projects or actions undertaken by the lead agency, in this case the Kern County Planning and Natural Resources Department, may require subsequent oversight, approvals, or permits from other public agencies in order to be implemented. Other such agencies are referred to as *"responsible agencies"* and *"trustee agencies."* Pursuant to Sections 15381 and 15386 of the *CEQA Guidelines*, as amended, responsible agencies and trustee agencies are defined as follows:

- A *"responsible agency"* is a public agency that proposes to carry out or approve a project, for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For the purposes

of CEQA, the term *"responsible agency"* includes all public agencies other than the lead agency that have discretionary approval power over the project (Section 15381).

- A *"trustee agency"* is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California (Section 15386).

The various public, private, and political agencies and jurisdictions with a particular interest in the project include, but are not limited to, the following:

Federal Agencies

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Army Corps of Engineers
- Edwards Air Force Base/U.S. Department of Defense

State Agencies

- Governor's Office of Planning and Research (OPR)
- California Air Resources Board
- California Department of Fish and Wildlife (CDFW)
- California Department of Transportation (Caltrans), District 9
- California Energy Commission (CEC)
- California Public Utilities Commission (CPUC)
- California Native American Heritage Commission (NAHC)
- Lahontan Regional Water Quality Control Board (RWQCB)

Local Agencies

- Eastern Kern Air Pollution Control District (EKAPCD)
- Kern Council of Governments (KCOG)

Other additional permits or approvals from responsible agencies may be required for the project.

Kern County

- Planning and Natural Resources Department
- Public Works Department
- Public Health Services Department, Environmental Health Division
- Fire Department

- Sheriff's Department

Other additional permits or approvals from Kern County may be required for the project.

2.7 Incorporation by Reference

In accordance with Section 15150 of the *CEQA Guidelines* to reduce the size of the report, the following documents are hereby incorporated by reference into this EIR and are available for public review at the Kern County Planning and Natural Resources Department. A brief synopsis of the scope and content of these documents is provided below.

Kern County General Plan and Program EIR

The Kern County General Plan is a policy document with land use maps and related information that are designed to give long-range guidance to those County officials making decisions affecting the growth and resources of the unincorporated Kern County jurisdiction, excluding the metropolitan Bakersfield planning area. This document, adopted on June 14, 2004, and last amended on September 22, 2009, helps ensure that day-to-day decisions conform to the long-range program designed to protect and further the public interest as related to Kern County's growth and development and mitigate environmental impacts. The Kern County General Plan also serves as a guide to the private sector of the economy in relating its development initiatives to the public plans, objectives, and policies of the County. A Recirculated Program EIR was certified for the General Plan in 2004.

Kern County Zoning Ordinance

According to Section 19.02.020, *Purposes*, Title 19 was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of Kern County. Further, the purposes of this title are to:

- Provide the economic and social advantages resulting from an orderly planned use of land resources;
- Encourage and guide development consistent with the Kern County General Plan;
- Divide Kern County into zoning districts of a number, size, and location deemed necessary to carry out the purposes of the Kern County General Plan and this title;
- Regulate the size and use of lots, yards, and other open spaces;
- Regulate the use, location, height, bulk, and size of buildings and structures;
- Regulate the intensity of land use;
- Regulate the density of population in residential areas;
- Establish requirements for off-street parking;
- Regulate signs and billboards; and
- Provide for the enforcement of the regulations of Chapter 19.02 (General Provisions).

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the KCOG and was adopted on August 16, 2018. The 2018 RTP is a 26-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. California's Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern RTP to include a Sustainable Communities Strategy (SCS) that reduces greenhouse gas emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation, ensuring consistency between low income housing need and transportation planning.

Kern County Airport Land Use Compatibility Plan

The Kern County Airport Land Use Compatibility Plan (ALUCP) was originally adopted in 1996 and has since been amended to comply with Aeronautics Law, Public Utilities Code (Chapter 4, Article 3.5) regarding public airports and surrounding land use planning. As required by that law, proposals for public or private land use developments that occur within defined airport influence areas are subject to compatibility review. The principal airport land use compatibility concerns addressed by the plan are: (1) exposure to aircraft noise, (2) land use safety with respect to both people and property on the ground and the occupants of aircraft, (3) protection of airport air space, and (4) general concerns related to aircraft overflights.

The ALUCP identifies policies and compatibility criteria for influence zones or planning area boundaries. The ALUCP maps and labels these zones as A, B1, B2, C, and D, ranging from the most restrictive (A – airport property-runway protection zone) to the least restrictive (D – disclosure to property owners only). As required by law, the following affected cities have adopted the ALUCP for their respective airports: Bakersfield, California City, Delano, Shafter, Taft, Tehachapi, and Wasco.

2.8 Sources

This EIR is dependent upon information from many sources. Some sources are studies or reports that have been prepared specifically for this document. Other sources provide background information related to one or more issue areas that are discussed in this document. The sources and references used in the preparation of this EIR are listed in Chapter 10, *Bibliography*, and are available for review during normal business hours at the:

Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301-237

This EIR is also available on the Kern County Planning and Natural Resources Department website: https://kernplanning.com/planning/environmental-documents/

Chapter 3
Project Description

3.1 Introduction

This Environmental Impact Report (EIR) has been prepared by Kern County (County), which is the Lead Agency, to identify and evaluate environmental impacts associated with implementation of the Aratina Solar Project (proposed project). The project proponent, 64NB 8ME LLC, proposes to construct and operate a photovoltaic (PV) solar facility and associated infrastructure to generate up to 530 megawatts (MW) of renewable electrical energy and up to 600 MW of energy storage on approximately 2,317 acres of privately-owned land. The proposed project consists of five sites (Sites 1 through 5) and is comprised of 22 parcels. Collectively, these sites are referred to as the project site.

The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's (SCE) Holgate Substation. Alternatively, the proposed project may transmit its power to the Kramer Substation located in San Bernardino County via a transmission line located within an Edwards Air Force Base (AFB) utility corridor. The project's permanent facilities would include service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, project substations, energy storage system(s), and operations and maintenance facilities.

3.2 Project Location

As shown on **Figure 3-1**, *Regional Vicinity Map*, the project site is located in unincorporated Kern County, straddling State Route 58 (SR 58) between Gephart Road on the west and the San Bernardino County line on the east. The project site is in the vicinity of the unincorporated communities of Boron and Desert Lake and north of the boundaries of Edwards AFB. The existing U.S. Borax open pit mine and refinery are located approximately two miles north of the project site.

The site is located within Sections 5 and 6, Township 10N, Range 7W; Sections 1 and 2, Township 10N, 8W; and Sections 33 and 35, Township 11N, Range 8W, San Bernardino Base Meridian. Additionally, the project site is located on the Boron and Leuhman Ridge 7.5-minute USGS quadrangles. Sites 1, 2, and 3 are located within the Leuhman Ridge USGS quadrangle; Sites 4 and 5 are located within the Boron USGS quadrangle (USGS 2012; USGS 2018).

As shown on **Figure 3-2**, *Project Site Boundaries*, the project consists of five sites (hereafter referred to as Sites 1 through 5) located on 22 privately owned parcels. **Table 3-1**, *Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage*, identifies the 22 individual parcels by site, their respective assessor parcel numbers (APN), existing Map Code designations, existing and proposed Zone Designations, and the acreages of the proposed zone change and conditional use permit (CUP) boundaries. Refer also to **Figure 3-3**, *Aerial Photograph*, for project context within the surrounding community.

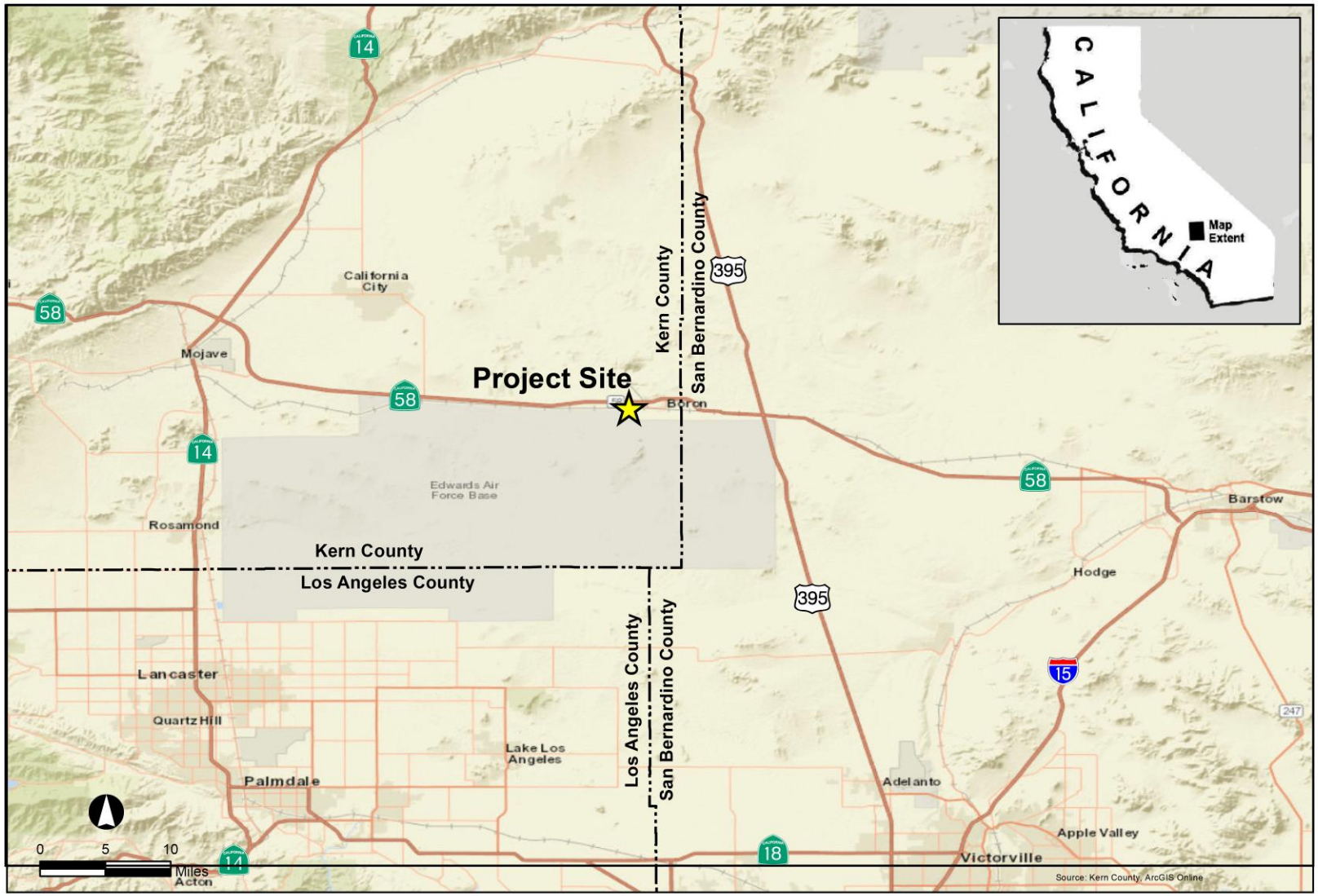
It should be noted that the overall project site totals approximately 2,554 acres; refer to **Figure 3-2**, *Project Site Boundaries*. Split zoning, defined as having two or more different Zone Districts within one APN, is not supported by the County and therefore, the project proposes the rezoning on of entire APNs within the project site. However, the CUP "development footprint," where the solar panels and supporting infrastructure would be installed, would be of a lesser acreage as compared to the overall project site due to setbacks from the Communities of Desert Lake and Boron (refer to **Figure 3-4**, *Proposed CUP Boundaries*).

Table 3-1. Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage

Site	APN	Total Acreage	Existing Map Code Designation	Existing Zoning	Proposed Zoning	Zone Change Acres	CUP Acres
1	244-010-19	10.15	8.3	A-1	A	10.15	10.15
	244-010-20	10.15	8.3	A-1	A	10.15	10.15
	244-010-21	10.15	8.3	A-1	A	10.15	10.15
	244-010-22	10.15	8.3	A-1	A	10.15	10.15
	244-010-36	259.34	8.3	A-1	A	259.34	259.34
	Totals	***299.94***				***299.94***	***299.94***
2	244-010-33	302.09	8.3	A-1, R-1	A	302.09	169.92
	244-040-03	635.20	8.3	A-1	A	635.20	635.20
	Totals	***937.29***				***937.29***	***805.12***
3	244-040-07	155.00	7.1/7.3	M-1	M-1	N/A	155.00
	244-040-10	20.00	7.1	M-1	M-1	N/A	20.0
	244-040-11	28.49	7.1	M-1	M-1	N/A	28.49
	244-040-12	28.49	7.1	M-1	M-1	N/A	28.49
	244-040-14	120.00	7.1	M-1	M-1	N/A	120.00
	244-040-15	158.00	7.1/7.3	M-1	M-1	N/A	158.00
	244-040-17	26.05	7.1	M-1	M-1	N/A	26.05
	244-040-19	20.00	7.1	M-1	M-1	N/A	20.0
	244-040-20	20.00	7.1	M-1	M-1	N/A	20.0
	244-040-21	16.98	7.1	M-1	M-1	N/A	16.98
	244-040-22	1.08	7.1	M-1	M-1	N/A	1.08
	244-040-23	26.17	7.1	M-1	M-1	N/A	26.17
	Totals	***620.26***				***N/A***	***620.26***
4	232-081-10	221.26	8.3	A-1	A	221.26	116.34
	232-220-36 (partial)	223.12	8.5	A-1	A	223.12	223.12
	Totals	***444.38***				***444.38***	***339.46***
5	232-220-37 (partial)	252.31	8.5/2.5	A-1	A	252.31	252.31
	Totals	***252.31***				***252.31***	***252.31***
Project Totals for all Sites		***2,554.18***				1,933.92	2,317.09

General Plan Map Code: 2.5 = Flood Hazard Overlay; 7.1 = Light Industrial; 7.3 = Heavy Industrial; 8.3 = Extensive Agriculture (Min. 20 Acre Parcel Size); 8.5 = Resource Management (Min. 20 Acre Parcel Size)

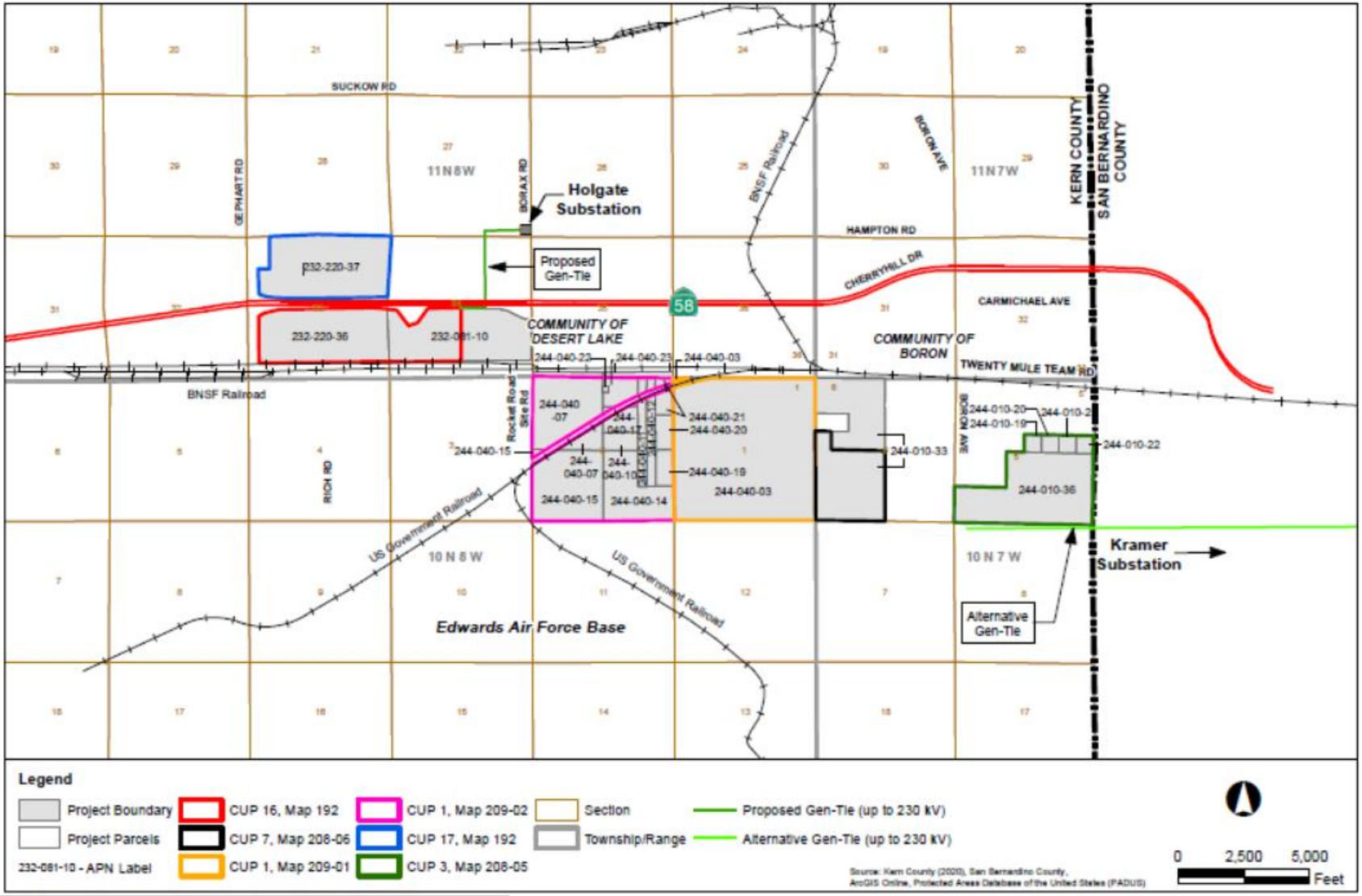
Zone Designation: A = Exclusive Agriculture; A-1 = Limited Agriculture; M-1 = Light Industrial; R-1 = Low-Density Residential



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 3-1. REGIONAL VICINITY MAP



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 3-2. PROJECT SITE BOUNDARIES

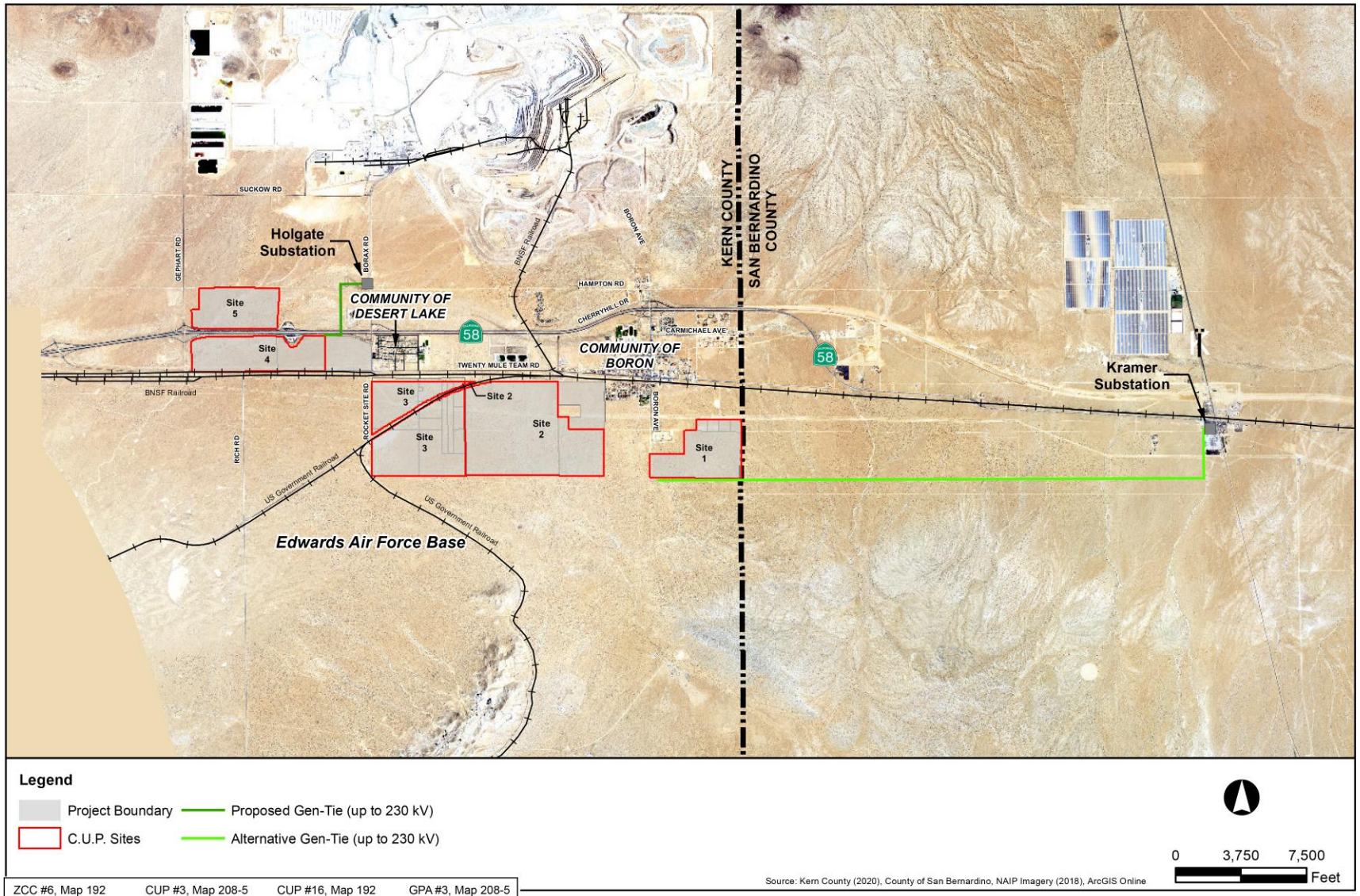


FIGURE 3-3. AERIAL PHOTOGRAPH

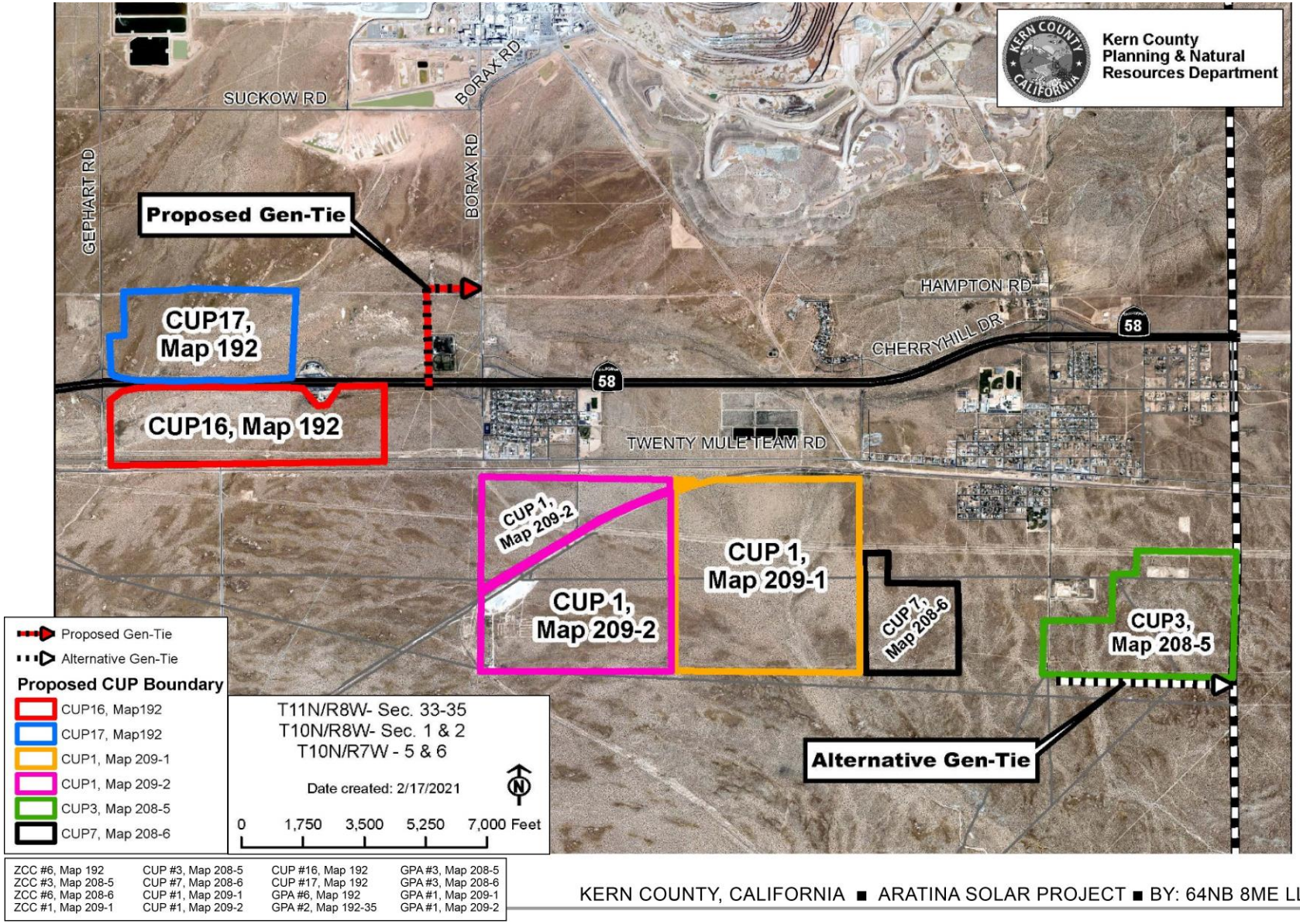


FIGURE 3-4. PROPOSED CUP BOUNDARIES

3.3 Project Objectives

The proposed project would provide the State of California with a renewable energy source that would assist the State of California in complying with the Renewables Portfolio Standard (RPS) under Senate Bill (SB) 350 (2015), which requires that 50 percent of all electricity sold in the state to be generated from renewable energy sources by December 31, 2030. Senate Bill 100 was approved in September 2018 and would increase the RPS to a 100 percent goal by 2045. As further required by the *State CEQA Guidelines*, the specific objectives of the project are provided below:

Construct and operate a solar energy facility capable of producing up to 530 MW of electricity and 600 MW of energy storage in an economically feasible and commercially financeable manner that can be marked to different power utilities companies.

- To provide energy to the electric grid to meet increasing demand for in-state generation.
- Assist Kern County in promoting its role as the State's leading producer of renewable energy.
- Site and design the project is an environmentally responsible manner consistent with current Kern County guidelines.
- To promote economic development and bring living-wage jobs to the region throughout the life of the proposed project.
- Support California's efforts to reduce greenhouse gas (GHG) emissions consistent with the timeline established in 2006 under California Assembly Bill 32, the Global Warming Solutions Act of 2006, which requires the California Air Resources Board to reduce statewide emissions of GHGs to at least the 1990 emissions level by 2020. This timeline was updated in 2016 under SB 32, which requires that statewide GHG emissions are reduced to at least 40 percent below the statewide GHG emissions limit by 2030.
- Support California's aggressive RPS Program consistent with the timeline established by SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") as approved by the California Legislature and signed by Governor Brown in September 2018, which established a 50 percent RPS goal by December 31, 2026, 60 percent by December 31, 2030, and a goal that 100 percent of electric retail sales to end-use customers be provided by renewable energy and zero-carbon resources by 2045.

3.4 Environmental Setting

3.4.1 Regional Setting

The project site is situated within southeastern of Kern County, California, within the Antelope Valley, which sits at the western edge of the Mojave Desert. The project lies approximately 80 miles southeast of the City of Bakersfield and roughly 40 miles east of the Tehachapi Mountains, which extend to approximately 4,000 feet above the valley floor. The area is characterized by the large sloping valley floor,

interspersed by occasional low rolling hills. Refer to **Figure 3-1**, *Regional Vicinity Map,* and **Figure 3-3**, *Aerial Photograph.*

Primary access to the area is provided by SR 58, which runs east-west and provides access to the City of Bakersfield to the west and Interstate 15 (I-15) to the east, and SR 14 and State Highway 395 which run generally north-south through the area; State Highway 395 also provides access to I-15 to the south. The region is generally characterized by small-scale rural communities, agricultural uses, and expansive tracts of undeveloped land. The U.S. Borax open pit mine, located approximately 2 miles north of the project site, is the world's largest borate mine and the largest open pit mine in California. Other heavy industrial activities involving land modifications can be seen on Leuhman Ridge, approximately 1.3 miles south of the project site. Leuhman Ridge and most of the land south and west of the site is located on federal land managed by the United States Department of Defense (Edwards Air Force Base).

The project site is located on the Boron and Leuhman Ridge 7.5-minute USGS quadrangles. Sites 1, 2, and 3 are located within the Leuhman Ridge USGS quadrangle. Sites 4 and 5 are located within the Boron USGS quadrangle (USGS 2012; USGS 2018).

3.4.2 Local Setting and Surrounding Land Uses

Existing land use in the project area generally includes undeveloped desert lands, scattered rural residential uses, access roadways, and other wind and solar energy projects that are currently in various stages of planning or construction. Other development in the surrounding area includes the Boron Sanitary Landfill, Borax mine, Boron Recreational Park, and the Edwards AFB. Rural residential uses are found in the unincorporated communities of Desert Lake and Boron to the north of the project site, located along SR 58. The Burlington-Santa Fe Railroad crosses the project site, traversing generally north-south through Site 3, then paralleling SR 58 east-west; refer to **Figure 3-2**, *Project Site Boundaries,* and **Figure 3-3**, *Aerial Photograph.*

The sensitive receptors closest to the project site are the Desert Lake Apartments approximately 0.13 miles to the north of Site 3 across Twenty Mule Team Road. Single-family residences are located approximately 0.3 miles northeast of the northeastern corner of Site 2 along Ferguson Street in the community of Boron; Boron Recreational Park, a local park, is located approximately 0.5 miles northeast of the northeastern corner of Site 2. The closest school to the site is the West Boron Elementary School, located approximately 0.30 miles north of Site 3.

The sensitive receptors closest to the project site are single-family residences located approximately 520 feet north of the Site 3 CUP boundary across Twenty Mule Team Road in the community of Desert Lake. In Boron, the nearest sensitive receptors are single-family residences located approximately 1,650 feet (0.31 mile) north of the Site 2 CUP boundary across South Wesley Street.

The Kern County Airport Land Use Compatibility Plan (ALUCP) covers operations at the Edwards AFB, which borders the project site to the west and south. The nearest public airport to the project site is the California City Municipal Airport, located approximately 18 miles northwest of the project site. The project site is not located within any safety or noise zones for the California City Municipal Airport.

Elevations within the project site range from 2,542 above mean sea level (amsl) feet in the southeast corner to 2,340 feet amsl in the southwest corner. The project site is relatively flat with some slight undulations in the western area. Drainage in the western area is to the north and northwest. Further to the west the drainage

pattern transitions to westerly and then southwesterly drainage towards Rogers Dry Lake located three miles southwest of the project area within Edwards AFB.

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the FIRMs for the project area, portions of the project are located in a 100-year flood area (Zones A and AH, 1% annual chance of flooding) and in a 500-year flood area (Zone X, 0.2% annual chance of flooding); refer to **Figure 3-5**, *FEMA Floodplain Zone Hazards*. The major source of flooding in this area is the Twenty Mule Team Creek. The majority of Site 5 and the westernmost portion of Site 4 are located within the 100-year floodplain of the Twenty Mule Team Creek. The 100-year floodplain of an unnamed creek crosses Site 2. The majority of Site 4 is located within the 500-year floodplain.

The project site is not designated by the California Department of Conservation (DOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Sites 1, 2, 4, and 5 are designated as nonagricultural and natural vegetation. The majority of Site 3 is designated as nonagricultural and natural vegetation, except for the southwest portion that is designated as vacant or disturbed land. There are no lands designated as important farmland located adjacent to or in the vicinity of the project site. Additionally, no lands affected by the project are subject to a Williamson Act Land Use contract, nor are they located within a Kern County Agricultural Preserve.

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

The proposed project would be served by the Kern County Sheriff's Department for law enforcement and public safety services (Boron Substation, 26949 Cote Street), Kern County Fire Department for fire protection services (Fire Station #17, 26965 Cote Street), and Kern County Medical Emergency Services for medical care and emergency services.

There are several existing, planned, and permitted solar energy and transmission projects in the Mojave Desert Air Basin where the project site is located. However, there are currently no solar projects proposed or awaiting construction within a 6-mile radius of the project site.

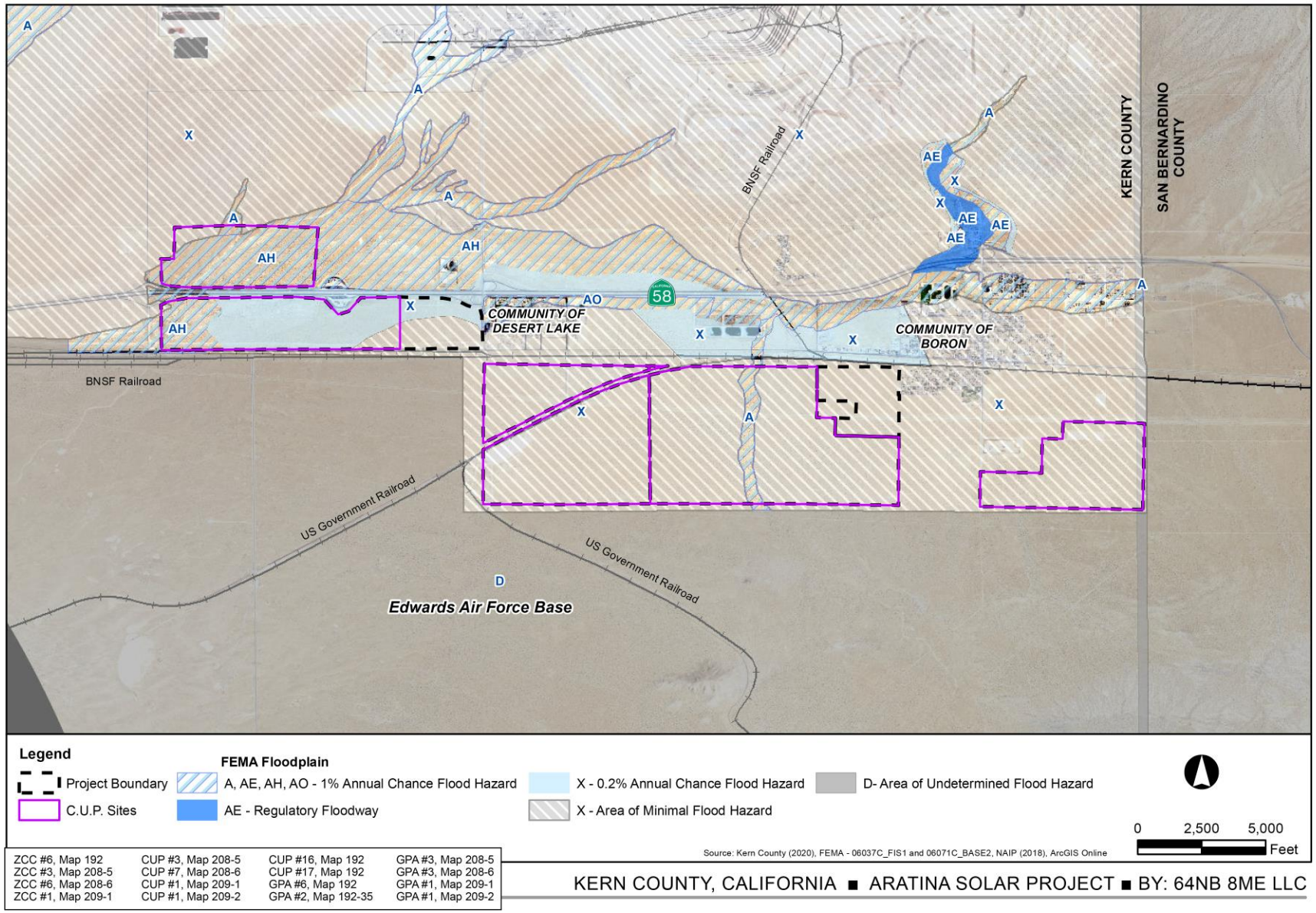


FIGURE 3-5. FEMA FLOODPLAIN ZONE HAZARDS

3.5 Land Use and Zoning

Kern County General Plan

The project site is located entirely within the Kern County General Plan area. As shown on **Table 3-1**, *Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage*, and **Figure 3-6**, *Existing General Plan and Specific Plan Land Use Designations*, the project site consists of 22 privately owned parcels designated by the Kern County General Plan as Map Code 7.1 (Light Industrial); 7.3 (Heavy Industrial); 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size); 8.5 (Resource Management, Minimum 20 Acre Parcel Size); and 8.5/2.5 (Resource Management, Minimum 20 Acre Parcel Size/Flood Hazard).

Existing land uses in the surrounding area are primarily undeveloped. **Table 3-2**, *Existing Project Sites and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning*, below, identifies the project site's existing and surrounding land uses for Sites 1-5.

The proposed project requests a General Plan Amendment to the Circulation Element of the Kern County General Plan. **Figure 3-7**, *Proposed Circulation Element Amendments*, depicts the future road reservations in unincorporated Kern County proposed to be deleted as part of the proposed project.

Kern County Zoning Ordinance

The project parcels in unincorporated Kern County are subject to the provisions of the Kern County Zoning Ordinance. The project site is zoned as specified in **Table 3-2**, *Existing Project Sites and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning*, below, and depicted on **Figure 3-8**, *Existing Zoning*. The project site is currently zoned A-1 (Limited Agriculture), M-1 (Light Industrial), and R-1 (Low-Density Residential). Refer also to **Figure 3-9**, *Proposed Zoning*, which shows the proposed zone changes within Zone Maps 192, 208-5, 208-6, and 209-1.

Table 3-2. Existing Project Sites and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Site 1	**Undeveloped**	**8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)**	**A-1 (Limited Agriculture)**
North	Undeveloped, residential dwellings, Boron Recreation Park	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 3.1 (Parks and Recreation Areas), 5.4 (Maximum 1 Unit/Net Acre)	A (Exclusive Agriculture), A-1 (Limited Agriculture), R-1 (Low-Density Residential)
East	Undeveloped	San Bernardino County	San Bernardino County
South	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land), 8.5 (Resource Management)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped, Boron Sanitary Landfill	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 8.5 (Resource Management), 3.4 (Solid Waste Disposal Facility), 3.4.1 (Solid Waste Disposal Facility Buffer)	A-1 (Limited Agriculture), A (Exclusive Agriculture), R-1 (Low-Density Residential)

Table 3-2, continued

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Site 2	**Undeveloped**	**8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)**	**A-1 (Limited Agriculture); R-1 (Low-Density Residential)**
North	Undeveloped, railroad, commercial	3.3 (Other Facilities), 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 7.1 (Light Industrial), 7.2 (Service Industrial)	A-1 (Limited Agriculture); R-1 (Low-Density Residential); M-1 (Light Industrial); M-2 (Medium Industrial)
East	Undeveloped, residential dwellings	5.3 (Maximum 10 Units/Net Acre), 5.4 (Maximum 4 Units/Net Acre), 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 8.5 (Resource Management)	R-2 (Medium-Density Residential), R-1 (Low-Density Residential), A-1 (Limited Agriculture)
South	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped, railroad	7.1 (Light Industrial)	M-1 (Light Industrial)
Site 3	**Undeveloped**	**7.1 (Light Industrial); 7.3 (Heavy Industrial)**	**M-1 (Light Industrial)**
North	Undeveloped, residential dwellings (Desert Lake community), railroad	7.1 (Light Industrial), 8.5 (Resource Management, Min. 20 Acre Parcel Size)	CH (Highway Commercial); C-1 (Neighborhood Commercial), C-2 (General Commercial); A-1 (Limited Agriculture); R-1 (Low-Density Residential)
East	Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size),	A-1 (Limited Agriculture)
South	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped, railroad	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
Site 4	**Undeveloped**	**8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size); 8.5 (Resource Management, Min. 20 Acre Parcel Size)**	**A-1 (Limited Agriculture)**
North	Undeveloped	8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard), 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
East	Residential dwellings (Desert Lake community)	5.3 (Maximum 10 Units/Net Acre), 6.2 (General Commercial)	R-1 (Low Density Residential), C-1 (Neighborhood Commercial), C-2 (General Commercial)
South	Undeveloped, railroad, Edwards Air Force Base	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
West	Undeveloped	6.3 (Highway Commercial)	CH PD (Highway Commercial, Precise Development Combining)
Site 5	**Undeveloped**	**8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)**	**A-1 (Limited Agriculture)**
North	Undeveloped	8.5 (Resource Management)	A-1 (Limited Agriculture)
East	Undeveloped	8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard)	A-1 (Limited Agriculture)
South	Undeveloped	8.5 (Resource Management), 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
West	Undeveloped	6.3 (Highway Commercial)	CH PD (Highway Commercial, Precise Development Combining)

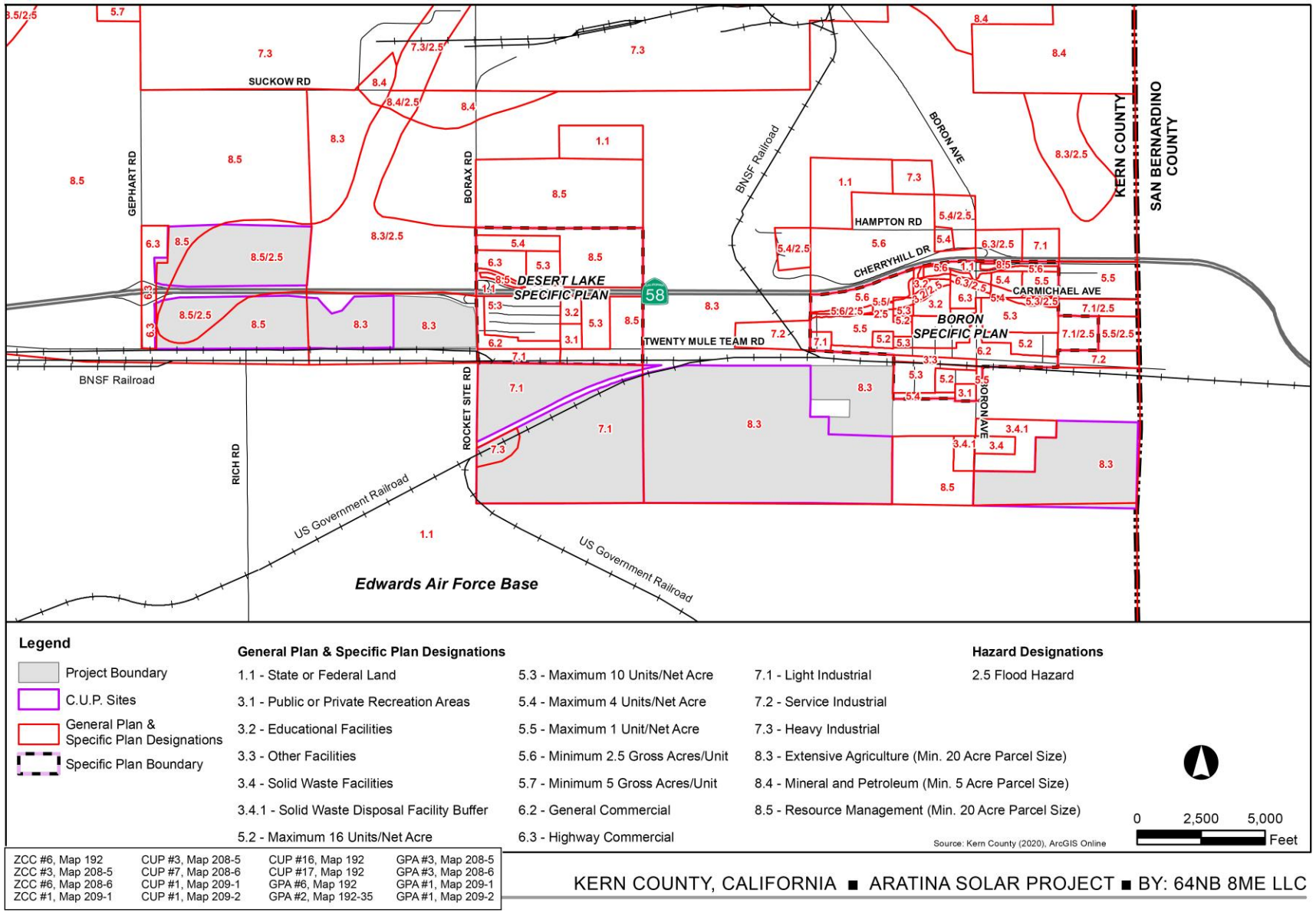


FIGURE 3-6. EXISTING GENERAL PLAN AND SPECIFIC PLAN LAND USE DESIGNATIONS

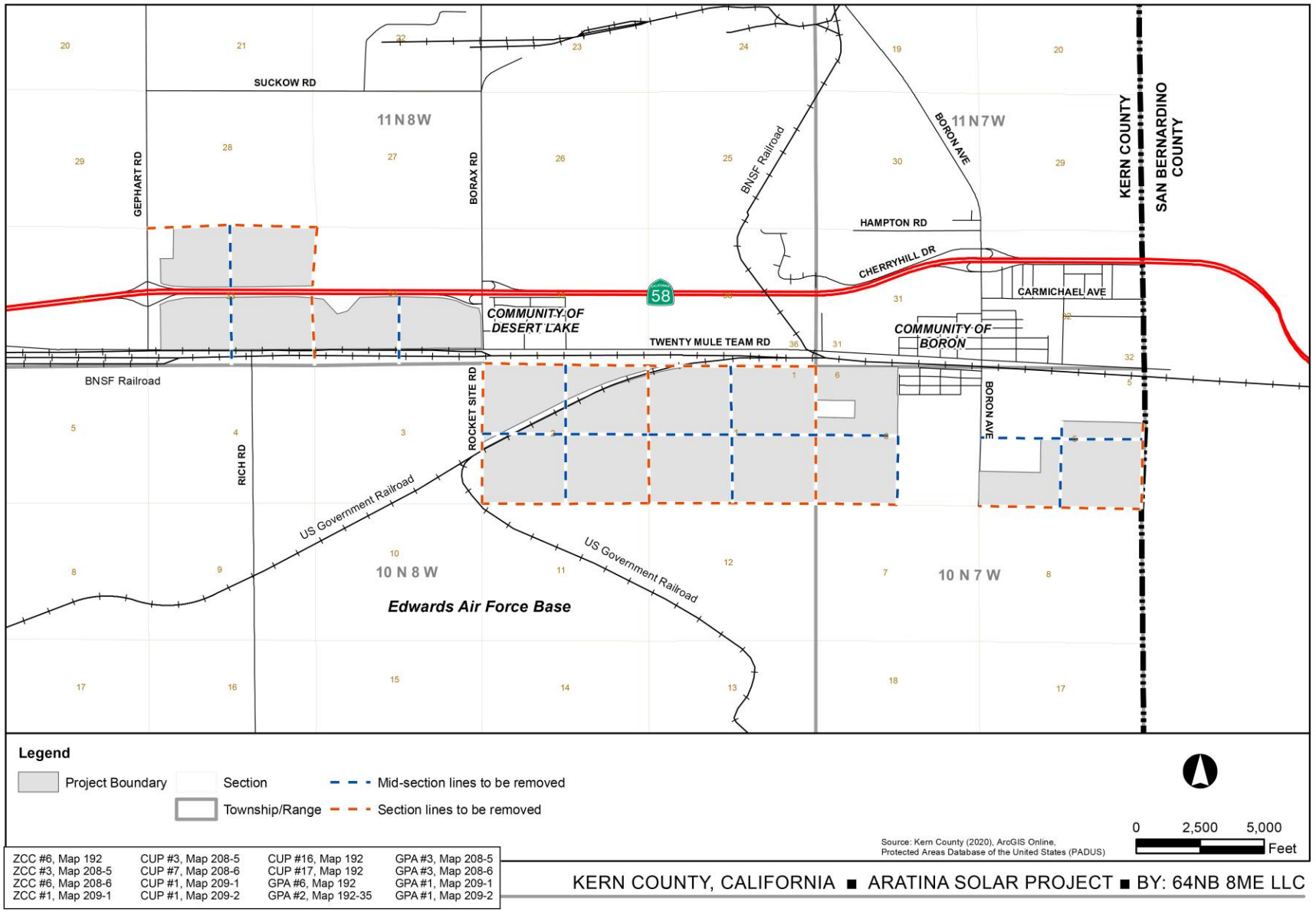
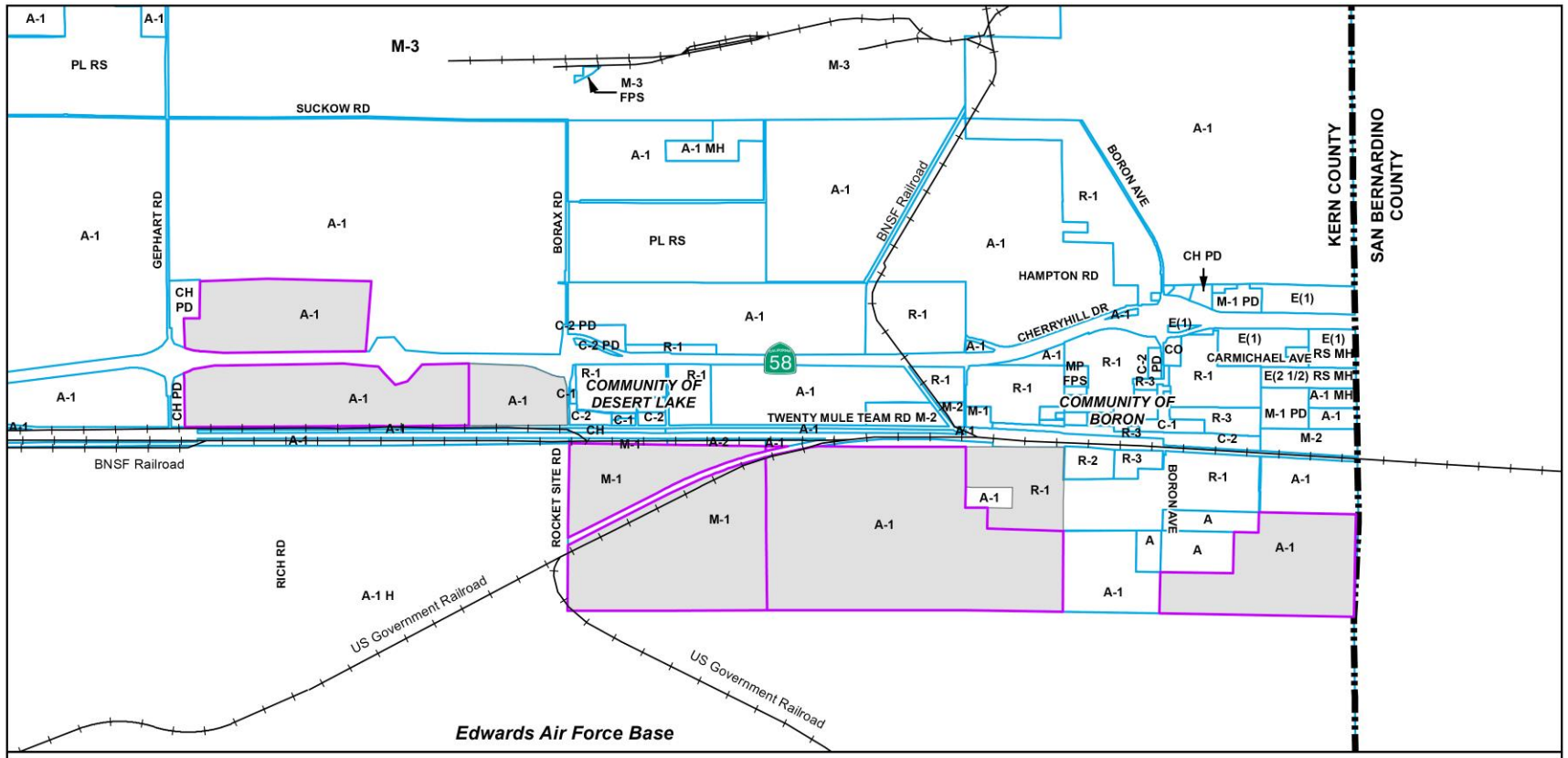


FIGURE 3-7. PROPOSED CIRCULATION ELEMENT AMENDMENTS



Legend

- Project Boundary
- C.U.P. Sites
- Zoning Districts

Zoning Designations

A - Exclusive Agriculture	E(2 1/2) - E(1) - Estate 2.5 Acres	R-2 - Medium Density Residential	RS - Residential Suburban Combining
A-1 - Limited Agriculture	M-1 - Light Industrial	FPP - Floodplain Primary	
C-1 - Neighborhood Commercial	M-2 - Medium Industrial	FPS - Floodplain Secondary Combining	
C-2 - General Commercial	M-3 - Heavy Industrial	H - Airport Approach Heigh Combining	
CH - Commercial Highway	MP - Mobilehome Park	MH - Mobilhome Combining	
CO - Commercial Office	R-3 - High Density Residential	PD - Precise Development Combining	
E(1) - Estate 1 Acre	R-1 - Low Density Residential	PL - Platted Lands, Residential Suburban Combining	

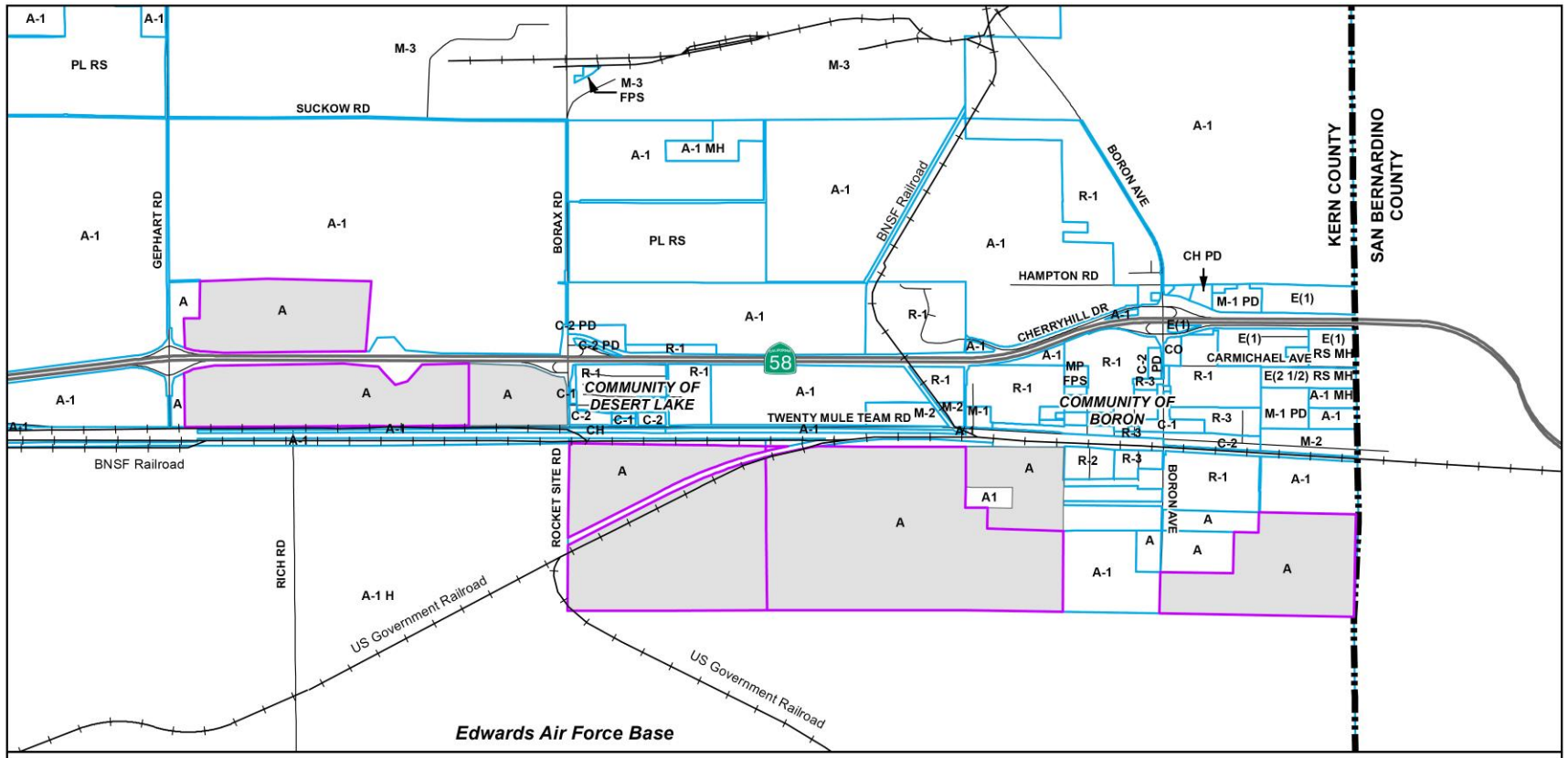
0 2,500 5,000 Feet

Source: Kern County (2020), ArcGIS Online

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 3-8. EXISTING ZONING



Legend

- Project Boundary
- C.U.P. Sites
- Zoning Districts

Zoning Designations

A - Exclusive Agriculture	E(2 1/2) - E(1) - Estate 2.5 Acres	R-2 - Medium Density Residential	RS - Residential Suburban Combining
A-1 - Limited Agriculture	M-1 - Light Industrial	FPP - Floodplain Primary	
C-1 - Neighborhood Commercial	M-2 - Medium Industrial	FPS - Floodplain Secondary Combining	
C-2 - General Commercial	M-3 - Heavy Industrial	H - Airport Approach Heigh Combining	
CH - Commercial Highway	MP - Mobilehome Park	MH - Mobilhome Combining	
CO - Commercial Office	R-3 - High Density Residential	PD - Precise Development Combining	
E(1) - Estate 1 Acre	R-1 - Low Density Residential	PL - Platted Lands, Residential Suburban Combining	

0 2,500 5,000 Feet

Source: Kern County (2020), ArcGIS Online

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 3-9. PROPOSED ZONING

3.6 Proposed Project

The Aratina Solar Project (proposed project) by 64NB 8ME LLC (project proponent) includes a request for land use entitlements necessary to facilitate the construction and operation of a photovoltaic (PV) solar power generating facility and associated facilities that would generate a combined total of approximately 530 megawatts (MW) of renewable electrical energy and (up to) 600 MW of energy storage; refer to **Figure 3-1**, *Regional Vicinity Map.* The proposed project consists of five separate sites (Sites 1 through 5) located on 22 parcels totaling approximately 2,554 acres; however, it is anticipated that approximately 2,317 acres would be utilized (developed) for the construction of the solar panels and permanent facilities; refer to **Figure 3-2**, *Project Site Boundaries.*

The project proponent is requesting the following discretionary approvals listed below. Refer to **Table 3-1**, *Project Assessor Parcel Numbers, Existing Map Codes, Existing and Proposed Zoning, and Acreage;* **Figure 3-4**, *Proposed CUP Boundaries;* **Figure 3-6**, *Existing General Plan and Specific Plan Land Use Designations;* **Figure 3-7**, *Proposed Circulation Element Amendments*; **Figure 3-8**, *Existing Zoning; and* **Figure 3-9**, *Proposed Zoning.*

a) Changes in zone classifications as follows:

- Zone Change Case No. 6, Map No. 192 – from A-1 to A for 696.69 acres
- Zone Change Case No. 3, Map No. 208-5 – from A-1 to A for 299.94 acres
- Zone Change Case No. 6, Map No. 208-6 – from A-1 to A for 222.49 acres and from R-1 to A for 79.6 acres
- Zone Change Case No. 1, Map No. 209-1 from A-1 to A for 635.20 acres

b) Conditional Use Permits to allow for the construction and operation of five solar facilities with a total generating capacity of approximately 530 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 600 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 192, 208-5, 208-6, and 209-1) and the M-1 (Light Industrial) Zone District (in Zone Map 209-2) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- Site 1 (up to 70 MW)
    - Conditional Use Permit No. 3, Map No. 208-5 for 299.94 acres
- Site 2 (up to 180 MW)
    - Conditional Use Permit No. 7, Map No. 208-6 for 169.92 acres
    - Conditional Use Permit No. 1, Map No. 209-1 for 635.20 acres
- Site 3 (up to 140 MW)
    - Conditional Use Permit No. 1, Map No. 209-2 for 620.26 acres

- Site 4 (up to 80 MW)
    - Conditional Use Permit No. 16, Map No. 192 for 339.46 acres
- Site 5 (up to 60 MW)
    - Conditional Use Permit No. 17, Map No. 192 for 252.31 acres

c) 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:

- General Plan Amendment No. 6, Map No. 192
- General Plan Amendment No. 2, Map No. 192-35
- General Plan Amendment No. 3, Map No. 208-5
- General Plan Amendment No. 3, Map No. 208-6
- General Plan Amendment No. 1, Map No. 209-1
- General Plan Amendment No. 1, Map No. 209-2

The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's (SCE) Holgate Substation to the north. Alternatively, the project may interconnect at SCE's Kramer Substation to the east, located in San Bernardino County via an up to 230kV transmission line located within an Edwards Air Force Base utility corridor. 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.

With the requested zone change, the project would be zoned A (Exclusive Agriculture) within Zone Maps 192, 208-5, 208-6, 209-1) and M-1 (Light Industrial) in Zone Map 209-2. Therefore, pursuant to Chapter 19.12.030.G and Chapter 19.36.30.G, Conditional Use Permits (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 project has an anticipated operational life of up to 35 years. At the end of the project's operational term, the project proponent would determine whether the project site should be decommissioned and deconstructed or if it would seek an extension of its CUP. If any portion of the project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

3.7 Project Characteristics

Project Facilities

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

- PV solar modules
- Collection, inverter stations, and transformer systems
- Energy storage system
- Substation(s)
- Operations and maintenance (O&M) facilities
- Onsite meteorological stations and towers
- Transmission line
- Stormwater facilities/detention
- Site access and security
- Water storage tank(s)
- Project site lighting

PV Solar Module Configuration

The proposed project would utilize photovoltaic panels or modules [including but not limited to concentrated photovoltaic technology (CPV) or bi-facial technology which have similar rectangular shapes, sizes and thickness] on mounting frameworks to convert sunlight directly into electricity. Individual panels would be installed on either fixed-tilt or tracker mount systems (single- or dual-axis, using galvanized steel or aluminum). 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 10 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 3-10A** to **3-10L** show the proposed layout of the solar panels within the respective sites.

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 station may lie within an enclosed or canopied metal structure, typically on a skid or concrete mounted pad.

Energy Storage System

Each Site may include one or more Energy Storage Systems (ESS), located at or near a substation/switchyard (on-site or shared) and/or at the inverter stations, but possibly elsewhere on-site. Such large-scale ESSs would be up to 600 MW-AC in capacity and up to 25 acres in total area. ESSs consist of modular and scalable battery packs and battery control systems that conform to U.S. national safety standards. The ESS modules, which could include commercially available lithium or flow batteries, typically consist of standard International Organization for Standardization containers (approximately 40 feet in length by 8 feet in width by 8 feet in height) housed in pad- or post-mounted, stackable metal structures, but may also be housed in a dedicated building(s) in compliance with applicable regulations. The maximum height of a dedicated structure is not expected to exceed 25 feet. The actual dimensions and number of energy storage modules and structures vary depending on the application, supplier, and configuration chosen, as well as on offtaker/power purchase agreement requirements and on County building standards. The ESS modules would have a fire rating in conformance with Kern County standards.

Substation(s)

Output from the inverter stations would be transferred via electrical conduits and electrical conductor wires to one or more on-site substation(s) or switchyard(s) (collectively referred to as a "substation"). Each substation may contain several components, including auxiliary power transformers, distribution cabinets, revenue metering systems, microwave transmission tower, and voltage switch gear. Each substation would occupy an area of approximately 200 feet by 200 feet, secured separately by an additional chain-link fence, and typically located along the perimeter of the project. The final location(s) would be determined before issuance of building permits.

Substations typically include a small control building (roughly 500 square feet) standing approximately 10 feet tall. The building is either prefabricated concrete or steel housing with rooms for the voltage switch gear and the metering equipment, a room for the station supply transformer, and a separate control technology room in which the main computer, the intrusion detection system, and the main distribution equipment are housed. Components of this building (e.g., control technology room and intrusion detection system) may alternatively be located at the operations and maintenance (O&M) building(s).

Operations and Maintenance Facilities

Each Site may include an O&M building of approximately 40 feet by 80 feet in size, and approximately 15 feet in height, with associated on-site parking (unpaved); refer to **Figure 3-11**, *Typical Solar Array and O&M Areas*. The O&M building(s) may be co-located with the substation(s) and would be steel framed, with metal siding and roof panels. The O&M building(s) may include the following:

- Office
- Repair building/parts storage
- Control room
- Restroom
- Septic tank and leach field

Roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California Accessibility Regulations.

The proposed project may share O&M facilities with any future energy projects in the area and/or may be remotely operated. Any unused O&M areas on-site may be covered by solar panels.

On-site Meteorological Station

A solar meteorological station would be located on-site, the location of which would be determined at final project design. The meteorological station would include solar energy (irradiance) meters, in addition to an air temperature sensor and wind anemometer. It is anticipated that the maximum height of this equipment would be up to 20 feet.

Transmission Line

From the proposed project's substation(s), power could be transmitted to the Southern California Edison (SCE) Holgate Substation via up to 230 kV overhead and/or underground line(s); refer to **Figure 3-2**, *Project Site Boundaries*, which shows the transmission line alignment. If aboveground, the overhead lines would be mounted on monopoles up to 150 feet in height. A franchise and/or encroachment agreement with Kern County along affected County roadways may ultimately be required for portions of the transmission line.

Alternatively, the proposed project could transmit its power to the SCE Kramer Substation located to the east in San Bernardino County, via an overhead and/or underground transmission line located within an Edwards Air Force Base utility corridor. The alignment of the transmission line being considered is illustrated in **Figure 3-2**, *Project Site Boundaries*.

Site Access and Security

The project would be accessed from various area roadways. Construction traffic would access the project site from Gephart Road, Borax Road, Boron Avenue, and/or 20 Mule Team Road. No improvements to existing off-site roadways would be required to provide construction (or permanent) access to the sites.

The perimeter of each of the 5 sites would be enclosed within a chain link fence with barbed wire measuring up to 8 feet in height (from finished grade). An intrusion alarm system comprised of sensor cables would be integrated into the perimeter fence. Additionally, the project may include security measures such as barbed wire, low voltage fencing with warning reflective signage, controlled access points, security alarms, security camera systems, sensor lights, or security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with project operations.

Controlled access gates would be maintained at the main entrances to Sites 1-5. Project access would be provided to off-site emergency response teams (i.e., fire department) that would respond in the event of an "after-hours" emergency. Enclosure gates would be manually operated with a key provided in an identified key box location.

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

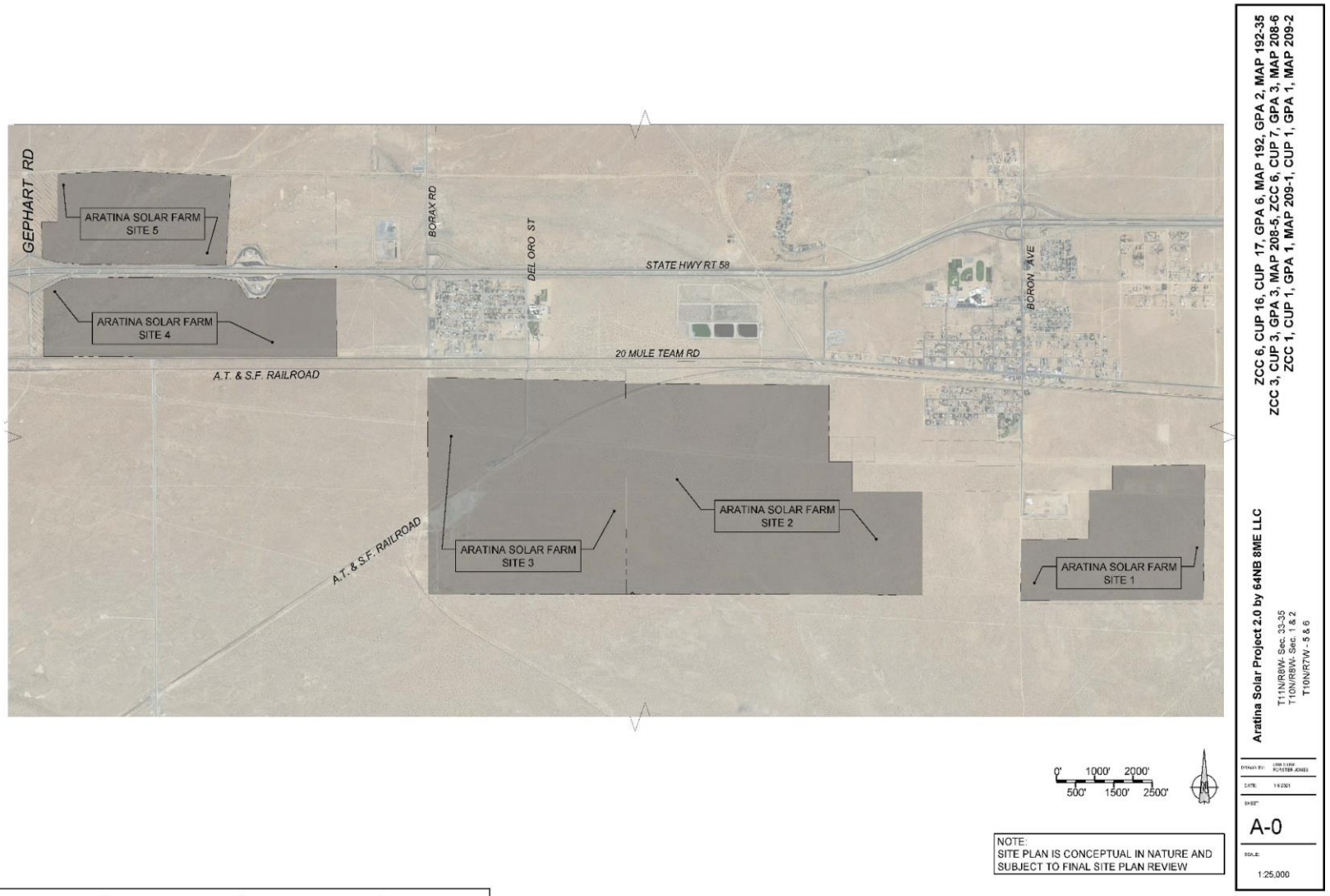
At this preliminary stage of site design, it has not been determined whether on-site stormwater management facilities, such as detention ponds, would be necessary. This will be determined through further hydrological analysis and if required, these facilities will be described and addressed in the EIR.

Water Storage Tank(s)

One or more above-ground water storage tanks with a total capacity of up to 50,000 gallons (greater if required by Fire Department regulations) may be placed on-site near the O&M building(s). The storage tank(s) near the O&M building(s) would have the appropriate fire department connections to be used for fire suppression purposes.

Project Site Lighting

Proposed nighttime lighting on-site would be minimal and is anticipated to be installed at the access gates, substation(s), O&M building(s), and inverters to allow for access and emergency maintenance. 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. Additionally, motion-sensitive cameras would be installed within the solar fields in proximity to the inverters for purposes of security.



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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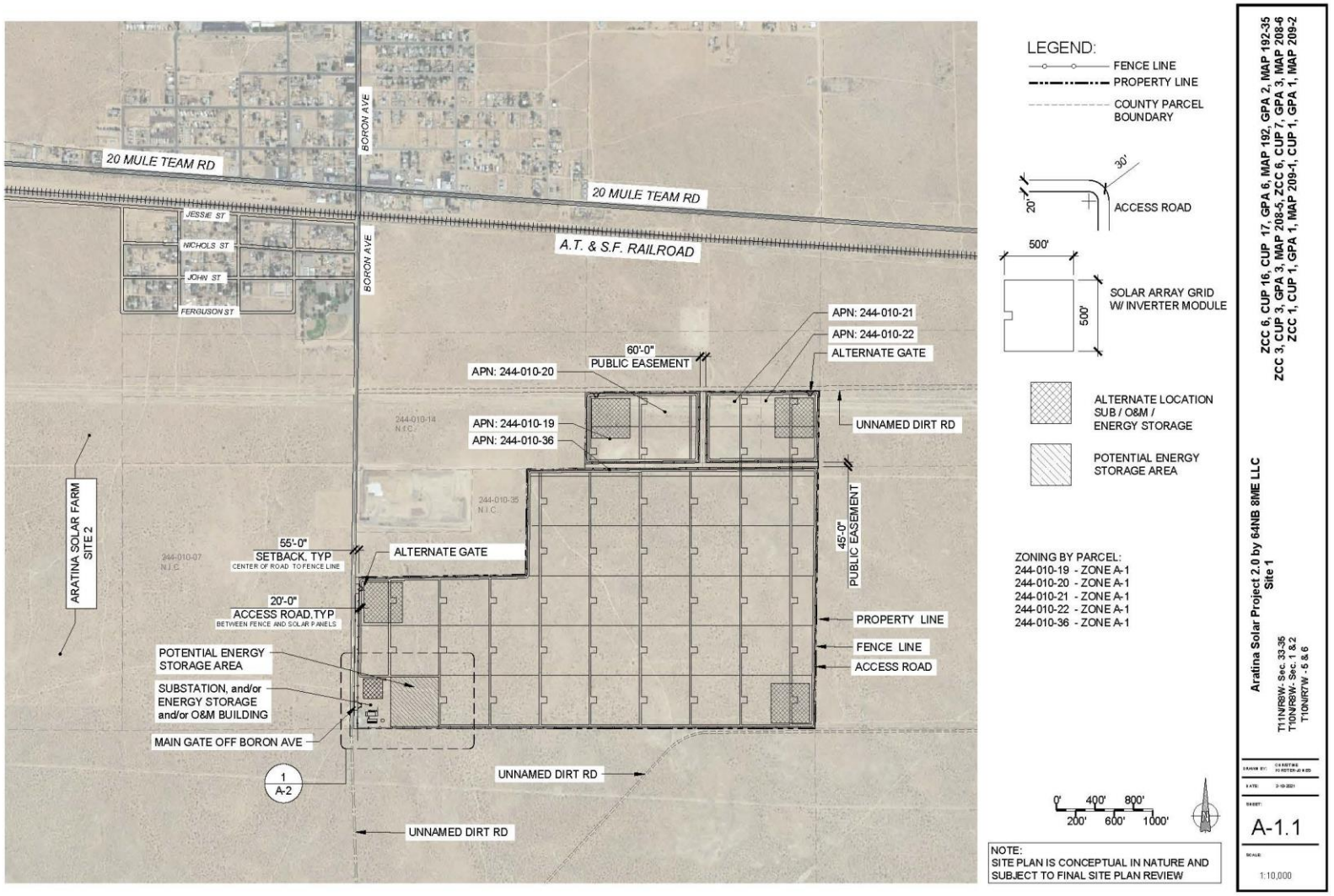
FIGURE 3-10A. OVERALL SITE LAYOUT



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ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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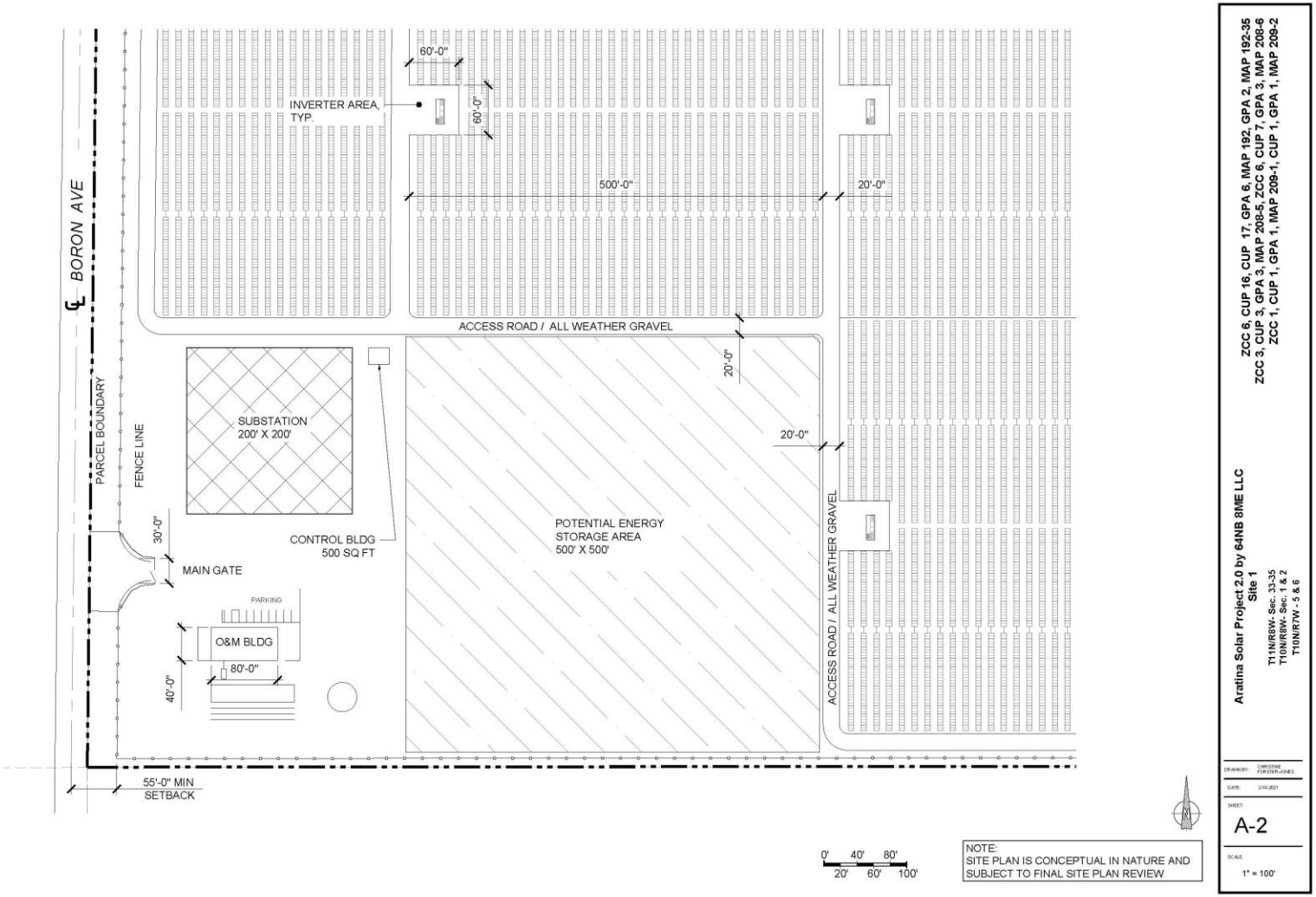
FIGURE 3-10B. SITE PLAN – SITE 1



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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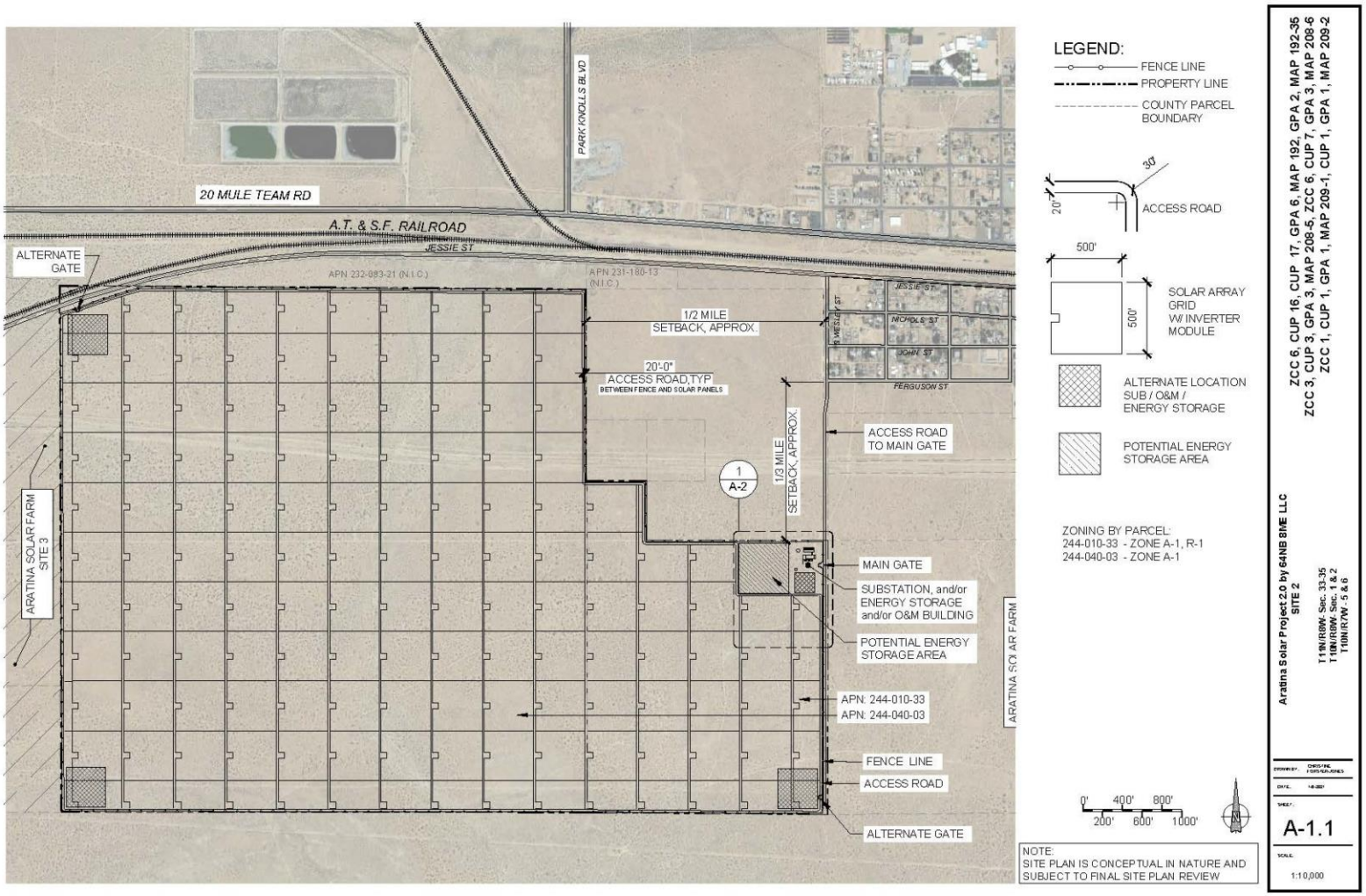
FIGURE 3-10C. SITE 1 CALLOUT A2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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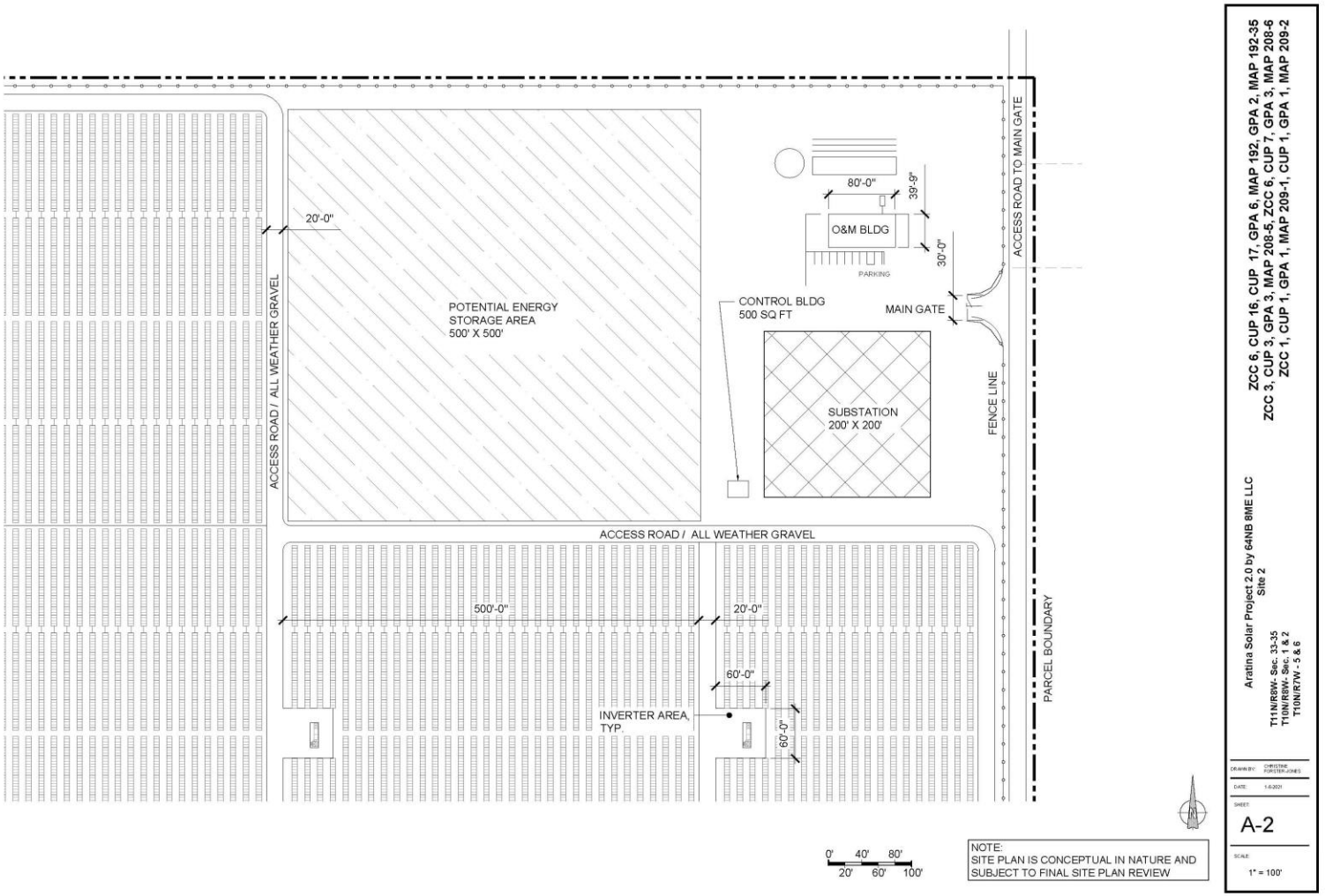
FIGURE 3-10D. SITE PLAN – SITE 2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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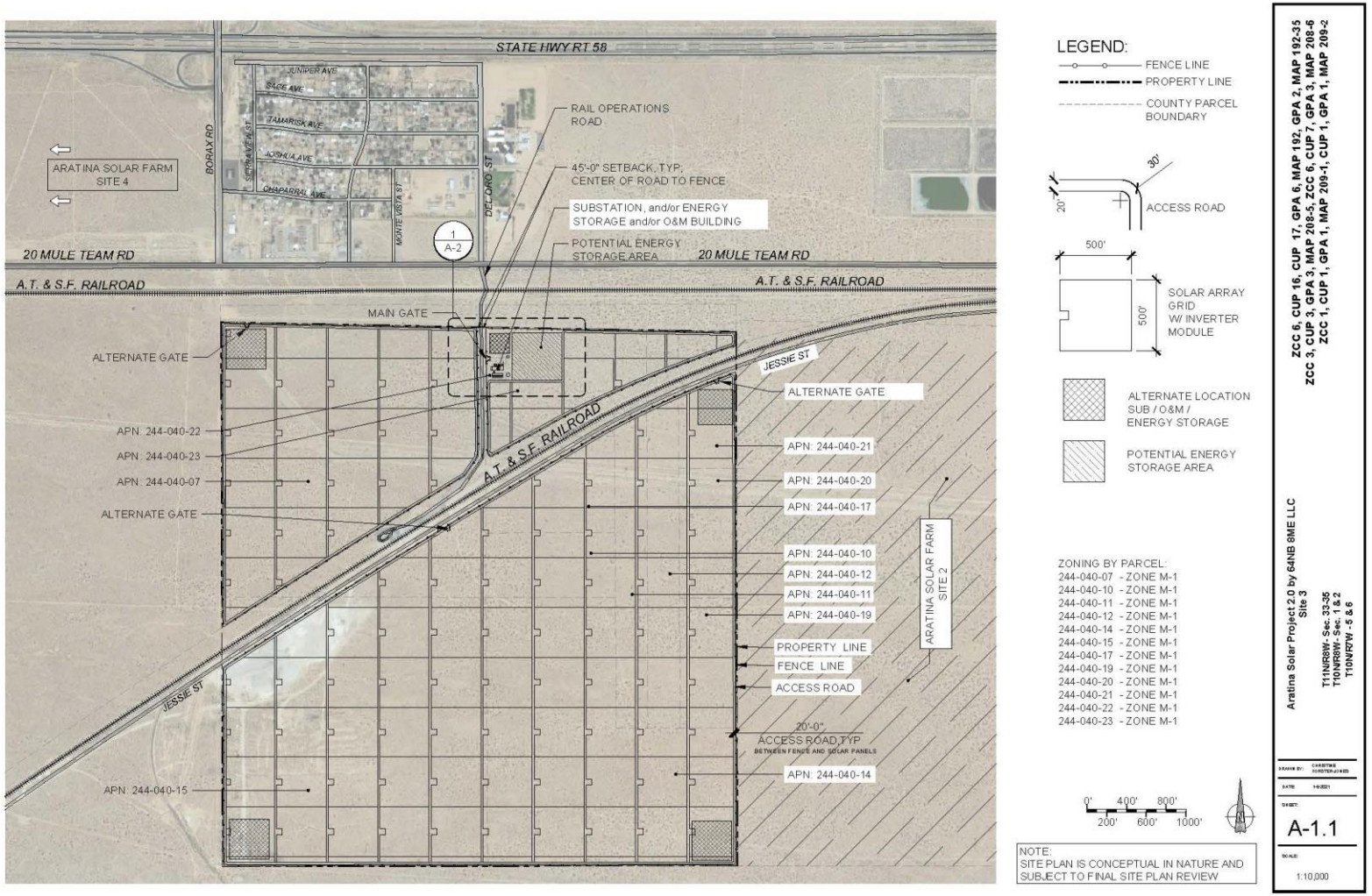
FIGURE 3-10E. SITE 2 CALLOUT A2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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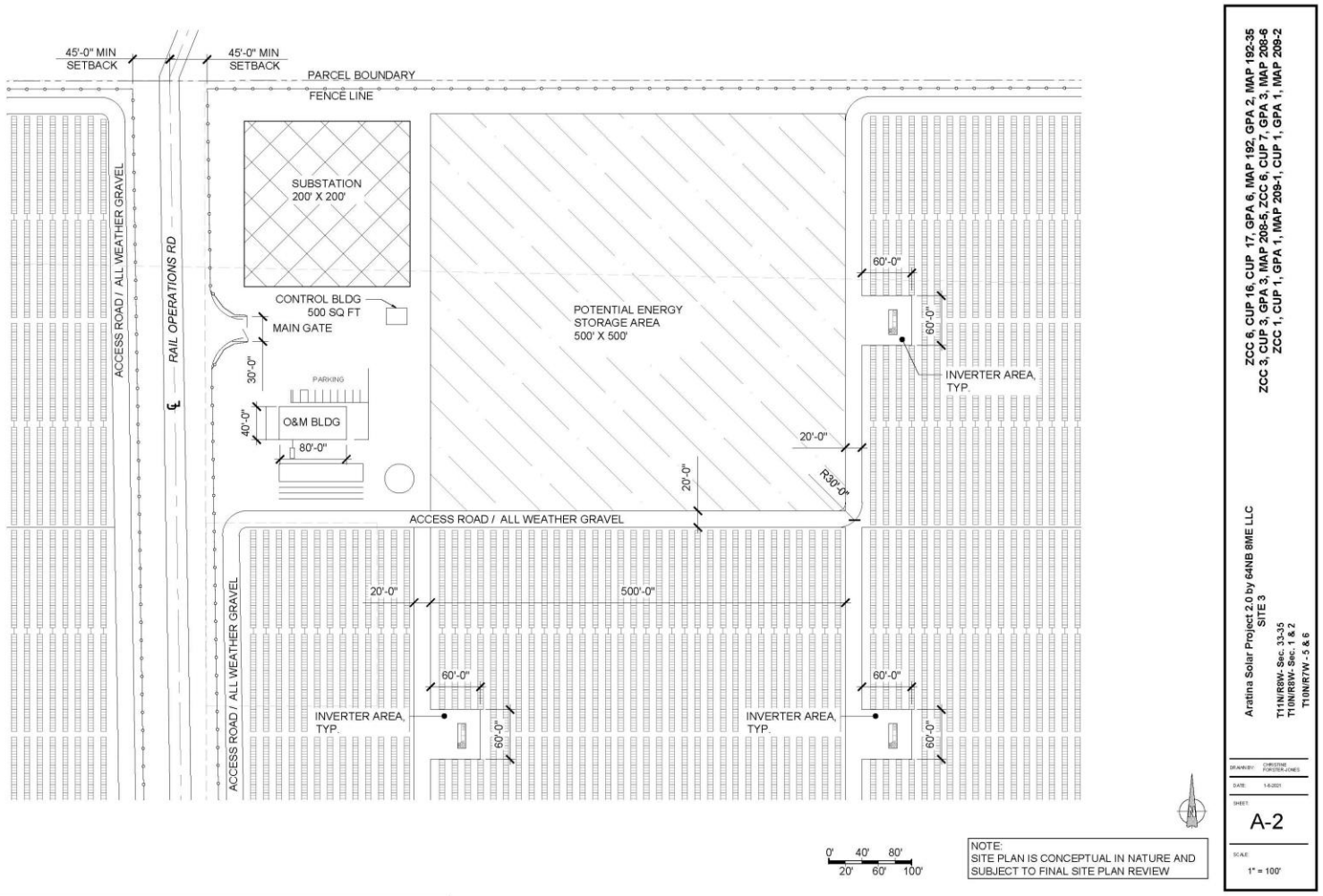
FIGURE 3-10F. SITE PLAN – SITE 3



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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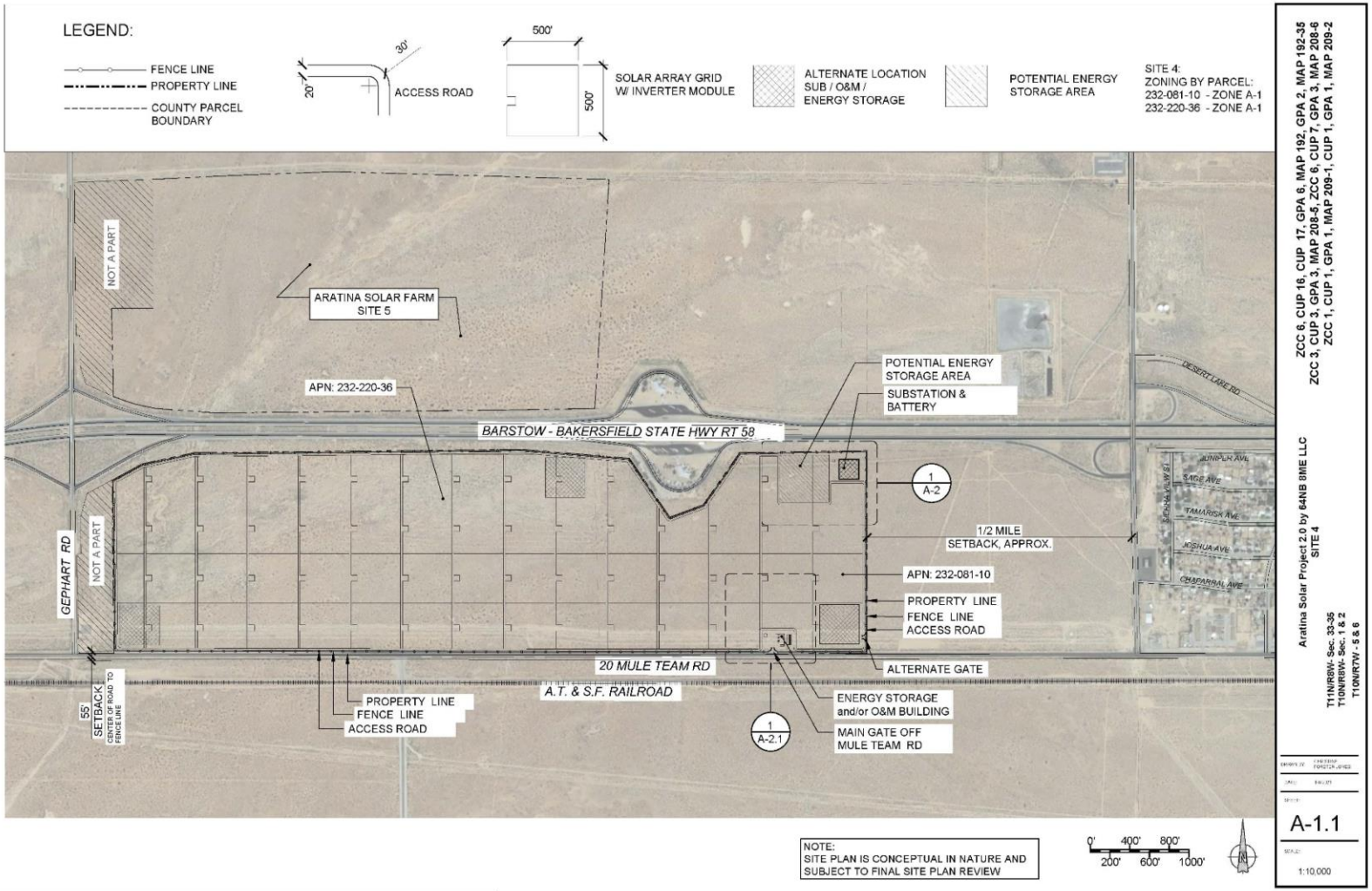
FIGURE 3-10G. SITE 3 CALLOUT A2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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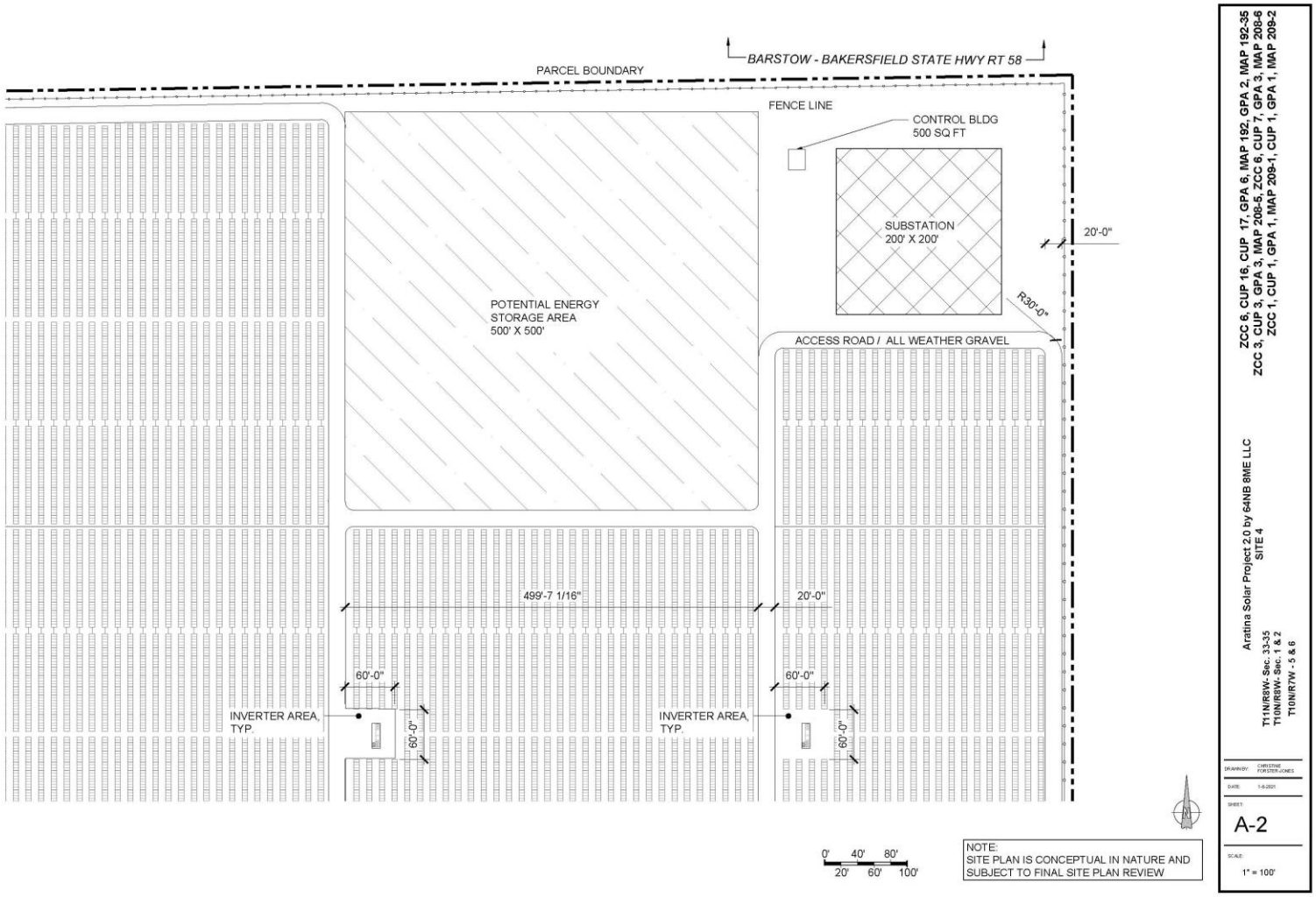
FIGURE 3-10H. SITE PLAN – SITE 4



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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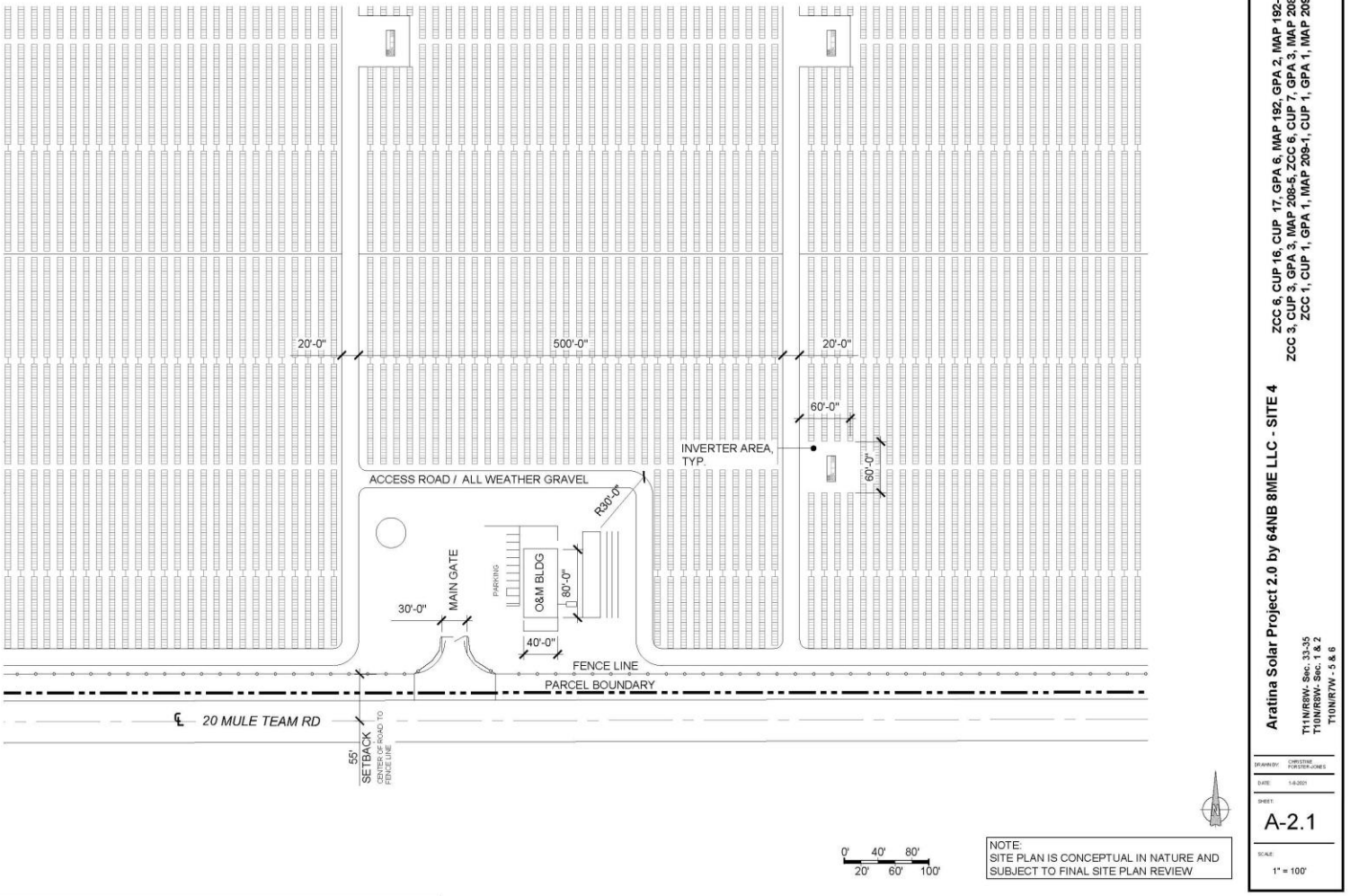
FIGURE 3-10I. SITE 4 CALLOUT A2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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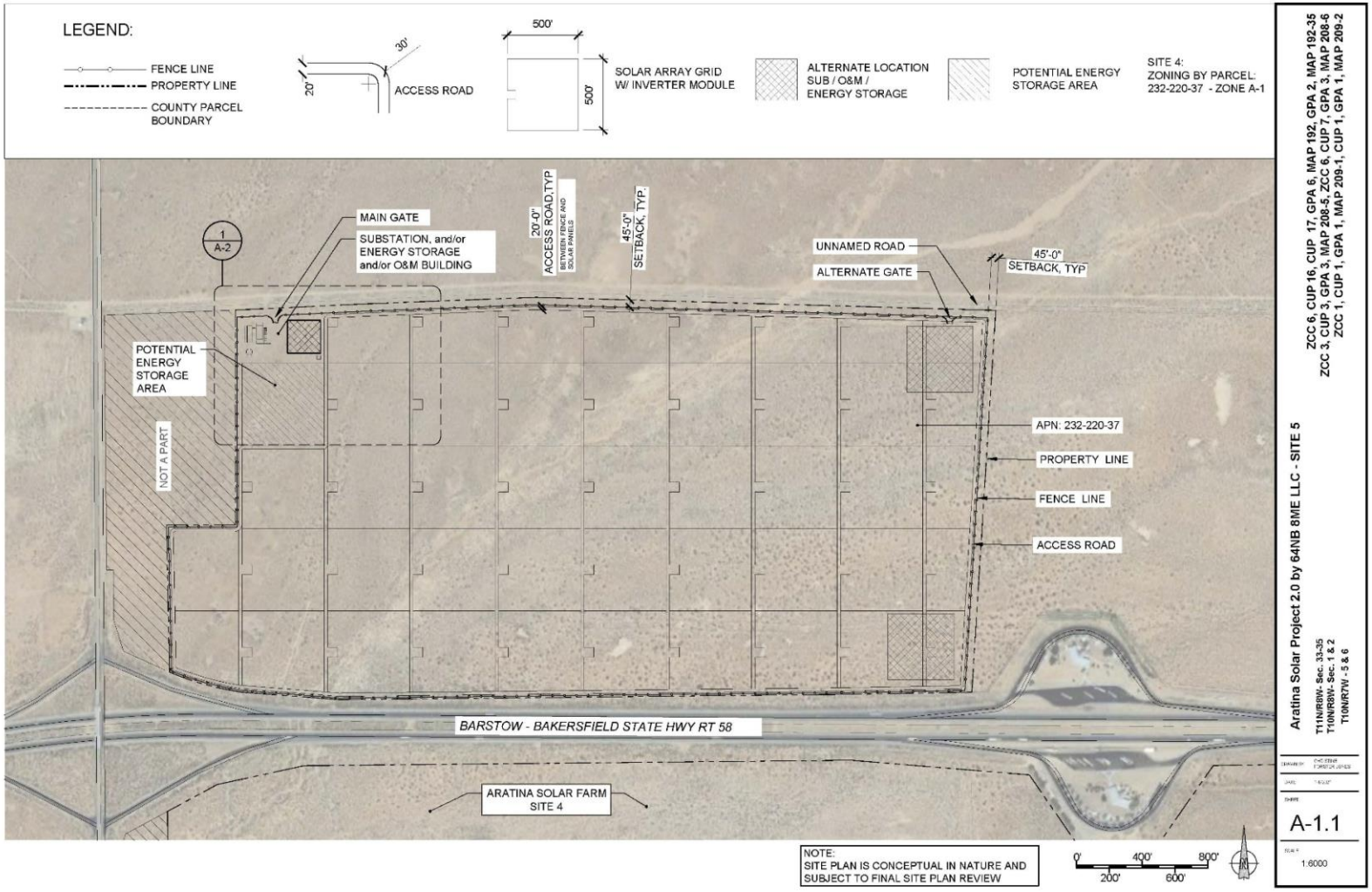
FIGURE 3-10J. SITE 4 CALLOUT A2.1



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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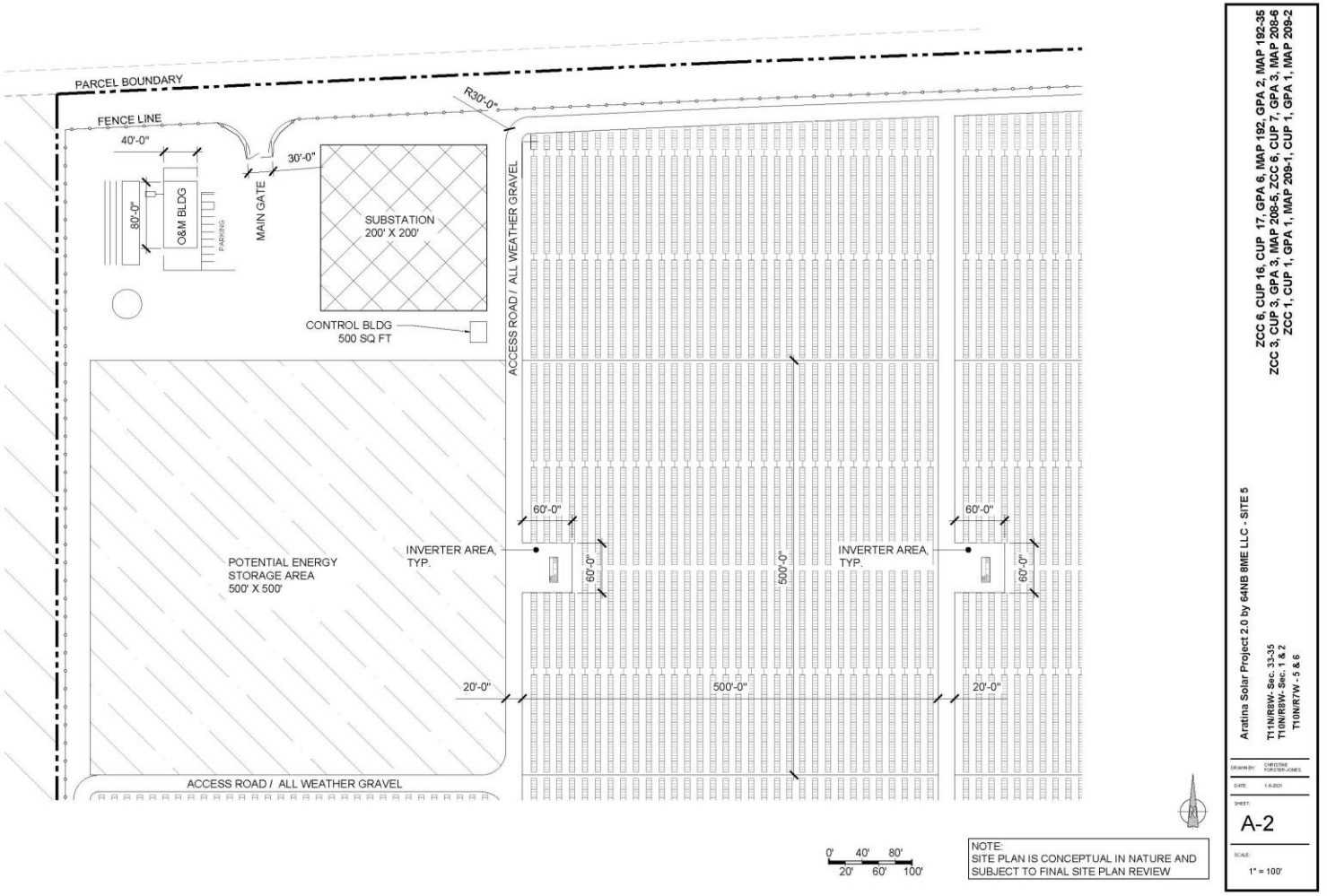
FIGURE 3-10K. SITE PLAN – SITE 5



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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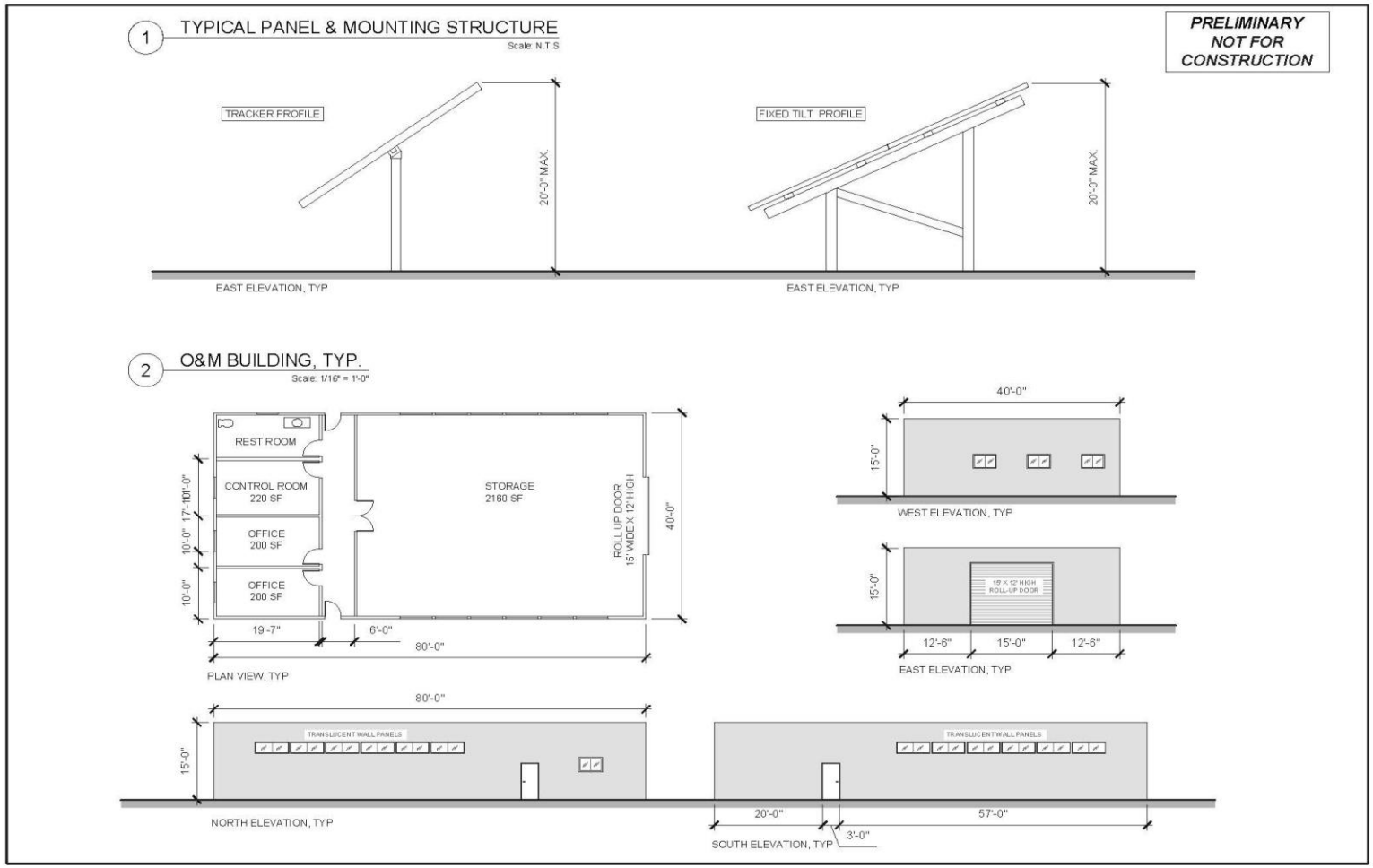
FIGURE 3-10L. SITE 5 CALLOUT A2



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-1

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FIGURE 3-11. TYPICAL SOLAR ARRAY AND O&M AREAS

3.7.1 Construction Activities

The construction period for the proposed project from site preparation through construction and testing is expected to commence as early as 4th quarter 2021 and would extend for approximately 12 to 18 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 Gephart Road, Borax Road, Boron Avenue, and/or 20 Mule Team Road. It is estimated that up to 1,000 workers per day (during peak construction periods) would be required during construction of the proposed project. Employees would have the option to drive their own automobiles to the project site; alternatively, a shuttle service may be provided from one or more locations that are yet to be determined. It is anticipated that, due to the size of the project site, parking for all employee vehicles could be accommodated on-site if a shuttle service is not provided. Construction worker parking areas would be located within each active construction site.

Heavy construction is expected to occur between 6:00 am and 5:00 pm, Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Some activities may continue 24 hours per day, seven days per week. Low level noise activities may potentially occur between the hours of 10:00 pm and 7:00 am. Nighttime activities could potentially include, but are not limited to, refueling equipment, staging material for the following day's construction activities, quality assurance/control, and commissioning.

Construction materials and supplies would be delivered to the project site by truck. It is anticipated that all such materials and supplies would be stored on-site for each of the five sites, respectively, and within proximity to the area where work would be undertaken. For work along the gen-tie routes, it is anticipated that adequate land areas within the affected easements or rights-of-way would be available to accommodate staging/laydown areas during the construction phase and that off-site lands would not be affected. Truck

deliveries would normally occur during daylight hours. However, there would be offloading and/or transporting to the project site on weekends and during evening hours.

Site Grading, Earthwork, and Construction Control Measures

The project site(s) would be cleared and graded as needed to allow for the installation of the solar arrays, energy storage facility, 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). Stabilized construction entrances and exits would also be installed at the project entrance driveways to ensure that potential for tracking of sediment onto adjacent public roadways is minimized.

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, water storage tank and possibly water treatment 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.

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. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used in site preparation. Access roads may be compacted, as required, to support construction and emergency vehicles. Certain access roads may also be surfaced with aggregate or decomposed granite in conformance with emergency access requirements. Any grading would be balanced on-site, with no need for the export or import of soils. 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 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. Water may also be used at points of ingress/egress to minimize the tracking of dirt off-site onto local roadways from construction vehicles. Water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 410 acre-feet over the 12-18 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.

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

Electrical Supply

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

3.7.2 Operation and Maintenance

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

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

Schedule and Workforce

During the operational phase, the project would employ up to 25 full-time equivalent (FTE) personnel (or personnel hours totaling 25 FTE positions (i.e., an average of 1,000 personnel hours per week) who would commute to the site. Each Site could require an operational staff of up to five full-time employees who could be there at any time, for example, when urgent repairs or maintenance are required. As previously mentioned, it is possible that the proposed project could share O&M, substation, and/or transmission facilities with each other, or with any future energy projects nearby. In such a scenario, the projects would share personnel, thereby potentially reducing the project's on-site staff.

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 60 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 be obtained from on-site wells or delivered via truck or pipeline from an off-site source(s) within the project vicinity. If water is trucked into the site, it is anticipated that an available local water source would be selected to minimize truck trips/lengths in transporting water to/from the site. A small water treatment system may also be installed at each of the Sites 1-5 to provide deionized water for panel washing if water is taken from on-site wells.

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:

- Insulating oil – used for electrical equipment
- Lubricating oil – used for maintenance vehicles
- Various solvents/detergents – equipment cleaning
- Gasoline – used for maintenance vehicles

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 guidance on Spill Prevention Control and Countermeasures.

Waste Water/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. If no O&M buildings are installed on-site, no septic systems would be installed.

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.

3.7.3 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. Aboveground 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, substation(s), transformers, electrical wiring, equipment on the inverter pads, and related equipment and concrete pads.

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

3.8 Entitlements Required

The anticipated approvals needed for the project include changes in zone classification, adoption of conditional use permits, and general plan amendments to the Circulation Element of the Kern County General 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:

3.8.1 Kern County

- 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 General Plan Amendments to the Circulation Element
- Kern County grading and building permits
- Kern County encroachment permits
- Kern County Franchise Agreements (if required)
- Kern County public road(s) and easement(s) vacation(s) (if required)
- Kern County Fire Safety Plan

3.8.2 Other Responsible Agency Approvals

- Edwards Air Force Base right-of-way under 10 U.S.C. 2668 (if required)
- U.S. Fish and Wildlife Service Habitat Conservation Plan (if required)
- California Department of Fish and Wildlife, 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 ultimately be required to implement the proposed project.

3.9 Cumulative Projects

CEQA requires that an EIR evaluate a project's cumulative impacts. Cumulative impacts are the project's impacts combined with the impacts of other related past, present, and reasonably foreseeable future projects. As set forth in the CEQA Guidelines, the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. As stated in CEQA, Title 14, Section 21083(b), "a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable."

According to the CEQA Guidelines:

> *"Cumulative impacts refer to two or more individual effects which, when considered together, are considerable and which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CCR, Title 14, Division 6, Chapter 3, Section 15355).*

In addition, as stated in CEQA Guidelines, it should be noted that:

> *"The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." (CCR, Title 14, Division 6, Chapter 3, Section 15064[h][5]).*

Cumulative impact discussions for each environmental topic area are provided at the end of each technical analysis presented in Chapter 4 of this EIR. As previously stated, and as set forth in the CEQA Guidelines, related projects consist of "closely related past, present, and reasonable foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area" (CCR, Title 14, Division 6, Chapter 3, Section 15355).

Unless otherwise noted in each EIR section, the geographic scope for the cumulative impact analysis is the Antelope Valley. The Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The valley is formed by the Tehachapi Mountains to the northwest and San Gabriel Mountains to the southwest. SR 14 is considered the eastern boundary of this area. The Antelope Valley is triangularly shaped and is about 35 miles from west to east and 40 miles from north to south at its widest points.

This geographic scope is selected because of its relatively uniform terrain, soil conditions, climate, habitat value, low population and development density relative to areas east of SR 14, and the region's common groundwater basin and water supply considerations. SR 14 is a major north-south route in the area, dividing the Antelope Valley from the rest of the Mojave Desert. The Mojave Desert broadens considerably east of SR 14 as the Tehachapi Mountains run north and the San Gabriel Mountains run southeast. East of SR 14, the valley does not feature the same mountain viewsheds found in the Antelope Valley, and includes more densely developed areas, including the community of Rosamond, the cities of Lancaster and Palmdale, Mojave Air & Space Port, Edwards Air Force Base, and U.S. Air Force Plant 42. Projects within Lancaster and Palmdale's urban cores are not considered to be part of the Antelope Valley. These projects are of a distinctly urban character, and in many respects, would not have the same type of potential impacts as the project and others in the Antelope Valley. Further, inclusion of urban projects could dilute, improperly magnify, or otherwise impair analysis of certain project impact areas. However, when appropriate (as determined by the impact being analyzed), a smaller or larger geographic scope was selected.

Table 3-3, *Cumulative Projects List*, shows the related projects considered in the cumulative analysis. **Figure 3-12**, *Cumulative Projects Map*, shows the approximate location of the proposed, approved, constructed and operational solar projects, as well as other non-solar projects considered in the cumulative analysis.

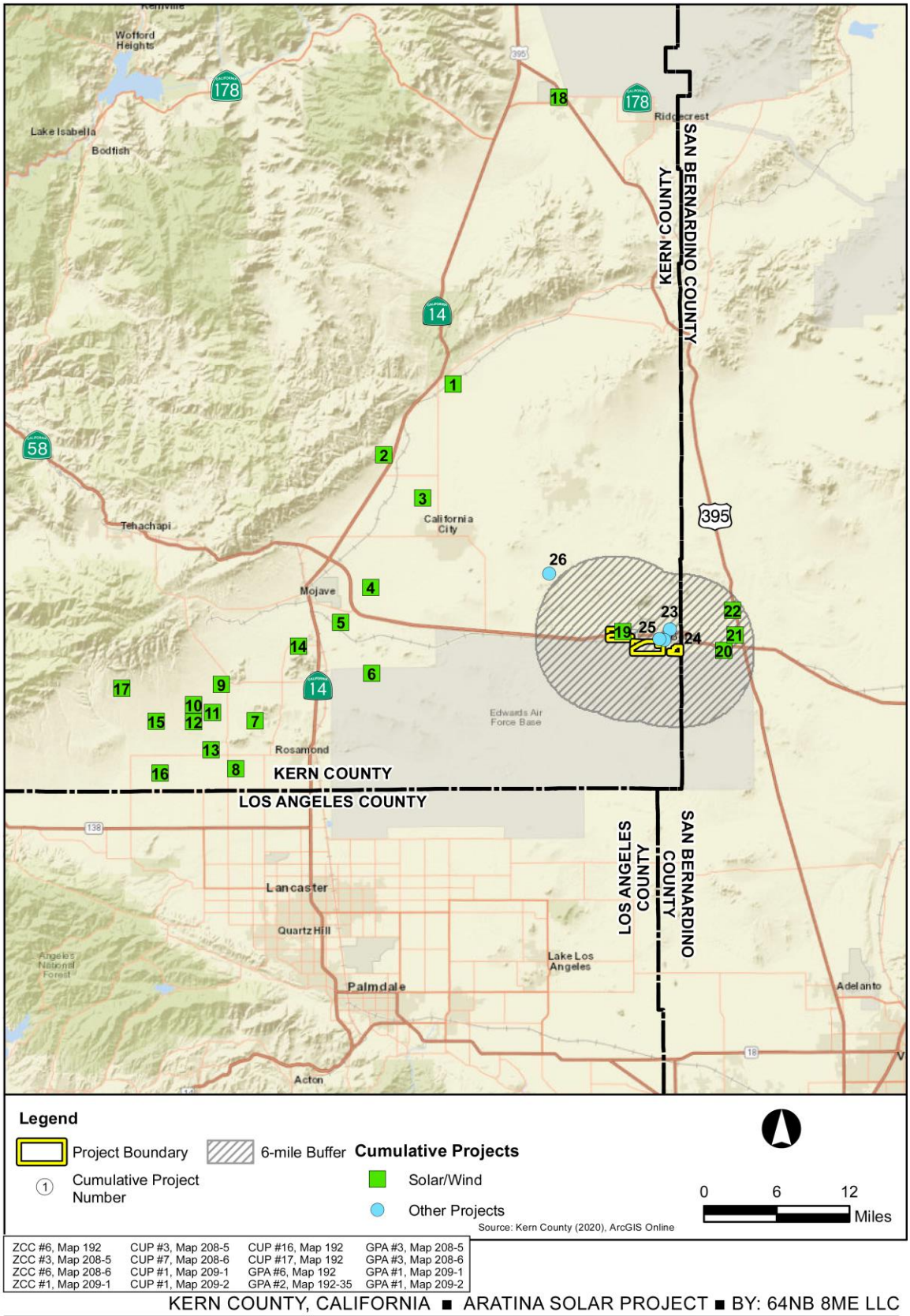

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FIGURE 3-12. CUMULATIVE PROJECTS MAP

Table 3-3. Cumulative Projects List

Project No. (See Map)	Project Name/Case ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
Solar and Wind Projects								
1	Nautilus Solar Energy, LLC (Cantil Site)	Southeast corner of the Valley Road and Cantil Road intersection	9 MW solar facility	ZCC, CUP	ZCC 12, Map 133; CUP 12, Map 133	181-040-01	77 acres	Inactive/In Suspense
2	Eland 1 Solar	South of Munsey Road, east and west of Neuralia Road, east of SR 14, and north and south of Phillips Road	500 MW solar facility	GPA, ZCC, CUP	GPA 9, Map 152; GPA 1, Map 152-28; ZCC 11, Map 152; ZCC 12, Map 152; ZCC 1, Map 152-28; ZCC 13, Map 152; CUP 23, Map 152; CUP 24, Map 152; CUP 25, Map 152; CUP 26, Map 152; CUP 3, Map 152-28	Multiple	2,652 acres	Approved 2019; not constructed
3	Kudu Solar	Unincorporated Kern County and City of California City	500 MW solar facility and 600 MW energy storage system	CUP, ZCC, GPA	GPA 10, Map 152; ZCC 14, Map 152; CUP 28, Map 152	Multiple	1,955 acres	In Process
4	Bellefield Solar	Unincorporated Kern County and City of California City	750 MW solar facility and (up to) 2,000 MW-hour energy storage system	CUP, ZCC, GPA	GPA 2, Map 195; ZCC 2, Map 195; ZCC 57, Map 196; CUP 1, Map195; CUP 57, Map 196; SPA 31, Map 196	Multiple	6,773 acres	In Process
5	Sanborn Solar	South of SR 58 and east of SR 14	300 MW solar facility and up to 3 gigawatt-hours (GWh) of energy storage capacity	ZCC, CUP	ZCC 56, Map 196; ZCC 2, Map 212; ZCC 59, Map 213; CUP 45, Map 196; CUP 5, Map 212; CUP 66, Map 213	428-030-04; Multiple	2,006 acres	In Process
6	Edwards AFB Solar	Northwest corner of Edwards Air Force Base, at the intersection of Lone Butte Road and East Trotter Avenue	600 MW solar facility on Edwards Air Force Base	Franchise Agreements	Franchise Agreements	244-250-02; Multiple	3,500 acres	In Process

Table 3-3, continued

Project No. (See Map)	Project Name/Case ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
7	RE Rosamond I	Northwest Favorito Ave and 65th Street West	20 MW solar facility	SPA, ZCC, CUP	CUP 3, Map 231-3; ZCC 1, Map 231-3; SPA 1, Map 231-3.	252-013-01	320 acres	In Process
8	Raceway 2.0 Solar	Western extent of the Mojave Desert near Rosamond, between Rosamond Boulevard and Avenue A, and between 70th Street West and 90th Street West	291 MW solar renewable electrical energy and/or energy storage capacity	GPA, ZCC, CUP	SPA 33, Map 231; ZCC 154, Map 231; CUP 116 Map 231; SPA 34, Map 231; SPA 35, Map 231; ZCC 155, Map 231; CUP 117, Map 231; SPA 36, Map 231; SPA 37, Map 231; ZCC 156, Map 231; CUP 118, Map 231; SPA 38, Map 231; CUP 119, Map 231; CUP 4, Map 231-20; SPA 39, Map 231; SPA 3, Map 231-20; Cancellation of a Williamson Act Contract; SPA 5, Map 231-21; SPA 5, Map 231-28; ZCC 3, Map 231-21; ZCC 3, Map 231-28; CUP 3, Map 231-21; CUP 7, Map 231-28; SPA 6, Map 231-21; SPA 6, Map 231-28; SPA 7, Map 231-21; ZCC 4, Map 231-21; CUP 4, Map 231-21	Multiple	1,330 acres	In Process
9	AV Apollo Solar	Southeast corner of Backus Road and 100th Street West, Northeast corner of Backus Road and 100th Street West	60 MW solar facility	CUP	CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214; CUP 41, Map 214; GPA 5, Map 214	346-022-03; Multiple	493.5 acres	In Process

Table 3-3, continued

Project No. (See Map)	Project Name/Case ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
10	Catalina Renewable Energy	Two miles west of Backus Road and Tehachapi-Willow Springs Road	350 MW solar and wind facility	CUP, ZCC	ZCC 8, Map 215; ZCC 8, Map 216; CUP 6, Map 215; CUP 7, Map 215;	Multiple	6,739 acres	Operational
11	IP Solar Company	Southeast corner of McConnell & 105th	CUP for solar facility	CUP	CUP, Map 215	474-120-04	40 acres	In Process
12	Big Beau Solar	Southeast portion of Kern County approximately 12 miles southwest of SR-58 and approximately 9 miles east of SR-14	128 MW solar facility and up to 60 MW energy storage capacity	GPA, SPA, ZCC, CUP	GPA 4, Map 215; SPA 32, Map 232; ZCC 13, Map 215; ZCC 44, Map 232; CUP 13, Map 215; CUP 41, Map 232; CUP 14, Map 215; CUP 42,Map 232; CUP 15, Map 215; CUP 43, Map 215	358-061-19; Multiple	2,735 acres	In Process
13	AVEP Solar	South of Dawn Road, west of 95th Street West, north Avenue A, and east of 130th Street West	375 MW solar facility	CUP, ZCC, GPA, SPA	SPA 1, Map 231-18; SPA 2, Map 231-18; SPA 25, Map 232; SPA 26, Map 232; SPA 27 Map 232; SPA 28, Map 232; SPA 29, Map 232; SPA 30, Map 232; ZCC 3, Map 231-18; ZCC 40, Map 232; ZCC 41, Map 232; ZCC 42, Map 232; CUP 1, Map 231-18; CUP 33, Map 232; CUP 34, Map 232; CUP 35, Map 232; CUP 36, Map 232; CUP 37, Map 232; CUP 38, Map 232	358-030-19; Multiple	1,985 acres	In Process
14	Catalina Solar 2	Backus Road – west of Tehachapi-Willow Springs Road	150 MW solar facility	CUP, ZCC, GPA,	GPA 2, Map 215; ZCC 11, Map 215; Modification of CUP 6, Map 215; Modification of CUP 7, Map 215	474-100-16; Multiple	7,500 acres	Operational

Table 3-3, continued

Project No. (See Map)	Project Name/Case ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
15	Valentine Solar	Northeast corner of Hamilton Rd and 132nd Street West	100 MW solar facility	CUP, ZCC, GPA, SPA	GPA 3, Map 215; SPA 20, Map 232; ZCC 37, Map 232; ZCC 12, Map 215; CUP 9, Map 215; CUP 10, Map 215; CUP 12, Map 215; CUP 30, Map 232	358-021-04; Multiple	2,250 acres	Operational
16	Rosamond 7	140th St. W. and Holiday Ave.	100 MW solar facility	SPA, ZCC, CUP	CUP 10, Map 3	Multiple	640 acres	In Process
17	Camino Solar	North of Rosamond Blvd at 170th Street West	44 MW solar facility	CUP	CUP 7, Map 216	476-052-09; Multiple	339 acres	Approved 2020; not constructed
18	Robbie Barker	Located east of North Brown Road and Inyokern Road intersection	CUP for solar facility	SPA, CUP, LLA	CUP 23, Map 47; CUP 27, Map 47; SPA 4, Map 47; LLA 48-19	084-010-43; Multiple	166 acres	In Process
19	LendLease Energy Development	Located north of SR 58; Approx. 0.7 mile west of Borax Road	Information not available	Information not available	Information not available	Information not available	Information not available	In Process
20	Kramer South Solar Facility 37 BF 8me, LLC	South side of SR 58; one mile west of intersection of SR 58 and US Highway 395	130 MW solar facility and energy storage facility	CUP	Information not available	0492-221-22	386 acres	Conditionally Approved by County 6/4/20
21	Kramer Junction Solar Electric Generating Station	Adjacent to and west of Highway 395; Approx. 1.7 miles north of SR 58	Information not available	Information not available	Information not available	Information not available	Information not available	In Process
22	Kramer North Solar Facility 12AT 8me, LLC	West side of Hwy 395;approx.. 2.5 miles north of Hwy 58	70 MW solar Facility	CUP	Information not available	0491-091-07	191 acres	Approved 10/26/2018

Table 3-3, continued

Project No. (See Map)	Project Name/Case ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
Other Projects								
23	Lane Engineers, LLC	Northeast corner of Boron Avenue and Boron Frontage Avenue	PD – Commercial development to include convenience store, restaurant – fast food, truck fueling station	PD	Information not available	231-210-014; Multiple	1.97 acres	In Process
24	Kim Chong	12033 Gardiner Street, Boron, CA	CUP for two storage/cargo containers used for recycling	CUP	CUP, Map 191	231-101-07	Information not available	Information not available
25	Dennis Grootrad	APN 231-180-043	Zone change classification	Zone change classification	ZCC, Map 191-31 from R-1 to Estate	231-180-043	8.6 acres	In Process
26	Consolid Desert Holdings Inc.	APN 233-011-188	Modification to CUP 4, Map 193	CUP	CUP 4, Map 193	233-011-188	376 acres	Applied

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Section 4.1
Aesthetics

4.1.1 Introduction

This section of the EIR discusses impacts on aesthetic values, which includes the existing visual character and visual quality of the project site and the surrounding landscape. Potential effects on aesthetics are evaluated relative to important visual features (e.g., scenic highways, vistas, or areas subject to visual landscape management policies) that occur in the project vicinity and the viewers that would be affected by visual change. The visual change that would result from the project is determined by comparing the existing visual conditions to simulated conditions where the project features would be most visible. The types and extent of adverse visual impacts are then evaluated in conjunction with viewer characteristics to determine if the impacts could be significant.

The assessment of the existing visual conditions and impacts on aesthetics was conducted by Panorama Environmental, Inc. (Panorama) as a consultant to the Kern County Department of Planning and Natural Resources. To facilitate the evaluation of the project's impacts to the aesthetic character and quality of the site and surroundings, Panorama also prepared photographic simulations of the as-built conditions, based on the proposed locations and configurations of solar panels and other site improvements and the images of site improvements from selected Key Observation Points (see definition below). Those photographic simulations are presented in this EIR section. In addition, the assessment of glare impacts was based the *Glare Analysis Report for the Aratina Solar Project* (Dudek 2021), provided as Appendix B of this EIR and incorporated by reference herein.

After the applicant filed the Conditional Use Permit application with Kern County, the applicant revised the project and reduced the development footprint (i.e., area where the proposed physical improvements would occur) by approximately 15 percent from approximately 2,672 acres to approximately 2,317 acres. The 15-percent reduction in the development footprint created a larger setback from the nearby communities of Boron and Desert Lake than were included in the initial project application. The analysis of project impacts presented in this section takes these increased setbacks into consideration.

Visual Concepts and Terminology

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. A visual or aesthetic impact may occur depending on the extent to which a project's presence would substantially alter the perceived visual character and quality of the environment.

The following terms and concepts are used to describe and assess the aesthetic setting and impacts from the project.

- **Glare.** The introduction of features with reflective surfaces has the potential to result in visual impacts. Reflected light can cause glint (a quick reflection) and glare (reflection that lasts for a longer duration), which depending on the intensity and duration, can create hazards for pilots, air-traffic control personnel, motorists, and other potential receptors. Glare can also draw greater

attention to objects in a landscape and contribute to visual effects. For the purposes of the EIR discussion, any light reflected off project facilities is referred to as glare.

- **Key Observation Points (KOPs).** KOPs are viewpoints (VPs) on a travel route or at a sensitive use area, such as public roadway, park, or residential neighborhood, where the view of a project would be the most revealing.

- **Scenic Highways.** Scenic highways include any stretch of public roadway that is designated as a scenic corridor by a federal, State, or local agency.

- **Scenic Quality.** Scenic quality refers to the visual appeal of a landscape relative to desired scenic values and the abundance or scarcity of similar qualities in the region. Scenic quality can be measured by evaluating the presence or absence of scenic features and the intrusion of other features that detract from the scenic features.

- **Scenic Vistas.** Scenic vistas are designated viewing areas or areas known for high scenic quality. Scenic vistas may be designated by a federal, State, or local agency. Scenic vistas can also include an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing.

- **Viewers and Viewer Sensitivity.** Viewer sensitivity refers to responses to visual changes in a landscape that can be inferred from a variety of factors, including distance and viewing angle, type of viewers, number of viewers, duration of view, and viewer activities. The viewer type and associated viewer sensitivity are distinguished among project viewers in recreational, residential, commercial, military, and industrial areas. Viewer activities can be stationary or mobile and involve varying circumstances that encourage close observation of a landscape (i.e., recreational activities) or discouraging close observation of a landscape (i.e., commuting in traffic). Residential viewers have extended viewing periods and are generally considered to have high visual sensitivity. For this reason, residential views are typically considered sensitive; however, CEQA does not require an analysis of impacts on private views. Viewers from public parks, recreational trails, and/or culturally important sites may also have high visual sensitivities; therefore, such locations are considered sensitive VPs. People located in commercial, military, and industrial areas are not typically focused on views and such areas do not promote typical scenic values; therefore, viewers in these locations are assumed to have low sensitivity. In general, residents and others participating in recreational activities (e.g., hikers, equestrians, tourists) are expected to be more concerned with scenery and landscape character. Local motorists who commute daily through the same landscape may have a moderate concern for scenery and landscape character, while regional motorists or people who work within highly urbanized areas are expected to have a lower concern for scenery and landscape character.

- **Viewing Distance Zones.** Landscapes can be subdivided into viewing distance zones based on relative visibility from travel routes or observation points. The distance zones are: immediate foreground (0 to 0.25 miles away), foreground (0.25 to 1 mile away), middle ground (1 to 3 miles away), and background (greater than 3 miles away).

  The same feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer to a viewed object in the landscape, more detail can be seen, and there is greater potential influence of the object on visual quality because its form and scale would be most perceptible. When the same object is viewed at

background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middle ground, some detail is evident in the foreground and landscape elements are seen in context with landforms and vegetation patterns in the background.

- **Viewing Duration.** Viewing duration can affect viewer sensitivity based on the amount of time a landscape and visual changes within it are viewed. For example, motorists traveling at high speeds are less likely to be sensitive to visual change because the viewing duration is short, while stationary viewers or viewers traveling at slow speeds are more likely to be sensitive to visual change because the viewing duration is long.
- **Viewpoints (VPs).** Viewpoints are locations identified for inventorying the most prominent views of a project site and visual character in the surrounding area.
- **Viewshed.** Viewshed is defined as the surrounding geographic area from which the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations. "Project viewshed" is used to describe the area surrounding a project site where a person standing on the ground or driving a vehicle can view the project site.
- **Visual Sensitivity.** Visual sensitivity refers to the overall measure of an existing landscape's susceptibility to adverse visual changes. When viewing the same landscape, viewers may have different responses to that landscape and any visual changes that would result from a project, based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Visual changes in landscapes affect viewers differently because each person's attachment to and value for a particular landscape is unique. Landscape sensitivity is a concept used to generalize expectations about viewer response to visual changes in a specific landscape.

4.1.2 Environmental Setting

Regional Character

The project site is situated in southeastern Kern County, California, within the Antelope Valley, which sits at the western edge of the Mojave Desert. The project lies roughly 40 miles east of the Tehachapi Mountains, which extend to approximately 4,000 feet above the valley floor. The area is characterized by a large sloping valley floor, interspersed by occasional low rolling hills. The soil of these hills is often a distinctive dark red that contrasts with the tan to orange soils of the valley floor. This valley floor is home to a variety of mostly low-growing desert vegetation, such as creosote, juniper, and sagebrush. Notably, much of the valley also hosts Joshua trees, which punctuate the lower growing bushes with distinctive character. The valley is known for its spring wildflower display. There are several planned, existing, and permitted solar energy and transmission projects in the larger region where the project site is located. In total, there are over 30,000 acres of existing large-scale commercial solar projects in the Eastern Kern desert areas.

The U.S. Borax open pit mine, located approximately two miles north of the project site, is the world's largest borate mine and the largest open pit mine in California. The open pit area of the mine is expansive (approximately 2 miles long and 1.75 miles wide) and easily visible from State Route (SR) 58 and the surrounding area. Other heavy industrial activities involving land modifications can be seen on Leuhman

Ridge, approximately 1.3 miles south of the project site. Leuhman Ridge and most of the land south of the project site is located on federal land managed by the United States Department of Defense.

The project site viewshed within 10 miles is shown on **Figure 4.1-1**. The viewshed is based on a bare earth model that does not consider vegetation or structures on the earth surface that would block views. The model uses a digital elevation model with 10-meter cells; therefore, the viewshed results are approximate.

Local Character

The project is located immediately adjacent to the unincorporated communities of Boron and Desert Lake and north of Edwards Air Force Base. The project is composed of five sites on multiple parcels located to the north and south of SR 58 between Gephart Road on the west and the San Bernardino County line on the east. The community plan boundary of Desert Lake straddles SR 58 between Borax Road on the west and Del Oro Street on the east; almost all development in this community is south of the SR 58. The slightly larger Boron specific plan area boundary is approximately two miles east of Desert Lake and is centered on Boron Avenue.

Development in the Desert Lake and Boron communities consists predominantly of single-family residences that are largely contained within the specific plan areas with some areas of residential and commercial expansion beyond the boundaries of the plan areas. The Desert Lake and Boron commercial district stretches along Boron Avenue and Twenty Mule Team Road connecting the two communities. The north side of this corridor is sparsely developed, and several buildings sit vacant, while the south side of the roadway is almost completely undeveloped, except for an active railroad and a group of residences immediately northwest of Boron Park and various overhead utility lines that pass through the area. Boron Park is located on the west side of Boron Avenue, approximately 0.25 miles south of the commercial district. The Boron Sanitary Landfill is approximately 0.25 miles south of Boron Park on the east side of Boron Avenue; the form of its earthen berms around its perimeter are visible from the surrounding area.

Site 1 is located adjacent to the Boron Sanitary Landfill. Site 2 is located south of Twenty Mule Team Road and southwest of residences in Boron on South Wesley Street and Ferguson Street. Site 3 is located south of Twenty Mule Team Road and abuts the community plan boundary of Desert Lake. Site 4 is located between SR 58 and Twenty Mule Team Road on the north and south, and east of Gephart Road. Site 5 is located north of SR 58 and east of Gephart Road away from residential development. The route of a proposed gen-tie line travels from the northeastern area of Site 4 where it crosses SR 58 and continues approximately 0.8 miles north before connecting the existing Holgate Substation.

The project site consists largely of undeveloped lands composed of privately-owned parcels and numerous dirt roads typically associated with utility corridors. A single line railroad track (Burlington Northern and Santa Fe Railway, formerly Atchison, Topeka, and Santa Fe Railway) parallels Twenty Mule Team Road to the south along the northern boundary of Sites 2 and 3 and along the southern boundary of Site 4. A spur line of this railroad cuts through the northwestern corner of Site 2 and traverses southwesterly through Site 3, bisecting it into two areas. Adjacent to this spur line within Site 3 is a previously disturbed area approximately 15 acres in size. Near this area is a small transfer facility designed to convey bulk materials from trucks to railroad cars. There is a large sand stockpile, multiple soil stockpiles, and several burned down structures located in the southwest portion of Site 3.

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-1. PROJECT SITE VIEWSHED WITHIN 10 MILES

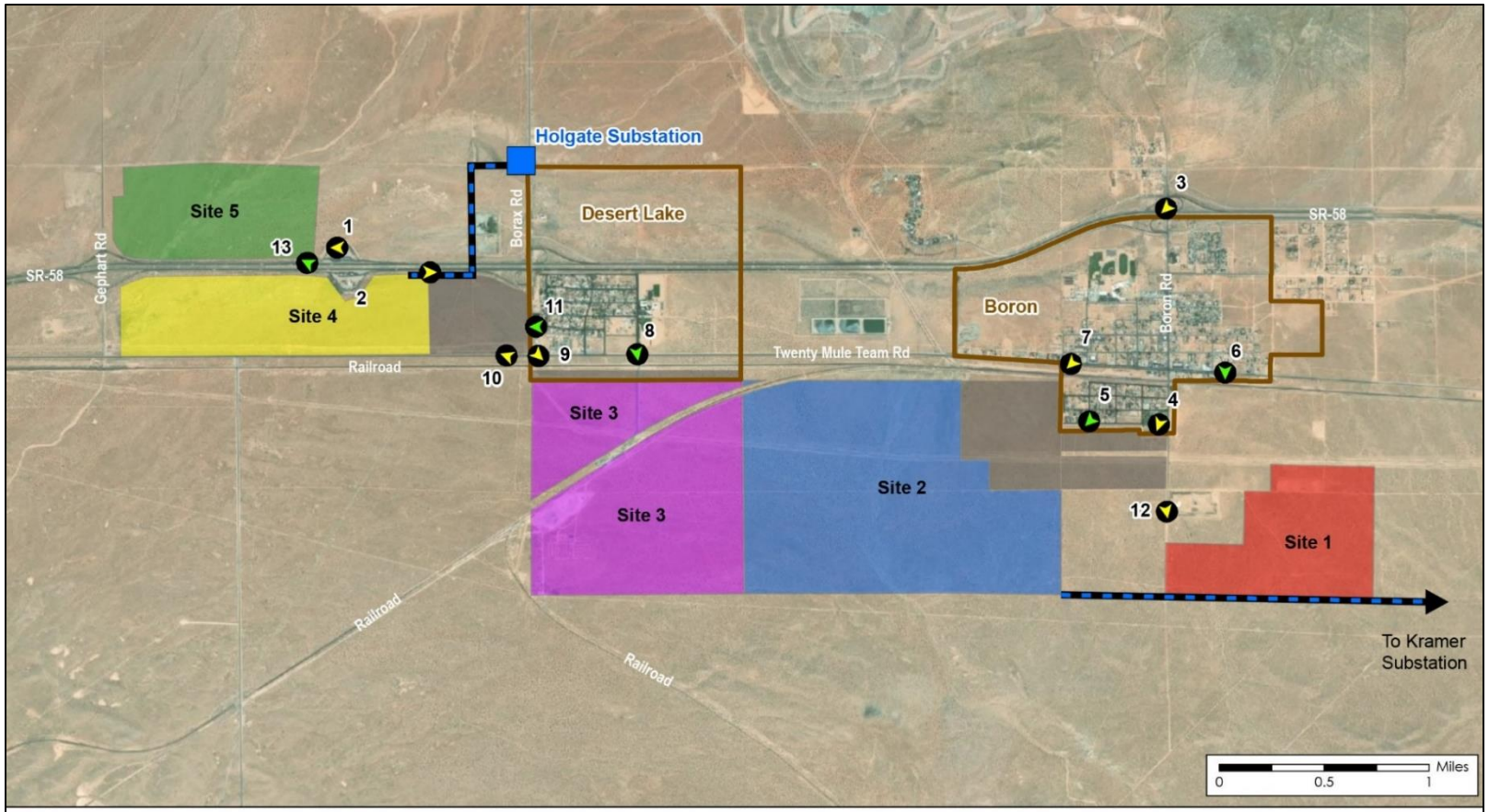

FIGURE 4.1-2. VIEWPOINTS AND KEY OBSERVATION POINTS

VP 1: Westbound SR 58 Rest Area

VP 2/KOP 2: Eastbound SR 58 at Gen-tie Crossing

VP 3: Boron Ave Overpass at SR 58

VP 4: Boron Park

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-3. PHOTOGRAPHS OF EXISTING VISUAL CONDITIONS AT VIEWPOINTS

VP 5/KOP 5: Patricia Avenue at Ferguson Street

VP 6/KOP 6: Twenty Mule Team Road East of James Street

VP 7: Twenty Mule Team Road East of Wesley Street

VP 8/KOP 8: Twenty Mule Team Road at Del Oro Street

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-3. PHOTOGRAPHS OF EXISTING VISUAL CONDITIONS AT VIEWPOINTS (CONTINUED)

VP 9: Twenty Mule Team Road at Borax Road

VP 10: Twenty Mule Team Road West of Borax Road

VP 11: Chaparral Avenue at Borax Road

VP 12: Boron Avenue at Boron Landfill Entrance

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-3. PHOTOGRAPHS OF EXISTING VISUAL CONDITIONS AT VIEWPOINTS (CONTINUED)

VP 13/KOP 13: Westbound SR 58 at Rest Stop Exit

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-3. PHOTOGRAPHS OF EXISTING VISUAL CONDITIONS AT VIEWPOINTS (CONTINUED)

Multiple utilities traverse the project area, including an underground water pipeline and gas pipelines and overhead electrical transmission and distribution lines. The underground pipeline locations are only visible from their immediate corridors and aerial imagery due to the land scars left behind where vegetation was cleared. The Antelope Valley East Kern Water Agency water pipeline and its associated right-of-way road form the northern boundary of Site 5 and run parallel to a portion of the proposed gen-tie line to Holgate Substation for approximately 0.3 miles. Two overhead transmission lines run north to south between the northeastern area of Site 4 and the proposed gen-tie line to the Holgate Substation, which include Southern California Edison's (SCE) Edwards-Holgate-Southbase 115 kV line and the Kramer-Holgate 115 kV line. The Kramer-Holgate line and its associated right-of-way road also traverse east to west through Sites 1, 2, and 3. A smaller SCE distribution line, Paxton 4 kV, is located along Boron Avenue along a portion of Site 1. The Mojave Gas Pipeline and a Pacific Gas and Electric pipeline parallel one another east to west through the southern portion of Site 4 just north of Twenty Mule Team Road. The Mojave Gas Pipeline also passes through Sites 1, 2, and 3. Within Sites 2 and immediately north of Site 1, the underground Mojave Gas Pipeline parallels another underground gas pipeline within the same utility corridor. In Site 3, this pipeline diverges from the route of the Mojave Gas Pipeline turning to the north while the other pipelines continue in an east to west direction.

Figure 4.1-2 illustrates the locations of viewpoints addressed in this section where the photographs were taken and the view direction. Photographs showing existing visual conditions of the project site as seen from the surrounding area are provided in **Figure 4.1-3**.

Viewers

The project site is relatively flat with elevations ranging from about 2,300 feet to 2,600 feet above mean sea level. The project sites can be seen from immediately surrounding areas due to the relatively flat topography and low-growing desert vegetation with few natural screening elements. Viewers of the project sites include motorists traveling on SR 58 or along nearby local roads (e.g., Twenty Mule Team Road, Borax Road, and Boron Avenue) and residents that live in the communities of Boron and Desert Lake. Views along SR 58 through the area are expansive and generally characterized by the sparsely developed desert landscape. The primary viewers near each project site are summarized in **Table 4.1-1**.

Table 4.1-1. Summary of Viewer Groups in the Project Area

Project Site	Viewer Groups Near Site	Description of Closest Viewers	Viewer Sensitivity	Approximate Distance to Project
1	Residents	Residences on Boron Avenue and Ferguson Street	Moderate to High	0.5 to 0.6 mile
	Park Users	Boron Park [a]	Moderate	0.5 mile
	Local Motorists	Boron Avenue and Twenty Mule Team Road	Low to Moderate	0.4 to 0.5 mile
2	Residents	Residences on Ferguson Street and Wesley Street	Moderate to High	0.3 to 0.5 mile
	Local Motorists	Twenty Mule Team Road	Low to Moderate	590 feet
3	Residents	Desert Lake Apartments complex on Twenty Mule Team Road	Moderate to High	700 feet
	Local Motorists	Twenty Mule Team Road	Low to Moderate	540 feet
4	Residents	Residences on Sierra View Street and Chaparral Avenue	Moderate to High	0.5 mile
	Local Motorists	Borax Avenue, Twenty Mule Team Road, and Gephart Road	Low to Moderate	25 to 430 feet
	Regional Motorists	SR 58 and Rest Area	Low	150 feet
5	Local Motorists	Gephart Road	Low to Moderate	300 feet
	Regional Motorists	SR 58 and Rest Area	Low	150 feet
Gen-tie	Residents	Residences along Sierra View Street	Moderate to High	0.3 mile
	Local Motorists	Borax Road	Low to Moderate	0.3 mile
	Regional Motorists	SR 58	Low	Crossed by gen-tie

Notes:

[a] Boron Park has multiple ball fields and courts that would facilitate active recreation opportunities. Viewer sensitivity associated with active recreation would be less than passive recreation, such as walking and observing nature.

Scenic Highways

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, there are no designated State scenic highways within Kern County (see Section 4.1.3, *Regulatory Setting*, below for more information on the State Scenic Highway Mapping System). SR 58 in the project area is an eligible scenic highway (between SR 14 and Barstow), but it has not been formally designated as a State scenic highway (Caltrans 2020). Prominent views along SR 58 adding to the scenic elements in the landscape for motorists include panoramic views of the open Mojave Desert landscapes and surrounding mountains, including the Tehachapi Mountains, San Gabriel Mountains, and southeastern extent of the Sierra Nevada mountains.

In addition to the State Scenic Highway Mapping System, the Kern County General Plan Circulation Element (also refer to Section 4.1.3 for more information) designates scenic routes and defines a scenic route as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality and must be officially set as a scenic route by the Kern County Board of Supervisors or the State of California. As such, SR 58 is not officially designated as a state scenic highway and is not considered a scenic highway for this analysis. As part of the Circulation Element goals, policies, and implementation measures, Kern County adopted a Scenic Corridor Combining District to designate areas that contain unique visual and scenic resources as viewed from a major highway or freeway. The project site is not within a Scenic Corridor Combining District.

Lighting Environment

The project site does not currently contain any lighting. Minimal off-site fixed lighting in surrounding areas includes small residential lighting fixtures and street lighting within the residential areas of Desert Lake and Boron, along SR 58, and at the highway rest stop near Sites 4 and 5. The main source of nighttime lighting is from vehicle lights from travelers along SR 58 and local roadways including Twenty Mule Team Road, Borax Road, and Boron Avenue. These lighting sources produce a moderate amount of nighttime lighting in the project area.

Solar Panel Glare Potential

A solar panel comprises numerous solar cells. A solar cell differs from a typical reflective surface in that its surface is microscopically irregular and designed to trap the rays of sunlight for the purposes of energy production. The intent of solar technology is to increase efficiency by absorbing as much light as possible (which further reduces reflection and glare).

A common misconception about solar photovoltaic (PV) panels is that they inherently cause or create "too much" glare, posing a nuisance to neighbors and a safety risk for pilots. In certain situations, the glass surfaces of solar PV systems can produce glint (a momentary flash of bright light) and glare (a reflection of bright light for a longer duration); however, light absorption, rather than reflection, is central to the function of a solar PV panel so that it may absorb solar radiation and convert it to electricity. Solar PV panels are constructed of dark-colored (usually blue or black) materials and are covered with anti-reflective coatings. Modern PV panels reflect as little as two percent of incoming sunlight, which is similar to water and less than soil and wood shingles. Some of the concern and misconception is likely due to the confusion between solar PV systems and concentrated solar power (CSP) systems. CSP systems typically use an array of mirrors to reflect sunlight to heat water or other fluids to create steam that turns an electric generator (Palmer and Laurent, 2014).

Despite their low potential to create glare, PV panels can reflect sunlight skyward toward the light source, creating a potential glare impact for aircraft in the area. The effect is similar to what a motorist experiences when the sun is low in the sky and the car passes between the sun and a glass-fronted building that has been treated with an anti-reflective coating. If the motorist is heading directly toward the building, the glare would be in the motorist's eyes. Otherwise, the motorist would have to rotate his or her head to observe the glare off to the side. Because aircraft typically travel at a higher rate of speed than vehicles, the effect is momentary, lasting only as long as the angle between the sun, water body, and aircraft is maintained. Unless an aircraft were descending at an angle sloped directly at the solar array with the sun directly behind the aircraft, any glare that might occur from solar panels would be below the pilot's horizon. In the project area,

effects on eastbound motorists would likely be greatest in the early evening hours, when the sun is at its lowest arc in the western horizon. Glare would have its greatest impact on westbound travelers in the early morning hours, when the sun is rising in the east.

4.1.3 Regulatory Setting

U.S. Department of the Interior, National Park Service, National Trails System Act

The National Trails System Act of 1969 seeks to preserve scenic and natural qualities along trails. The National Trails System Act assigns management responsibility for trails to various federal resource agencies, depending on which agency holds jurisdiction over the land on which the trail is located in a given area. The Pacific Crest Trail (PCT) was created under the National Trails System Act to provide for outdoor recreation opportunities and the conservation of significant scenic, historic, natural, or cultural qualities (USFS, 2021). PCT's southern terminus is on the U.S. border with Mexico, just south of Campo, California, and its northern terminus on the Canada–US border on the edge of Manning Park in British Columbia; its corridor through the U.S. is in the states of California, Oregon, and Washington. As stated previously, the PCT is located approximately 35 miles west/northwest of the proposed project site. Views of the project components from the PCT would be limited given their distance from the PCT, and intervening topography between viewers along the PCT and the project components would partially obscure views of the project components.

State

California State Scenic Highway Program

The California Scenic Highway Program was created by the legislature in 1963 and is managed by the Landscape Architecture Division of Caltrans. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. A highway may be designated scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon travelers' enjoyment of the view. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263.

No Kern County highways are officially designated as State scenic highways. The segment of SR 58 between Mojave and Barstow, where the project is located, is eligible for designation as a state scenic highway, but it has not been formally designated (Caltrans 2020).

Local

Construction and operation of the solar facility would be subject to policies, goals, regulations, and implementation measures related to aesthetics contained within applicable plans, such as the Kern County General Plan, Kern County Zoning Ordinance, Kern County Code of Building Regulations, Desert Lake Rural Community Plan.

The policies, goals, and implementation measures in the Kern County General Plan related to aesthetics that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to particular developments. These measures are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

The Land Use, Open Space, and Conservation Element of the Kern County General Plan (County of Kern 2009) evaluates the visual and aesthetic setting of Kern County and assesses the potential for visual impacts. The Kern County General Plan Energy Element sets forth policies to encourage orderly energy development in visually sensitive areas.

The Kern County General Plan Circulation Element provides a discussion regarding scenic routes. A scenic route is defined in the Kern County General Plan as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. A roadway can only be designated as a scenic route by direct action of the Kern County Board of Supervisors or the State of California. A route may not be selected as scenic until a visual assessment of the route has been conducted to determine if the route meets the current scenic highway criteria as mentioned above and to what extent development has encroached on the scenic views. The County also has to prepare and adopt a plan and program for the protection and enhancement of adjacent roadside viewshed land. As such, goals, policies, and implementation measures regarding scenic routes in the Circulation Element are focused on the need for the County to further develop its scenic route program and measures to protect scenic resources, which are not applicable to the project.

The Kern County General Plan acknowledges three routes identified as part of the California Scenic Highways Master Plan that are designated eligible state scenic highway within the county. Route 1, which begins north of Mojave and continues to the Inyo County line, consists of SR 14 and State Highway 395. Route 2 consists of SR 58 between Mojave and Boron. Route 3 consists of 5 miles of SR 41 in northwest Kern County. The project is adjacent to Route 2 (SR 58). The Kern County General Plan has no policies that address eligible state scenic highways. As there are no officially designated scenic routes in the project area, there are no policies regarding development within scenic routes that would apply to the project.

The Kern County General Plan includes goals and policies for design features of development projects in order to reduce their impacts to scenic resources. The goals, policies, and implementation measures that apply to the project are provided below. Applicable goals, policies, and implementation measures that are more general in nature are not included but are incorporated herein by reference.

Chapter 1: of the Land Use, Open Space, and Conservation Element

1.10.7 Light and Glare

Policies

Policy 47: Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48: Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Implementation Measures

Measure AA: The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

Chapter 5: of the Energy Element

5.4.7 Transmission Lines

Goal

Goal 1: To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.

Policy

Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

Kern County Zoning Ordinance

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

In November 2011, Kern County approved a Dark Skies Ordinance (Chapter 19.81). The purpose of this ordinance is to maintain the existing character of Kern County by requiring a minimal approach to outdoor lighting, recognizing that excessive illumination can create a glow that may obscure the night sky and excessive illumination or glare may constitute a nuisance. The ordinance provides requirements for outdoor lighting within specified unincorporated areas of Kern County in order to accomplish the following objectives:

- Objective 1: Encourage a safe, secure, and less light-oriented night-time environment for residents, businesses and visitors.
- Objective 2: Promote a reduction in unnecessary light intensity and glare, and to reduce light spillover onto adjacent properties.
- Objective 3: Protect the ability to view the night sky by restricting unnecessary upward projections of light.

Kern County Development Standards

The Kern County Development Standards have specific regulations pertaining to lighting standards, including the requirement that lighting must be designed so that light is reflected away from surrounding land uses so as not to affect or interfere with vehicular traffic, pedestrians, or adjacent properties.

4.1.4 Impacts and Mitigation Measures

This section describes the impact analysis relating to aesthetics for the project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

The proposed project's potential impacts on aesthetics have been evaluated using both quantitative and qualitative methods. This visual impact assessment is being utilized to identify and assess potential long-term adverse visual impacts on aesthetics and visual resources that might result from implementation of the project during construction and operation. This assessment generally follows visual assessment practices used by the Federal Highway Administration (FHWA 2015), the Bureau of Land Management (BLM 1984), the U.S. Forest Service (USFS 1995), and other federal regulatory agencies. The visual inventory and impact assessment included the steps listed below. Additional details regarding the methods are provided in the following sections.

- Defining the project and its visual setting by assessing the project proponent's submitted project application materials, including plans and descriptions, and reviewing Google Earth Pro aerial photographs and street-level photography, Kern County Geographic Information System (GIS) topographic and land use data, and U.S. Geological Survey (USGS) topographic data;
- Identifying sensitive receptors and potential KOPs through evaluation of visual quality and expected viewer response.
- Conducting a field survey of the project site and vicinity to take photographs of the project site, document existing visual conditions, and identify the locations and characteristics of viewer groups in the project area.
- Selecting KOPs that are the most representative and important VPs identified during the field survey to evaluate potential visual impacts that would result from the project.
- Preparing visual simulations that depict photorealistic renderings of conditions following construction and the installation of proposed project features, as seen from the designated KOPs.
- Completing a qualitative evaluation of visual change that would result from the project and impacts on scenic quality using the visual simulations.
- Qualitatively evaluating how viewer groups in the project area may be affected by the project.
- Identifying methods to mitigate any significant visual impacts.

Field Surveys

Panorama conducted a field survey to inventory existing visual conditions of the project site and its surroundings in June 2020. Photographs were taken to document representative viewing locations where the project may be seen and for use as the base images in the visual simulations. All photographs presented

in this section have an approximately 40-degree horizontal angle of view, which is roughly equivalent to a 35-millimeter film camera with a 50-millimeter lens. This configuration is intended to represent an approximate human field of vision and viewing scale. Photographs were taken at eye level and the camera position for each VP was recorded using a Global Positioning System (GPS) unit.

Viewpoints and Key Observation Points

A total of 13 VPs were identified following the field survey that provide representative views of different project sites and features within them from varying public viewing areas, distances, and perspectives. **Table 4.1-2** provides information on each VP location, including the view direction, distance to the closest project features, and viewer groups. **Figure 4.1-2** identifies the viewpoint locations. Photographs showing the general landscape character in the project area and the existing visual conditions at each VP are shown in **Figure 4.1-3.**

The process of identifying KOPs focused on selecting viewpoints that could be used to accurately represent views from a broader range of viewpoints, particularly viewpoints from area sensitive receptors. The nature of solar fields, with large numbers of nearly identical and relatively low-lying PV panels, means that the views encountered from differing angles would often be quite similar. Sensitive receptors near the project site include motorists, due to the eligible state scenic designation of SR-58, and views to the project site available from rural scattered residences along local roads (i.e., Twenty Mule Team Road, Ferguson Street, Sierra View Street, and Gephart Road). In addition, recreational users of the PCT are analyzed as sensitive receptors.

The familiarity with the view also influences how much attention is spent on the visual environment. Regular motorists may be highly familiar with the view and sometimes pay less attention; however, these motorists tend to be much more sensitive to changes in that view. People who are less familiar with the view may spend more time looking at the surrounding land but would not notice changes in the view. The majority of existing motorists are likely to be residents driving to and from home. While SR-58 is not officially designated as a State Scenic Highway, it has been determined to be eligible for this status and it was considered within the viewshed of the project that would attract recreational drivers.

The project site is located in a rural area. As described in Section 4.1.2, *Environmental Setting*, scattered rural residences are found surrounding the project site. Among these residents, those with direct views of the project site from their homes would tend to be the most sensitive to changes in the view. These residents tend to have much more familiarity with the existing viewshed and a heightened sensitivity to any visual changes within the landscape.

Five VPs were selected as KOPs to be the focus of visual simulations and detailed impact analysis. These KOPs were determined to be the most important and representative of visual conditions and viewer locations. The remaining eight VPs are not the focus of visual simulations and detailed impact analysis. With project implementation, visual conditions at these eight VPs would be similar to those shown in the visual simulations and described for the five KOPs. The KOPs are identified in **Figure 4.1-2** and **Table 4.1-2**. A brief explanation on the rationale for selecting the KOPs is included in **Table 4.1-2**.

Table 4.1-2. Summary of Viewpoints and Key Observation Points

VP	Location	View Direction	Distance to Nearest Project Infrastructure	Viewer Groups	Selected as KOP? (Rationale)
1	Westbound SR 58 Rest Area	W	600 feet	• Regional Motorists	No (similar to VP 13 looking at Site 5)
2	Eastbound SR 58 at Gen-tie Crossing	E	900 feet	• Regional Motorists	No (location does not show the solar site and only shows the gen-tie crossing over SR-58)
3	Boron Avenue Overpass at SR 58	SW	1.3 mile	• Regional Motorists • Local Motorists	No (location is over 1 mile away and elevated position on overpass and view angle is not representative of typical view)
4	Boron Park	S-SW	0.5 mile	• Park Users • Residents	No (similar to VP 5 which was selected to show residential views similar to views from the park)
5	**Patricia Avenue at Ferguson Street**	**SW**	**0.4 mile**	• **Local Motorists** • **Residents**	**Yes (selected to show residential views of Site 1 that may be of concern to the public; complements VP 6)**
6	**Twenty Mule Team Road East of James Street**	**S**	**0.5 mile**	• **Local Motorists** • **Residents**	**Yes (selected to show view of largest portion of Site 1 from residential area and Twenty Mule Team Rd; complements VP 5)**
7	Twenty Mule Team Road East of Wesley Street	SW	0.5 mile	• Local Motorists • Residents	No (similar to VP 6 and VP 8)
8	**Twenty Mule Team Road at Del Oro Street**	**S-SE**	**600 feet**	• **Local Motorists** • **Residents**	**Yes (selected to show view of Site 3 and distant mountain feature)**
9	Twenty Mule Team Road at Borax Road	SE	500 feet	• Local Motorists • Residents	No (Site 4 is documented by VP 2 from SR 58)
10	Twenty Mule Team Road West of Borax Road	W-NW	0.4 mile	• Local Motorists	No (Site 4 is documented by VP 2 on highway)
11	**Chaparral Avenue at Borax Road**	**W**	**0.5 mile**	• **Local Motorists** • **Residents**	**Yes (selected to show view of Site 4 from Desert Lake area)**
12	Boron Avenue at Boron Landfill Entrance	S-SE	775 feet	• Local Motorists	No (viewer sensitivity very low due to presence of landfill)
13	**Westbound SR 58 at Rest Stop Exit**	**N-NW**	**200 feet**	• **Regional Motorists**	**Yes (VP shows Site 5 along highway and at rest stop exit; complements VP 2 facing opposite travel direction)**

Notes:
Bold indicates VPs selected as KOPs.

Visual Simulation Methodology and Assumptions

Visual simulations were created for the five KOPs to show post-development visual conditions that would result from the proposed project. The visual simulations were created using computer aided 3D modeling and rendering techniques to create a photorealistic representation of the approximate locations and scale of the proposed project facilities and their visual characteristics (e.g., surface color and texture) and approximate scale. The simulated features presented in the visual simulations are based on assumptions from information provided in the project description, preliminary design drawings and visual simulations prepared by the applicant, and similar PV plant projects in the region. Key assumptions are as follows:

- Proposed PV panel modules on single axis tracking system are shown in a grid pattern within the boundary of Sites 1 through 5.
- Typical PV solar panels used at the project site are expected to remain between 6 and 8 feet in height as measured from the ground surface to the panel surface when in a flat position and parallel to the ground during mid-day periods. When 8-foot solar panels are tilted at their greatest angles during sunrise and sunset periods they would be approximately 10 feet tall at the highest point. The simulations depict the most likely scenario of 8-foot solar panels with one side tilted and reaching a height of approximately 10 feet aboveground. The impact analysis below generally refers to these as 10-foot solar panels.
- The height of steel monopoles for the gen-tie line are shown at 150 feet aboveground.
- The height of poles for the aboveground collector lines (wood or treated steel) are shown at a height of 55 feet aboveground. Perimeter fencing is shown as 7-foot-tall chain link fencing with 1-foot of barbed wire on top.
- The maximum height of substation facilities and energy storage buildings within each site would be 50 and 25 feet tall, respectively.
- The alternate gen-tie option to Kramer Substation is not shown.

The applicant has included a proposed option for installing a light-colored, palliative ground cover within the solar development areas in the event that bi-facial solar panels are used for the project. The use of the palliative ground cover would increase the albedo of the ground and solar energy production. The application of light-colored palliative is not shown in the visual simulations. The only KOP where the ground surface of the project area would be visible is KOP 13. The ground surface would not be visible from the other KOPs due to the flat terrain, setback distances, and intervening vegetation. The potential for a lighter ground surface visible from KOP 13 and similar areas where the ground surface may be seen is discussed under Impact 4.1-3.

The proposed project was revised in February 2021 to increase setbacks from residential areas in the vicinity of Sites 1, 2, and 4. **Figure 4.1-2** identifies the original and revised project boundaries for these sites. The project changes affected the assumptions used to prepare the visual simulations for KOPs 5, and 8 and a simulation for viewpoint 11 was added to provide a representative view of Site 4 from the Desert Lakes community. The simulation for KOP 5 was revised to reflect the significant setbacks for Sites 1 and 2. The simulation for KOP 8 was revised to show the minor changes in the view that would result from the project setback at that location. All simulations reflect the current project proposal and are discussed under Impact 4.1-3.

Photographs showing the existing visual conditions and the visual simulations showing representative project conditions are provided at the beginning of the discussion of Impact 4.1-3, later in this section.

Scenic Quality Rating

Scenic quality refers to the visual appeal of a landscape relative to desired scenic values and the abundance or scarcity of similar qualities in the region. Scenic quality can be measured quantitatively by evaluating the presence or absence of scenic features and the intrusion of features that detract from the scenic features. Several different methods may be used to rate scenic quality. Scenic quality rating for the project was conducted for the KOPs following the general principles and scenic quality rating criteria described in BLM Manual H-8410-1, Visual Resource Inventory. According to this method, visual quality is rated according to the presence and characteristics of seven criteria: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. Each criterion is described below. The numeric rating system is described in **Table 4.1-3**.

The ***landform*** component takes into account the fact that topography becomes more interesting visually as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental (as found in Yosemite Valley) or they may be exceedingly artistic and subtle (such as certain badlands, pinnacles, arches, and other extraordinary formations).

The ***vegetation*** component gives primary consideration to the variety of patterns, forms, and textures created by plant life. Short-lived displays are given consideration when they are known to be recurring or spectacular. Consideration is also given to smaller scale vegetation features that add striking and intriguing detail elements to the landscape (e.g., gnarled or wind beaten trees, Joshua trees).

The ***water*** component recognizes that visual quality is largely tied to the presence of water in scenery, as it is that ingredient that adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score for the water component.

The ***color*** component considers the overall color(s) of the basic components of the landscape (e.g., soil, rock, vegetation). Key factors used when rating the color of scenery are variety, contrast, and harmony.

The ***adjacent scenery*** component takes into account the degree to which scenery outside the view being rated enhances the overall impression of the scenery under evaluation evaluated. The distance of influence for adjacent scenery normally ranges from 0 to 5 miles, depending upon the characteristics of the topography, the vegetation cover, and other such factors. This factor is generally applied to views that would normally rate very low in score, but the influence of the adjacent high visual quality would enhance the visual quality and raise the score.

The ***scarcity*** component provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within a region. There may also be cases where a separate evaluation of each key factor does not give a true picture of the overall scenic quality of an area. Often, it is a number of not-so-spectacular elements in the proper combination that produces the most pleasing and memorable scenery—the scarcity factor can be used to recognize this type of area and give it the added emphasis it should have.

The ***cultural modifications*** component takes into account any man-made modifications to the landform, water, and/or vegetation, and/or the addition of man-made structures. Depending on their character, these

cultural modifications may detract from the scenery in the form of a negative intrusion or they may complement and improve the scenic quality of a view.

Table 4.1-3. Scenic Quality Rating System

Key Factors	Rating Criteria and Score [a]		
Landform	High vertical relief (prominent cliffs, spires, or massive rock outcrops); severe surface variation; highly eroded formations (major badlands or dune systems); detail features dominant and exceptionally striking/intriguing. **If true, score = 5**	Steep canyons, mesas, buttes, cinder cones, and drumlins; interesting erosional patterns or variety in size and shape of landforms; or detail features, which are interesting though not dominant or exceptional. **If true, score = 3**	Low rolling hills, foothills, or flat valley bottoms or few or no interesting landscape features. **If true, score = 1**
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. **If true, score = 5**	Some variety of vegetation but only one or two major types. **If true, score = 3**	Little or no variety or contrast in vegetation. **If true, score = 1**
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. **If true, score = 5**	Flowing, or still, but not dominant in the landscape. **If true, score = 3**	Absent or present but not noticeable. **If true, score = 0**
Color	Rich color combinations; variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields. **If true, score = 5**	Some intensity or variety in colors and contrast of the soil, rock, and vegetation but not a dominant scenic element. **If true, score = 3**	Subtle color variations, contrast, or interest; generally muted tones. **If true, score = 1**
Influence of Adjacent Scenery	Adjacent scenery greatly enhances scenic quality. **If true, score = 5**	Adjacent scenery moderately enhances overall scenic quality. **If true, score = 3**	Adjacent scenery has little or no influence on overall scenic quality. **If true, score = 0**
Scarcity	One of a kind, unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. **If true, score = 5+ b**	Distinctive, though somewhat similar to others within the region. **If true, score = 3**	Interesting within its setting but fairly common within the region. **If true, score = 1**
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony. **If true, score = 2**	Modifications add little or no visual variety to the area and introduce no discordant elements. **If true, score = 0**	Modifications add variety but are very discordant and promote strong disharmony. **If true, score = -4**

Source: (BLM, 1986b)

Notes:

a - Values for each rating criteria are maximum and minimum scores only. It is also possible to assign scores within these ranges. Fractional values can be assigned, if necessary, to distinguish between qualities.

b - A score greater than 5 can be assigned to scarcity but must be supported by written justification.

Generally, the highest scenic quality ratings in all seven categories could reach a total score of 32, based on the scoring system described in **Table 4.1-3**. Landscape views with a total score of 19 or more are considered to have high or very high visual quality ("Class A"). Landscape views with a total score of 15 to 18 are considered to have moderate visual quality ("Class B"). Landscape views with a total score of 11 or less are considered to have low visual quality ("Class C").

Table 4.1-4. Scenic Quality Ratings

KOP	Rated Conditions	Visual Quality Ratings								Visual Quality Change[a]	Explanation
		Landform	Vegetation	Water	Color	Adjacent Scenery	Scarcity	Cultural Modifications	Total Score		
5	Existing	1	3	0	3	1	1	-0.5	8.5	-1	Area is mostly flat with no water features. Existing scenic features are relatively common in region. Project removes some vegetation in the distance, but the vast majority remains; partially obstructs moderately scenic topography and landscape colors; moderately obstructs distant topography with industrial activities. Low to moderate increase of cultural modifications from visible solar facilities.
	Proposed	1	2.5	0	3	1	1	-1	7.5		
6	Existing	1	3	0	3	1	1	-1	8	-0.5	Area is flat with no water features. Existing scenic features are relatively common in region. Distant project features partially screened by scenic vegetation beyond railroad.
	Proposed	1	3	0	3	1	1	-1.5	7.5		
8	Existing	0	3	0	2.5	2	1	-1	7.5	-2	Area is flat with no water features. Existing scenic features are relatively common in region. Some vegetation in the foreground removed. Moderately scenic colors remain and distant topography with industrial activities remains visible.
	Proposed	0	2.5	0	2	1.5	1	-1.5	5.5		
11	Existing	1	3	0	2.5	1	1	-0.5	8	-1	Area is flat with no water features. Existing scenic features and vegetation are relatively common in the region. Power poles are visible in the foreground and low hills are faint in the background. Vegetation remains as the dominant feature and color in the foreground and views of the mountains in the background remain visible.
	Proposed	1	3	0	2	1	1	-1	7		
13	Existing	0	3	0	3	3	1	-1	9	-6	Area is flat with no water features. Existing scenic features are relatively common in region. The SR 58 highway corridor is visible. Project removes vegetation variety and colors; obscures distant scenic hills. Significant increase in cultural modifications from solar panels near highway.
	Proposed	0	2	0	1	1	1	-2	3		

Notes:

[a] Scenic Quality Change = Total Score for Existing Conditions – Total Score for Proposed Conditions.

The degree of visual change and impacts on scenic quality that would result from the project can be measured by subtracting the score for the project conditions from the score for existing conditions. The difference in the scenic quality scores represents the degree of visual change and impacts on existing scenic quality. Lower values indicate greater impacts, while values near zero indicate little to no impact. A summary of scenic quality ratings at the KOPs for existing conditions and proposed project conditions based on the visual simulations, as well as the score differences, are provided in **Table 4.1-4.**

Glare Analysis

A glare analysis report was prepared to analyze identify potential glare-related impacts that would result from the proposed project (Dudek 2021). The study was conducted using methods recommended by the Federal Aviation Administration described in the *Technical Guidance for Evaluating Selected Solar Technologies on Airports* (FAA 2018). Glare conditions were modeled using the Solar Glare Hazard Analysis Tool (SGHAT), which is a 3D geometric glare analysis software developed by Sandia National Laboratories. SGHAT is publicly licensed as ForgeSolar. SGHAT and ForgeSolar allow for the evaluation of potential glare of a particular PV array to produce glare intensity, predicting when and where glare would occur from a proposed PV array at discrete observation points or routes.

Because of the project's close proximity to Edwards Air Force Base (with runways located approximately 6.5 miles to the west of the project), Boron Airstrip, and the existence of multiple highways in the immediate vicinity of the project site, a 5-mile-radius study area was determined to be necessary for this analysis. Dudek performed a visibility analysis on the surrounding terrain within the study area to determine where the project is most visible. Based on the visibility analysis, Dudek determined the location of potential receptors within the study area. All runway approach paths and air traffic control towers associated with Edwards Air Force Base and Boron Airstrip were included in this analysis regardless of visibility or distance. A geometric glare analysis was then conducted for the identified potential receptors to determine a worst-case scenario of where and when glare might be encountered. Upon completion of the geometric analysis, Dudek reviewed the results for potential glare hazards.

To account for the large project area and to increase the reliability of the modeling results, the project site was broken up into 4 separate analysis groups, which were further broken into panel sections averaging about 20 acres in size. A full visibility and glare analysis were performed on each analysis group to determine the level of actual visibility from various viewing locations and to identify potential receptors that might be impacted by glare from panel arrays.

Glare analysis for the project involved modeling total glare that would be reflected from individual PV solar array blocks within each project site, and the intensity and duration of glare that would be directed towards receptors in the project vicinity. By inputting the solar panel locations and characteristics, as well as the locations and elevations of the receptors, the software was able to simulate the sun's progression across the sky over the course of a year and model the potential glare caused by the proposed solar arrays. Glare receptors include both stationary observation points and linear routes where vehicle or air traffic may be affected by high levels of glare. Modeled receptor groups included: Airport Flight Paths, Air Traffic Control Towers, Observation Points from homes, outdoor recreation areas, roads and highways, and railroad routes.

Glare intensity is described according to potential for after-image and is based on the FAA's Solar Glare Ocular Hazard Plot, which includes the following color-based categories:

- **Green.** Low potential for the glare to cause an after-image (also known as flash blindness).
- **Yellow.** Potential to cause a temporary after-image.
- **Red.** Potential to cause retinal burn and permanent eye damage.

Thresholds of Significance

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

- Have a substantial adverse effect on scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Project Impacts

Impact 4.1-1: The project would have a substantial adverse effect on a scenic vista.

Scenic vistas are typically expansive views from elevated areas. They may or may not be part of a designated scenic overlook or other area providing a static vista view of a landscape. There are no designated or widely recognized scenic vistas in the project vicinity. The project site and the surrounding area are within a flat valley and away from vantages of the project site, except for a few topographical features to the north and south; however, these features are subject to significant mining or other industrial activities. The project may be visible to some degree from the viewshed of distant elevated views, such as from the mountain peaks located approximately 10 miles away (refer to **Figure 4.1-1**); however, seasonal regional haze limits the period when such views may be available. Where such views may occur, details of the project features would not be discernable and the developed project areas would not draw attention from the casual observer due to distance, viewing angle, and existing land modifications north and northeast of the project site, including residential and commercial development around the communities of Desert Lake and Boron, and the major open pit mine located approximately 1 mile north of the project. The focus of any views from distant mountain peaks or elevated areas where the project may be seen would be on the remaining expansive desert landscape and mountain backdrop. Due to the project's distance from the PCT combined with intervening topography and the existing visual setting including solar, wind and transmission facilities would likely result in the project producing no noticeable impact to views from the PCT. The project would not have a substantial adverse effect on a scenic vista. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.1-2: The project would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

There are no designated state scenic highways in Kern County. The segment of SR-58 between Mojave and Boron that bisects the project site is eligible for scenic highway designation, but it has not been formally designated as such (Caltrans 2020).

The project would involve the removal of desert scrub vegetation including Joshua trees where the proposed solar facilities and supporting facilities would be installed at Sites 1 through 5, and along the gen-tie line corridor from Site 4 to the Holgate Substation. These areas are predominately undeveloped; however, various areas of the project sites and adjacent areas have been subject to past disturbances, such as from the installations of underground pipelines and overhead utilities. Vegetation that contributes to the scenic values of the SR 58 highway corridor would be removed and replaced by the project facilities, most notably at Sites 4 and 5 which are located immediately adjacent to SR 58 (refer to **Figure 4.1-8a/b** for KOP 13). The removal of vegetation from Sites 1, 2, and 3 would occur approximately 0.5 mile or more south of SR 58 and largely south of existing development that would screen those areas from views along SR 58. Scenic views of vegetation in the immediate foreground of SR 58 would be impacted between Borax Road and Gephardt Road for approximately 1.5 miles along the south side (Site 4) and 1 mile along the north side (Site 5). The views of motorists traveling along SR 58 at 65 miles per hour would be impacted for a brief period (approximately 90 seconds or less) where Sites 4 and 5 would be located. Motorists would see project features adjacent to other built features associated with residential and commercial development of Desert Lake. Immediately past these areas in both directions, large undeveloped expanses of desert landscapes and similar vegetation would remain visible along the highway, and the project would not change the overall scenic experience for regional motorists. The project would not substantially damage scenic resources within a scenic highway. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.1-3: The project would, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage points) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.

Construction

Construction of the proposed project would involve vegetation clearing and ground disturbance (i.e., grading and trenching) with temporary and permanent project areas at Sites 1 through 5 and the gen-tie corridor. It would also involve the presence of construction equipment, vehicle traffic, and stockpiled materials. The aboveground elements and activities associated with construction would be visible and noticeable from public areas surrounding the project for a relatively short distance (approximately 0.5 mile), except where views are obstructed by intervening topography, vegetation, and structures. Construction would temporarily disrupt the existing scenic qualities and contrast with the existing visual character of the surrounding residential and undeveloped areas for the duration of construction (approximately 18 months). The areas affected by temporary construction impacts would also be affected by long-term visual change from the installation of proposed solar facilities, which would be more visible to the surrounding viewers than construction. Therefore, the impact discussion is focused on post-construction conditions during operation of the project. Short-term construction activities would not substantially degrade the existing visual character or scenic quality of public views due to the temporary nature of the construction activities. Impacts from construction would be less than significant.

Operation

Figures 4.1-4a through **Figure 4.1-8b**, where “a” identifies existing and “b” identifies visual simulation of the proposed project.

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-4A. KOP 5 – PHOTOGRAPH OF EXISTING VISUAL CONDITIONS

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-4B. KOP 5 – VISUAL SIMULATION OF THE PROPOSED PROJECT

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-5A. KOP 6 – PHOTOGRAPH OF EXISTING VISUAL CONDITIONS

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-5B. KOP 6 – VISUAL SIMULATION OF THE PROPOSED PROJECT

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-6A. KOP 8 – PHOTOGRAPH OF EXISTING VISUAL CONDITIONS

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-6B. KOP 8 – VISUAL SIMULATION OF THE PROPOSED PROJECT

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-7A. KOP 11 – PHOTOGRAPH OF EXISTING VISUAL CONDITIONS

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-7B. KOP 11 – VISUAL SIMULATION OF THE PROPOSED PROJECT

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-8A. KOP 13 – PHOTOGRAPH OF EXISTING VISUAL CONDITIONS

ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

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FIGURE 4.1-8B. KOP 13 – VISUAL SIMULATION OF THE PROPOSED PROJECT

KOP 5 – Patricia Avenue at Ferguson Street

Existing Visual Conditions

KOP 5 is located on the southern edge of the community of Boron where a number of residences are located. The photograph in **Figure 4.1-4a** shows the existing view from KOP 5 looking south toward Site 2 from the corner of Ferguson Street and Patricia Avenue. The view from KOP 5 is typical of the views experienced by the closest residences and local motorists in the Boron neighborhood and surrounding area south of Twenty Mule Team Road. Additionally, this view is similar in visual character, and in distance, to those available to users of Boron Park when facing south toward Site 1. Boron Park is located about 1,500 feet east of KOP 5 (refer to VP 4 in **Figure 4.1-2** and **Figure 4.1-3**). Typical built features of residential areas are visible along the north side of Ferguson Street a(partially in view from KOP), including street signs, utility poles, and low fences. South of Ferguson Street there is relatively little development visible except for a few utility lines and some industrial activities on the distinct and distant form of Leuhman Ridge, which serves as the backdrop of south facing views. A mix of beige, yellow, and green desert scrub vegetation with several Joshua trees is visible with areas of exposed dirt along utility roads over slightly uneven ground. The scenic quality rating for this area is higher than in other areas surrounding the project site due to the low amount of development, presence of Joshua trees, and visibility of distant scenery (e.g., hills). However, the overall scenic quality is still considered to be predominantly low because of the absence of unique or variable landform features and the fact that the scenic features in view are generally common in the area.

Residents and local motorists in this area have views that are generally frequent and longer in duration, and they are accustomed to the existing visual conditions and details of the landscape. For these reasons, residents and local motorists in this area are expected to have high sensitivity to visual change.

Visual Conditions with the Proposed Project

The post-development visual simulation for KOP 5 is provided in **Figure 4.1-4b**, which demonstrates the portions of Site 2 would be visible from residential area. A substation, battery storage building, and solar panels would be partially visible over a distance of approximately 0.5 mile. The features would be noticeable in the distance, but would not dominate the view. Scenic vegetation would remain in the foreground and obscure some of the project features, and the scenic landform of Leuhman Ridge would remain visible beyond the project. Farther west on Ferguson Street and on Westley Avenue where other residences are located, the proposed facilities in Site 2 would be visible to a similar degree as shown **Figure 4.1-5b**. Depending on the specific viewing location in this area, additional solar panels would be visible beyond the immediate foreground; however, the same setback and vegetative buffer would be present, diminishing the prominence of the project.

The proposed project would introduce significant modifications to this primarily undeveloped area. The project features would be noticeable but would not dominate the view. Scenic vegetation and colors would remain in the immediate foreground and surrounding the project site, as well as views of adjacent scenery beyond the project. Scenic quality would be reduced slightly, but the overall reduction in scenic quality would be low due to the scenic features that would remain (**Table 4.1-4**). However, the existing visual character of the landscape would be substantially impacted due to the introduction of a significant set of energy development facilities to a generally undeveloped area. Substantially impacting visual character where viewer sensitivity is high would be a significant impact. Visual impacts on public views would be

significant because the project would substantially alter the existing visual character of views from KOP 5, as well as similar views in the immediate area (i.e., Boron Park and along Ferguson Street and South Wesley Street). Mitigation measures would be implemented to reduce project impacts on aesthetic resources. These mitigation measures are discussed at the end of Impact 4.1-3. In addition, a decorative, solid dust barrier would be installed along the eastern edge of Site 2, as required by Air Quality Mitigation Measure MM 4.3-4 (refer to **Figure 4.3-2**), which would screen views of that project site from this KOP.

KOP 6 – Twenty Mule Team Road East of James Street

Existing Visual Conditions

KOP 6 is located along Twenty Mule Team Road, about 300 feet east of James Street, on the southeast edge of the community of Boron. This view is representative of those experienced by residents north of Twenty Mule Team Road and local motorists traveling along Twenty Mule Team Road in the vicinity of the nearby Boron-Desert lakes commercial district. The photograph in **Figure 4.1-5a** shows the existing view from KOP 6 looking south toward Site 1, approximately 0.5 miles away. Features visible in the immediate foreground include the pavement of Twenty Mule Team Road and the markers of underground utilities, roadside vegetation, and the dark line of the rails and ballast of the Burlington Northern and Santa Fe Railroad, that are slightly raised from the elevation of the roadway. Beyond the railroad tracks, typical low tan, green, and sage colored desert vegetation is visible. Joshua trees, slightly taller than the surrounding vegetation, appear interspersed with these low bushes and a line of multi-pole transmission structures is somewhat visible against a backdrop of low rolling hills and sky. The raised earthen perimeter berms around the Boron Landfill are barely visible toward the southwest, which is directly between the two smaller areas that make up Site 1 (**Figure 4.1-2**). The scenic quality in this area is also predominantly low and similar to the scenic quality of KOPs 2 and 8.

Residents and local motorists in this area are expected to have low sensitivity to visual change due to the presence of the landfill and active railroad tracks that are slightly elevated above the roadway, and the flat vegetated area that lies between the viewing areas and Site 1.

Visual Conditions with the Proposed Project

The post-development simulation for KOP 6 is provided in **Figure 4.1-5b**, which demonstrates a small portion of Site 1 would be visible from this section of Twenty Mule Team road and the surrounding residential area. In this view, a proposed energy storage facility – painted a neutral earth tone – can be seen on a raised area on the lower right side of the simulation. Lines of low solar panels are visible in the middle-ground in the center and on the right side of the simulation and appear slightly darker than the surrounding vegetation. On the left side of the view, the panels are almost completely screened by intervening topography and vegetation. Views of scenery in the background (low topographic features) would remain visible beyond the project.

The proposed project features would be moderately visible at a 0.5-mile distance from KOP 6 and this area of Twenty Mule Team Road. The resulting change to scenic quality would be very low. Visual impacts of the project with the expected solar panel height (approximately 10 feet) would be less than significant due to moderate viewer sensitivity, very low change in scenic quality, and the remaining scenic vegetation and space between the viewing area and the project. Mitigation to reduce visual impacts is discussed at the end of Impact 4.1-3.

KOP 8 – Twenty Mule Team Road at Del Oro Street

Existing Visual Conditions

KOP 8 is located on Twenty Mule Team Road at Del Oro Street, on the southern edge of the community of Desert Lake. The photograph in **Figure 4.1-6a** shows the existing view from KOP 8 looking south-southeast toward Site 3. This view represents those experienced by residents within the Desert Lake area and local motorists traveling on Twenty Mule Team Road and other local streets. Views from KOP 8 would be somewhat similar to views of Site 4 from other areas along Twenty Mule Team Road. An unnamed gravel road can be seen in the foreground which crosses the Burlington Northern and Santa Fe Railroad tracks that runs parallel to Twenty Mule Team Road and the northern boundary of Site 3. A separate but connected section of the railroad also transects Site 3 south of KOP 8. Linear elements in the foreground include a set of utility lines mounted on wood poles, railroad crossing gates and equipment boxes. Beyond these features, flat scrub vegetation within Site 3 is visible, lying at a slightly lower elevation than the railroad tracks. On the left, a row of container cars sits on the more distant railroad tracks located near the middle of Site 3. The distant form and brown color of Leuhman Ridge provides a backdrop on the right side of the view and includes indications of industrial activity on the ridge. This landform provides a distinctive and recognizable feature for most views south from the communities of Boron and Desert Lake and can be seen from most places on this stretch of Twenty Mule Team Road. The scenic quality in this area is also predominantly low and similar to the scenic quality of KOPs 2, 5, and 6.

Residents and local motorists in this area are expected to have moderate sensitivity to visual change due to the presence of the two slightly elevated active railroad tracks and the heavy industrial activities visible on Leuhman Ridge.

Visual Conditions with the Proposed Project

The post-development simulation for KOP 8 is shown in **Figure 4.1-6b**. As with KOP 2, multiple project facilities would be visible at relatively close distances to the travel corridor, including the battery storage building, substation, perimeter fence, and overhead collector system. The taller elements near the viewing area are visible against the sky, which draws the casual viewers' attention. Much of the rest of the proposed substation, as well as O&M buildings and a water tank, can be seen against the backdrop of the Leuhman Ridge. Multiple layers of chain link fence surround the site and substation. As the fence line recedes into the middle-ground on the right, the Site 3 entrance provides a visible break in the rows of posts and rows of PV solar modules are visible behind the fence. Farther toward the right, beyond the second set of railroad tracks, more Site 3 solar panels can be seen, partially hidden by existing vegetation. Solar panels and perimeter fencing would also be visible along Twenty Mule Team Road, which is not within the visible extent of the simulation but would be visible farther to the left.

Similar to KOP 2, the visual simulation for KOP 8 (**Figure 4.1-7b**) depicts project features that have been repositioned approximately 200 feet south to avoid the Desert Lake Community Plan boundary (refer to **Figure 4.1-2**). The visual simulation shows the features in their original location. These same features would be visible in roughly the same area but the minor setback from Twenty Mule Team Road would somewhat reduce their perceived size and scale. For these reasons, the visual simulation for KOP 8 illustrates similar but slightly greater visual impacts than those that would result from the proposed project, as revised. Although the specific position of the project features have been shifted south slightly, the visual simulation for KOP 8 adequately represents the types and extent of visual change that would result from the proposed project, as seen from Twenty Mule Team Road.

The proposed project features would be noticeable and in close proximity to Twenty Mule Team Road; however, the overall visual change in scenic quality would be low to moderate due to the presence of existing development and landscape modifications in the surrounding area; scenic vegetation and colors that would remain in front and to the side of the facilities; and the retained views of adjacent scenery (i.e., Leuhman Ridge) (see **Table 4.1-4**). Visual impacts of the project with the expected PV solar panel height (approximately 10 feet) have the potential to be significant due to the moderate viewer sensitivity and moderate visual change. Mitigation measures would be implemented to reduce project impacts on aesthetic resources. These mitigation measures are discussed at the end of Impact 4.1-3. In addition, a decorative, solid dust barrier would be installed along the northern edge of Site 3, as required by Air Quality Mitigation Measure MM 4.3-4 (refer to **Figure 4.3-2**), which would screen views of that project site from this KOP.

KOP 11 – Chaparral Avenue at Borax Road

Existing Visual Conditions

KOP 11 is located on Chaparral Avenue at Borax Road on the eastern edge of the community of Desert Lake and near where a number of residences are located. The photograph in **Figure 4.1-7a** shows the existing view from KOP 11 looking west toward Site 4. The view from KOP 11 is typical of the views experienced by the closest residences and local motorists in the Desert Lake neighborhood and surrounding area east of Borax Road. Typical built features of residential areas are visible along Borax Road (partially in view from KOP), including street signs, roads, and utility poles. West of Borax there is relatively little development visible except for the power line visible in the foreground, unpaved roads, and SR-58 eastbound rest area which is seen as darker green vegetation and trucks in the middleground of the existing view. A mix of beige, yellow, and green desert scrub vegetation with several Joshua trees, and dark green vegetation at the rest stop is visible. Visibility of the mountains in the background is dependent on air quality and the mountains are barely discernible in the photographs. The overall scenic quality is considered to be predominantly low because of the absence of unique or variable landform features and the fact that the scenic features in view are generally common in the area.

Residents and local motorists in this area have views that are generally frequent and longer in duration, and they are accustomed to the existing visual conditions and details of the landscape. For these reasons, residents and local motorists in this area are expected to have high sensitivity to visual change.

Visual Conditions with the Proposed Project

The post-development visual simulation for KOP 11 is provided in **Figure 4.1-7b**, which demonstrates the portions of Site 4 that would be visible from residential areas in the Desert Lake community. A battery storage building and solar panels would be partially visible over a distance of approximately 0.5 mile. The features would be noticeable in the distance, but would not dominate the view. Existing vegetation, including Joshua trees would remain in the foreground and obscure some of the project features, and the existing power poles in the foreground would be closer than the proposed project and would appear larger and more prominent in the view than the project features. North and south of the viewing location along Borax Avenue, the proposed facilities in Site 4 would be visible to a similar degree as shown **Figure 4.1-7b.**

The proposed project would introduce significant modifications to this primarily undeveloped area including the battery storage building, which would block views of the rest area. The project features would be noticeable but would not dominate the view because the existing vegetation and colors would remain in

the immediate foreground and surrounding the project site, as well as views of mountains and scenery beyond the project. Scenic quality would be reduced slightly, but the overall reduction in scenic quality would be low due to the scenic features that would remain (**Table 4.1-4**). The existing visual character of the landscape would be changed over the life of the project due to the introduction of energy development facilities to a generally undeveloped area. The change in visual character from an undeveloped area to an energy facility would be substantial. The substantial impact to visual character from the Desert Lakes area, where viewer sensitivity is high, would result in a significant visual impact. Mitigation measures would be implemented to reduce project impacts on aesthetic resources. These mitigation measures are discussed at the end of Impact 4.1-3. In addition, a decorative, solid dust barrier would be installed along the eastern edge of Site 4, as required by Air Quality Mitigation Measure MM 4.3-4 (refer to **Figure 4.3-2**), which would screen views of that project site from this KOP.

KOP 13 – Westbound State Route 58 at Rest Stop Exit

Existing Visual Conditions

KOP 13 is located on westbound SR 58 approximately one-mile east of Gephart Road, at the Boron Rest Area on-ramp. The photograph in **Figure 4.1-8a** shows the existing view from KOP 13 looking west-northwest toward Site 5. This view is typical of those experienced by regional motorists traveling in the westbound direction of SR 58 and regional motorists at the adjacent highway rest stop. The distant Tehachapi Mountains create a visual backdrop for views from this portion of the highway, although regional haze often obscures the distant mountains which is evident in **Figure 4.1-8a**. In the view from KOP 13, the mountain backdrop is layered by the forms of intervening low reddish hills that dot the relatively flat valley floor. On the left, Gephart Road crosses over the highway on a concrete overpass and can be seen as a dark horizontal band as it continues to the right, elevated from the surrounding ground on a vegetated bank. Site 5 occupies the area between the pavement, in the immediate foreground, and the graded banks of Gephart Road. The site is covered with mixed desert scrub vegetation with colors of tan, yellow, and green typical for the region. The vegetation includes mostly low round bushes interspersed with Joshua trees some of which are tall and close to the highway. Some of the Joshua trees can be seen extending into the distant horizon and skyline which draws more attention to them. Additionally, several linear elements common along highways are visible, including the overpass in the distance, road signs, and a tall highway light pole.

Many regional motorists view this area in close range for brief periods (less than 90 seconds when traveling 65 miles per hour for 1.5 miles) as they travel along the SR 58 corridor. Regional motorists in this area are expected to have low sensitivity to visual change due to high rate of travel speed, short viewing duration, and the visibility of existing development and the major open pit mine just north of the highway outside of the visible extent to the view frame.

Visual Conditions with the Proposed Project

The post-development visual simulation for KOP 13 is provided in **Figure 4.1-8b** and demonstrates the visibility of long, continuous rows of solar modules within a perimeter fence at Site 5. From KOP 13 and this section of SR 58, regional motorists would have close and unobstructed views of the solar facilities. Regional motorists at the adjacent rest stop would have similar views but they would be stationary, and the views would be partially obstructed by structures and planted vegetation (see VP 1 in **Figure 4.1-3**). The dark linear forms of the solar panels, supporting legs, and surrounding chain link fence stand in contrast to the natural forms of the existing vegetation. The ground surface beneath the panels would be covered with

a palliative; the palliative could be similar in color to the surrounding ground and vegetation as shown in the visual simulation or potentially much lighter in color, such as a light gray. Barely discernable, near the middle right of the simulation, the tallest portions of the Site 5 substation can be seen beyond the panels. From this location, the proposed solar facility would not block distant views of the Tehachapi Mountains; however, the facilities would partially or completely obscure views of the intervening rolling hills and Gephart Road, depending on the precise location and tracking position of the solar panels – which is dependent upon time of day.

The proposed project features would dominate the lower portion of views in this area. Scenic desert vegetation and a large portion of the adjacent scenery (distant landforms) would be obscured or obstructed, except for the tallest mountains in the background. The overall visual change in scenic quality would be high due to the removal of scenic vegetation and colors and the introduction of built structures (**Table 4.1-4**). Although viewer sensitivity is considered low, viewer volume is high. The removal of scenic vegetation and the installation of a large solar site that partially obstructs views of adjacent scenery in the direction of travel could be perceived negatively by motorists. Mitigation measures would be implemented to reduce project impacts on aesthetic resources. These mitigation measures are discussed at the end of Impact 4.1-3.

Conclusion Summary

Solar Facility

As described in the impact analysis above for KOPs 5, 6, 8, 11, and 13, the proposed project would result in adverse visual change and potentially significant impacts on existing visual character and scenic quality from public views near the project site. This includes but is not limited to areas within and surrounding SR 58, Twenty Mule Team Road, Borax Road, Sierra View Street, Chaparral Avenue, Ferguson Street, South Wesley Street, Boron Avenue, and Boron Park. The visual simulations and impact discussion for KOPs 5, 8, 11, and 13 demonstrate how the proposed project would result in significant visual impacts with the expected solar panel heights of approximately 10 feet, which would require mitigation to reduce or avoid the impacts. Taller 20-foot solar panels visible from these areas could be more visually intrusive and have a substantially greater effects on views of adjacent scenery. The visual simulations and impact discussion for KOP 6 demonstrate how the proposed project would not result in significant visual impacts with the expected solar panel heights of approximately 10 feet; however, as discussed, taller 20-foot solar panels would result in potentially significant impacts due to substantially greater visual dominance and impacts on views of adjacent scenery. The greater visual impacts of 20-foot solar panels would be limited to where such panels would be visible from public areas and where their greater height would be noticeable and extended into views of adjacent scenery. As distance from public viewing areas increases, the effects of taller solar panels would not be noticeable or substantially different than the 10-foot solar panels. At a distance of approximately 500 feet from a viewing location, it expected the height of a 20-foot solar panel would not be significantly more noticeable than a 10-foot solar panel, and the visual impacts would be approximately the same. The battery storage buildings are also visually dominant project features as viewed from KOP 8 where the building would be in proximity to the residential area. The battery storage is also visually dominant in the view at KOPs 5 and 11 where the storage is visible in the middleground.

Mitigation Measures MM 4.1-1 through MM 4.1-3 would be incorporated to reduce visual impacts to the extent feasible, which include requirements to provide ongoing site maintenance including trash and debris management; preserve and enhance scenic vegetation where possible; minimize color contrast through the

selection of appropriate paint colors and surface treatments for project facilities; and, limit impacts from the location of tall, intrusive project facilities near public viewing areas. In addition, decorative, solid dust barriers would be installed along the eastern edge of Site 4, the norther edge of Site 3 and the eastern edge of Site 2, as required by Mitigation Measure 4.3-4 (refer to Section 4.3, *Air Quality*), which would screen views from sensitive residential viewers in the communities of Desert Lake and Boron and from Twenty Mule Team Road. However, because there are no feasible mitigation measures that can be implemented to maintain the existing open and undeveloped desert landscape character of the project site, the project would substantially degrade the existing visual character and scenic quality of public views of the site and its surroundings and impacts on visual resources would remain significant and unavoidable.

Gen-Tie Lines

The gen-tie line would be visible from public viewing locations to varying degrees depending on the selected route (refer to **Figure 4.1-2**). The gen-tie line crossing over SR 58 with 150-foot monopoles would be located in generally developed areas, near existing power lines in proximity to SR-58; however, the final selected route may be in a less or undeveloped area such as along the southern boundary of the project. The final route of the gen-tie line would be determined following project approval and in accordance with applicable Kern County policies for transmission line sighting and design. Depending on the selected route, the tall, solid form and light color of the gen-tie poles could cause strong visual contrast with the existing landscape character and substantially degrade scenic quality. The resulting impacts could be significant. Further, the tall gen-tie poles could periodically interrupt views of adjacent scenery; however, unlike the larger continuous forms of the solar facility features (i.e., panels, O&M facilities, energy storage building, etc.), impacts from the gen-tie poles on views of adjacent scenery would not be significant due to the wide spacing between the poles.

Mitigation Measure MM 4.1-3 would be implemented to reduce potential significant impacts associated with color contrast of the gen-tie poles where necessary. Mitigation Measure MM 4.1-3 requires the project proponent/operator to submit a proposed color scheme and treatment plan, for review and approval by the Kern County Planning and Natural Resources Department, to ensure all project facilities including the gen-tie poles blend in with the colors found in the natural landscape. Visual impacts of the gen-tie line would be less than significant with mitigation.

Mitigation Measures

Implementation of Mitigation Measure MM 4.3-4 (refer to Section 4.3, *Air Quality*)

MM 4.1-1: Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted for review and approval to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following:

a. The project proponent/operator shall clear debris from the project area at least four times per year; this can be done in conjunction with regular panel washing and site maintenance activities.

b. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for

additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department.

c. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.

d. Trash and food items shall be contained in closed secured containers at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

MM 4.1-2: Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall submit a proposed color scheme and treatment plan, for review and approval by the Kern County Planning and Natural Resources Department, that will ensure all project facilities including operations and maintenance buildings, gen-tie poles, array facilities, etc. blend in with the colors found in the natural landscape. All color treatments shall result in matte or nonglossy finishes.

MM 4.1-3: Wherever possible, within the proposed project boundary, the natural vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All natural vegetation adjacent to the proposed project boundary shall remain in place as permitted by Fire Code. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include the measures detailed below.

a. In areas temporarily disturbed during construction and decommissioning (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants (including Mohave creosote scrub habitat) and/or allowed to re-vegetate with the existing native seed bank in the topsoil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads or under arrays do not require revegetation.

b. The plan must include but is not limited to: (1) the approved California native seed mix that will be used on-site; (2) a timeline for seeding the site; (3) the details of which areas are to be revegetated; (4) a list of the consultation efforts completed;(5) the methods and schedule for installation of fencing that complies with wildlife agency regulations; and, (6) a clear prohibition of the use of toxic rodenticides.

c. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish re-vegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time).

d. Vegetation/ground cover shall be continuously maintained on the site by the project operator.

e. The re-vegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year periods, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department for each of the three years. Should efforts to revegetate with the existing native seed bank in the top soil prove in the second year to not be successful by 75 percent cover rate, re-evaluation of revegetation methods shall be made in consultation with the Kern County Planning and Natural Resources Department and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

Level of Significance after Mitigation

Even with the implementation of Mitigation Measures MM4.3-4 (refer to Section 4.3 Air Quality) and MM 4.1-1 through MM 4.1-3, impacts would be significant and unavoidable because the proposed energy facilities would substantially change the visual character of the undeveloped landscape.

Impact 4.1-4: The project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Light

Construction

According to the County's Noise Ordinance, construction is allowed during the hours of 6:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 9:00 p.m. on weekends. Construction of the project would generally occur during daytime hours so nighttime lighting would generally not be required; however, non-daylight hours may be necessary at times to make up for unanticipated schedule delays or to complete critical construction activities. If work is performed between the hours of 9:00 p.m. to 6:00 a.m., construction crews would use minimal illumination in order to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. During construction, dusk-to-dawn security lighting would be required for the temporary construction staging area, parking area, construction office trailer entries, and project site access points. Per Mitigation Measure MM 4.1-4, any nighttime construction would use lighting designed to provide the minimum illumination needed, thereby minimizing adverse impacts on any nearby residents. As a result, impacts from lighting during construction on night sky qualities would be less than significant.

Operation

During operations, the project would include security lighting and other lighting required for occupational health and safety. The project's lighting system would provide O&M personnel with illumination for both normal and emergency conditions. Lighting would be installed at access gates, near the O&M building

(collocated with the substation on the northern site), and at the proposed substations. Lighting would be installed along the gen-tie line if required by the Federal Aviation Administration or Department of Defense; however, no such lighting is anticipated for the project. No lighting is anticipated along most of the fence lines around the perimeter of the solar sites. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Additionally, lighting would be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass in accordance with applicable County requirements. Potential operational impacts associated with new sources of lighting at the solar sites would be minimized through compliance with applicable County development standards pertaining to lighting, including Chapter 19.81 (Dark Skies Ordinance), and as required in Mitigation Measure MM 4.1-4. Mitigation Measure MM 4.1-4 states that the project would be designed to provide the minimum illumination needed to achieve safety and security objectives. Implementation of Mitigation Measure MM 4.1-4 and compliance with local standards and regulations pertinent to lighting would minimize the potential for light trespass onto adjacent properties and roads. Impacts from lighting on night sky qualities would be less than significant.

Glare

Construction

It is anticipated that the majority of proposed construction activities would occur during daylight hours. Increased truck traffic and the transport of the PV solar arrays and construction materials to the project site and transmission lines could temporarily increase glare conditions during construction from reflecting surfaces of equipment and materials. However, this increase in glare would be minimal and temporary. Construction activity would occur on focused areas of the project site as construction progresses and any potential sources of glare would not be stationary for prolonged periods of time. Additionally, the reflective surface area of construction equipment and materials would be minimal. Therefore, construction of the project would not create a new source of substantial glare that would affect daytime views in the area. Impacts would be less than significant.

Operation

An analysis of glare was conducted for the project and is provided in Appendix B of this EIR. As discussed therein, glare can result in visual hazards and temporary loss of vision. The hazard level of glare depends on the ocular impacts to the observer. An impact can be green (low potential to cause an after-image); yellow (potential to cause a temporary after-image); and red (potential to cause retinal burn and permanent eye damage). The analysis was based on project characteristics (i.e., single-axis tracking, smoothing glad with anti-reflective coating, north-south orientation, 60-degree maximum and resting angle) and the receptors observed in the vicinity of the project site (e.g., airport flight paths, air traffic control towers, dwelling/hotels, roads/highways, scenic trails, and railroads). As discussed in Appendix B of this EIR, the analysis determined that the project would not result in any hazardous glare in the green, yellow, or red ocular impact categories. The project would also implement Mitigation Measure MM 4.1-5, which requires the project proponent to demonstrate the solar panels and hardware are designed to minimize glare. Based on this analysis, operation of the solar sites would result in less-than-significant impacts related to substantial adverse effects to daytime views due to new sources of glare.

The O&M building, energy storage facilities, and optional collector substation could also generate glare that could be received by motorists during project operations; however, these structures are unlikely to

incorporate particularly reflective exteriors and surfaces. The O&M building and energy storage facilities would also incorporate non-reflective materials and would not generate glare during daytime hours. To further reduce glare potential, the project would be required to implement Mitigation Measure MM 4.1-6 which requires the use of non-reflective materials when feasible. The optional collector substation would include vertical steel components of low potential reflectivity.

Therefore, based on the analysis presented above and with implementation of Mitigation Measures MM 4.1-5 and MM 4.1-6, potential glare effects generate by the solar panels, O&M building, energy storage facility, and optional collector substation would be less than significant.

Mitigation Measures

MM 4.1-4: Prior to final activation of the solar facility, the project proponent shall demonstrate to Kern County Planning and Natural Resources Staff that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance), and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields.

MM 4.1-5: Prior to the issuance of building permits, the project proponent shall demonstrate the solar panels and hardware are designed to minimize glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department for review and final approval.

MM 4.1-6: Prior to final activation of the solar facility, the project operator shall demonstrate that all on-site buildings utilize non-reflective materials, as approved by the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6, impacts would be less than significant because the mitigation measures require compliance with the County's dark sky ordinance, use of glare reducing solar panels and hardware, and use of non-reflective materials.

Cumulative Setting, Impacts, and Mitigation Measures

As shown in **Table 3-3**, *Cumulative Project List*, there are 23 constructed and/or planned development projects in the area surrounding the project site which include utility-scale solar and wind energy production facilities. These projects have the potential to result in cumulative impacts to aesthetic resources when considered together with the project. The "scarcity" rating criterion is likely to be impacted by widespread development in the area, as unobstructed views of regional topographical features and undeveloped lands would be less available as acreage is developed with PV solar developments, wind energy projects, and/or as new associated transmission lines are constructed.

As discussed above, the project would result in significant and unavoidable impacts related to visual character despite implementation of mitigation. While other projects in the region would also be required to implement various mitigation measures to reduce impacts, the conversion of thousands of acres in a presently rural area to solar and wind energy production uses cannot be mitigated to a point where visual impacts are no longer significant. These projects have already created impacts on the sense of open areas generally associated with the California desert area. Solar projects in the Antelope Valley region have removed iconic types of vegetation, such as Joshua Trees, that attract people to locate in desert communities which is contrary to various goals of the County to promote tourism in the desert area. There are over 30,000 acres of already existing solar development in Eastern Kern County. The proposed project will add approximately 2,317 acres to this sum, which will result in cumulative impacts to aesthetics when considered together with the already existing development. Unobstructed views of regional topographical features and undeveloped lands would be less available as acreage is developed with solar projects that would contain PV panels and new transmission lines and would be unavailable for any other use for the 20 to 30 year lifespan of these large-scale solar projects. Even with implementation of Mitigation Measures 4.3-4 and MM 4.1-1 through MM 4.1-6, the project's contribution to significant impacts associated with visual character and scenic qualities in the Antelope Valley would be cumulatively considerable, and overall cumulative impacts would be significant and unavoidable.

Mitigation Measures

Implement Mitigation Measures MM 4.3-4 (refer to Section 4.3 Air Quality) and MM 4.1-1 through MM 4.1-6.

Level of Significance after Mitigation

Even with implementation of Mitigation Measures MM 4.3-4 (refer to Section 4.3 Air Quality) and MM 4.1-1 through MM 4.1-6, cumulative impacts to visual character and quality would remain significant and unavoidable because the project and cumulative projects would replace the undeveloped desert landscape with solar energy facilities, which would significantly affect the visual quality of the area.

Section 4.2
Agriculture and Forestry Resources

4.2.1 Introduction

This section of the EIR describes the affected environment and regulatory settings for agriculture and forestry resources for the project. It also describes the impacts on agriculture and forestry resources that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable. This section is based, in part, on information provided in the *Kern County Agricultural Crop Report* (2019) and prepared by the Kern County Department of Agriculture and Measurement Standards.

4.2.2 Environmental Setting

This section discusses the existing conditions related to agricultural resources within the project area, which includes the project site.

Regional Setting

Kern County covers approximately 8,132 square miles (5,204,480 acres) (U.S. Census Bureau 2019). This total includes 1,334 square miles (853,909 acres) of harvested agricultural land (Kern County Department of Agriculture and Measurement Standards 2020). Kern County has a long history of agricultural operations. According to the 2019 Kern County Agricultural Crop Report, agriculture in Kern County was worth approximately $7.6 billion in 2019, which is an increase of 2 percent from the 2018 crop value. The top five commodities for 2019 were grapes, almonds, pistachios, citrus, and milk, which made up more than $5.5 billion (72 percent) of the County's total agricultural product value; the top twenty commodities make up more than 95 percent of the total value (Kern County Department of Agriculture and Measurement Standards 2020).

Kern County is growing rapidly and ranks high on the list of California counties with issues related to urbanization and the loss of farmland (DOC 2015). As shown in **Table 4.2-1**, *2016-2018 Land Use Conversion in Kern County*, the California Department of Conservation (DOC) found that 6,076 acres of Important Farmland, which includes all of the categories of important farmland, grazing land, and other land, were converted to nonagricultural uses between 2016 and 2018 (DOC 2019a). Approximately 5,906 net acres were converted from agricultural and other uses to urban/built-up land from 2016 to 2018 (DOC 2019a). (Note: These various farmland designations are defined in Section 4.2.3, *Regulatory Setting*, below).

The project site is located on the western edge of the Mojave Desert. Although there are many areas zoned for agricultural uses in this area (including the project site), land uses in this part of the County consist primarily of undeveloped native desert vegetation interspersed with scattered residences in the communities of Desert Lake and Boron.

Table 4.2-1. 2016-2018 Land Use Conversion in Kern County

Land Use Category	Total Acres 2016	Total Acres 2018	Net Acreage Changed
Prime Farmland	579,297	573,935	-5,362
Farmland of Statewide Importance	209,484	208,323	-1,161
Unique Farmland	91,321	91,768	447
Farmland of Local Importance	0	0	0
Important Farmland Subtotal:	**880,102**	**874,026**	**-6,076**
Grazing Land	1,849,267	1,854,641	5,374
Agricultural Land Subtotal:	**2,729,369**	**2,728,667**	**-702**
Urban and Built-up Land	159,178	165,084	5,906
Total Area Inventoried:	**5,224,315**	**5,224,315**	**0**
Source: DOC 2019a			

Local Setting

The project site is located in unincorporated Kern County, straddling State Route (SR) 58 between Gephart Road on the west and the San Bernardino County line on the east. The project site is in the vicinity of the unincorporated communities of Boron and Desert Lake and north of the boundaries of Edwards Air Force Base. The existing U.S. Borax open pit mine and refinery are located approximately two miles north of the project site.

Farmland

According to the DOC, Division of Land Resource Protection's Important Farmland Maps (DOC 2019b), there are no agricultural lands designated Prime Farmland, Farmland of Statewide Importance, or Unique Farmland located within the project site; refer to **Figure 4.2-1**, *Farmland Mapping and Monitoring Program Designations*. (Note: These various farmland designations are defined in Section 4.2.3, *Regulatory Setting*, below). The project site is designated as Nonagricultural or Natural Vegetation. This designation is one of several used by the Rural Land Mapping Project of the DOC to provide more detail on land uses that are classified under the Other Land designation. The Nonagricultural or Natural Vegetation designation includes several types of areas, including rocky/barren areas and grassland areas that do not qualify as Grazing Land (DOC 2019c). There are no important farmlands located adjacent to or in the vicinity of the project site.

Williamson Act Contract Lands

According to the County of Kern's Interactive County Map (GIS Tool), the project site does not support lands that are subject to Williamson Act contracts, either active on in nonrenewal. There are no lands under Williamson Act contracts adjacent to or in the vicinity of the project site. The project site is not located within an Agricultural Preserve.

Zoning

The project site has zone classifications of A-1 (Limited Agriculture), M-1 (Light Industrial), and R-1 (Low-Density Residential).

Forestry Resources

The project site is not situated on forest or timberland. No land in the vicinity of the project site is zoned as forestland or timberland, or for timberland production.

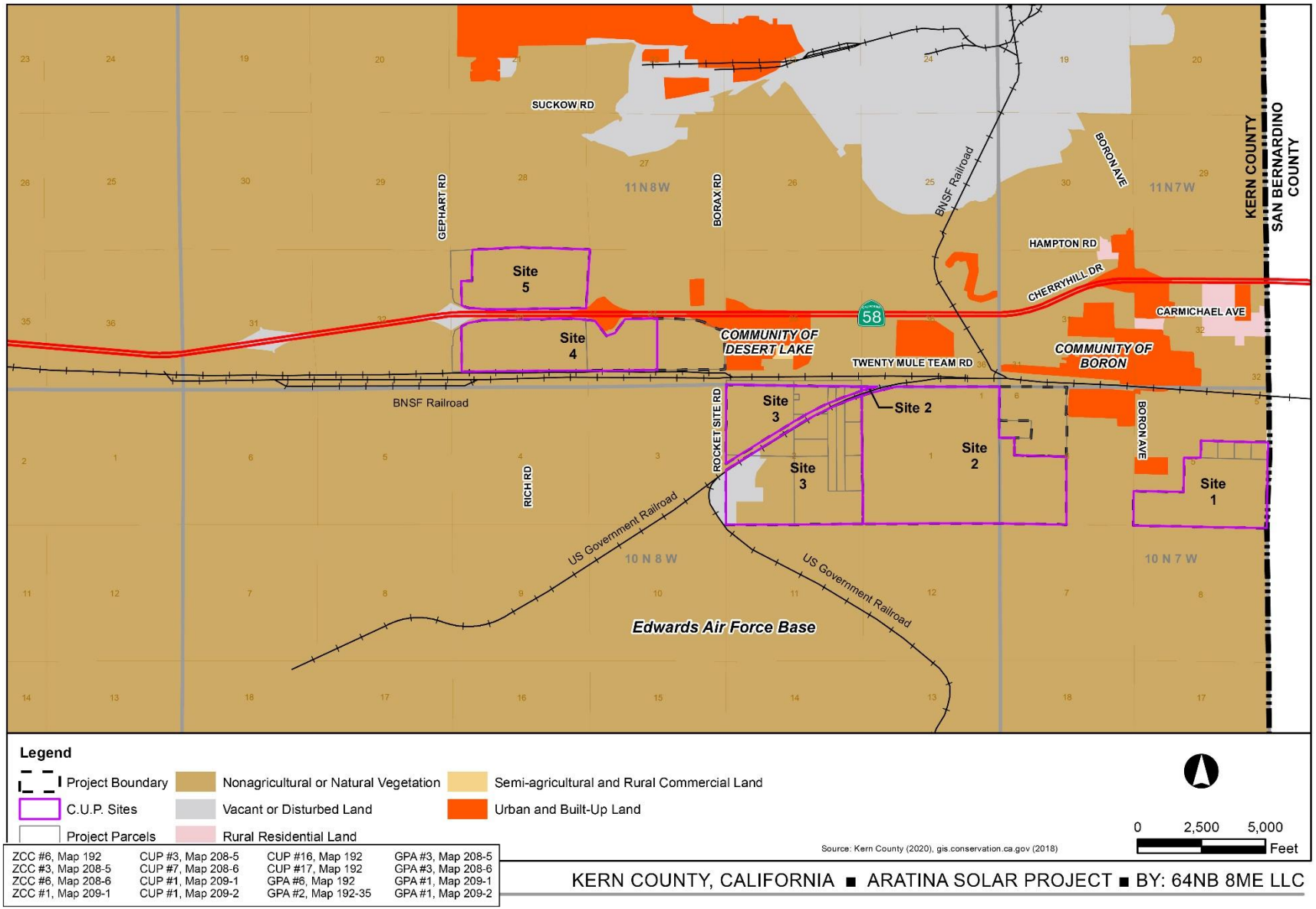

FIGURE 4.2-1. FARMLAND MAPPING AND MONITORING PROGRAM DESIGNATIONS

4.2.3 Regulatory Setting

Federal

Farmland Protection Policy Act (FPPA) (7 United States Code [USC] Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It also directs Federal programs to be compatible with State and local policies for the protection of farmland. Under the FPPA, the term "farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide of Local Importance. Farmland that is subject to FPPA requirements does not have to be currently used as cropland. It can be forestland, pastureland, or other land but not urban and built-up land or water. FPPA assures that, to the extent possible, federal programs are administered to be compatible with State, and local units of government, and private programs and policies to protect farmland.

In 1981, Congress passed the Agriculture and Food Act (Public Law 97-98) which contained the FPPA, Subtitle I of Title XV, Sections 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994. Federal agencies are required to develop and review their policies and procedures related to implementing the FPPA every two years.

The FPPA does not authorize the federal government to regulate the use of private or nonfederal land or in any way affect the property rights of owners. Projects are subject to FPPA requirements if they irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a federal agency or rely on assistance from a federal agency (Natural Resources Conservation Service [NRCS], 2019).

State

California Department of Conservation, Division of Land Resource Protection

The DOC applies the Natural Resources Conservation Service (NRCS) soil classifications to identify agricultural lands. These agricultural designations are used in planning for the present and future of California's agricultural land resources. The DOC uses a minimum mapping unit of 10 acres; parcels that are smaller than 10 acres are absorbed into the surrounding classifications.

The list below describes the categories mapped by the DOC through the Farmland Mapping and Monitoring Program (FMMP). Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are referred to as "farmland."

- **Prime Farmland.** Farmland that has the ideal combination of physical and chemical features. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields and long-term agricultural production. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

- **Farmland of Statewide Importance.** Farmland that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or lower moisture content. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Land with lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include land that supports non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been used for crops at some time during the four years prior to the mapping date.
- **Farmland of Local Importance.** Land that is important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups with an interest in grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-Up Land.** Land that is developed with structures that have been built to a density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land supports residential, industrial, commercial, institutional, and public administrative uses; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed uses.
- **Other Land.** Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Undeveloped and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land. The Rural Land Mapping Project provides more detail on the land uses within the Other Land category for nine of the counties covered by the FMMP, including Kern County. The Rural Land categories include Rural Residential Land, Semi-Agricultural and Rural Commercial Land, Vacant or Disturbed Land, Confined Animal Agriculture, Nonagricultural or Natural Vegetation, and Water (DOC 2019c). The project site is designated as Nonagricultural or Natural Vegetation. This is defined by the Rural Land Mapping Project as an area that is heavily wooded, rocky/barren areas, riparian and wetland areas, grassland areas which do not qualify as Grazing Land due to their size or land management restrictions, small water bodies and recreational water ski lakes, or constructed wetlands. The Nonagricultural or Natural Vegetation category is distinguished from the Vacant or Disturbed land based on the level of disturbance, relative location, and time period since disturbance occurred (DOC 2019c).

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act (California Government Code Section 51200-51297.4), is applicable to specific parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under a Williamson Act contract. The Williamson Act program is administered by the DOC in

conjunction with local governments that administer the individual contract arrangements with landowners. Participation in the Williamson Act program is dependent on County adoption and implementation of the program and is voluntary for landowners.

Under the Williamson Act, a landowner commits the parcel to a 10-year period, during which time no conversion out of agricultural use is permitted. In return, the land is taxed at a rate based on the actual use (i.e., agricultural production), as opposed to its unrestricted market value. Each year the contract automatically renews unless a notice of nonrenewal or cancellation is filed. However, the application to cancel must be consistent with the criteria of the affected county or city. Nonrenewal or contract cancellation does not change a property's zoning. Participation in the Williamson Act program, which is voluntary for landowners, is dependent on a county's willingness to adopt and implement the program. The Williamson Act states that a board or council will, by resolution, adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the allowed uses. Generally, any commercial agricultural use would be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted under a permit (DOC 2016).

California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also, Section 51238 states that a board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses, in conformity with Section 51238.1. Furthermore, under California Government Code Section 51238.1, a board or council may allow any use that, without conditions or mitigations, would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use would not significantly compromise the long-term agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves;
- The use would not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping; and
- The use would not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State legislature in 1999 to ensure that long-term farmland preservation is part of public policy in the State. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for an additional 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act

tax benefits), the owner of the property promises not to develop the property into nonagricultural uses for the 20-year period.

Public Resources Code Section 21060.1

Public Resources Code Section 21060.1 uses the FMMP to define agricultural land for the purposes of assessing environmental impacts. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use changes throughout California. Public Resources Code Section 21060.1 defines "agricultural land" as such: "Agricultural land means prime farmland, farmland of statewide importance or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California."

Local

Kern County General Plan

The Kern County General Plan states that agriculture is vital to the future of Kern County and sets goals to protect important agricultural lands for future use and prevent the conversion of prime agricultural lands to other uses (e.g., industrial or residential). The Kern County General Plan includes 4 designations that are intended primarily or to some extent for agricultural land:

- **8.1 Intensive Agriculture (minimum parcel size 20 acres gross).** Lands devoted to the production of irrigated crops or having potential for such use. Uses shall include, but are not limited to, the following: irrigated cropland, orchards, vineyards, horse ranches, raising of nursery stock ornamental flowers and Christmas trees, fish farms, bee keeping ranch, farm facilities, one single-family dwelling unit, cattle feed yards, dairies, dry land farming, livestock grazing, water storage, groundwater recharge acres, mineral, aggregate, petroleum exploration and extraction, hunting clubs, wildlife preserves, farm labor housing, public utility uses, and agricultural industries pursuant to provisions of the Kern County Zoning Ordinance and land within development areas subject to significant physical constraints.

- **8.2 Resource Reserve (minimum parcel size is 20 acres gross, except for lands subject to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross).** Lands devoted to areas of mixed natural resource characteristics including rangeland, woodland, and wildlife habitat which occur in an established County water district.

- **8.3 Extensive Agriculture (minimum parcel size 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross).** Lands devoted to uses involving large amounts of land with relatively low value-per-acre yields such as livestock grazing, dry-land farming, and woodlands.

- **8.5 Resource Management (minimum parcel size 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross).** Lands consisting primarily of open space containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas

may be characterized by physical constraints, or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity.

Uses shall include, but are not limited to the following: recreational activities; livestock grazing; dry land farming; ranching facilities; wildlife and botanical preserves; timber harvesting; one single-family dwelling unit; irrigated croplands; water storage or groundwater recharge areas; mineral; aggregate; petroleum exploration and extraction; open space and recreational uses; land within development areas subject to significant physical constraints; and State and federal lands that have been converted to private ownership.

The policies, goals, and implementation measures in the Kern County General Plan for agricultural resources applicable to the project are provided below. The General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the proposed project. Therefore, they are not listed below, but as stated in Chapter 2, *Introduction*, of this EIR, all policies, goals, and implementation measures in the General Plan are incorporated by reference. The policies, goals, and implementation measures in the General Plan for agricultural resources that are applicable to the project are provided below.

Chapter 1. Land Use, Open Space, and Conservation Element

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.

Goal 2: To protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 5: Conserve prime agricultural lands from premature conversion.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designations.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 12: Areas identified by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.

Implementation Measures

Measure F: Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I or II soils and a surface delivery system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.

Kern County Zoning Ordinance

The Kern County Zoning Ordinance establishes basic regulations under which land is developed. This includes allowable uses, building setback requirements, and development standards. Pursuant to State law, the Zoning Ordinance must be consistent with the Kern County General Plan. The basic intent of the Kern County Zoning Ordinance is to promote and protect the public health, safety, and welfare via the orderly regulation of the land uses throughout the unincorporated area of the County. The Zoning Ordinance applies to all property in unincorporated Kern County, except land owned by the federal government or any of its agencies.

The project proponent has requested a change in zone classifications from A-1, M-1, and R-1 to A (Exclusive Agriculture). Pursuant to Sections 19.12.020 and 19.12.030 of the Kern County Zoning Ordinance, construction and operation of solar facilities on areas zoned A (Exclusive Agriculture) require approval of a conditional use permit (CUP). Solar facilities are considered to be a compatible use and are permitted on properties zoned for exclusive agricultural use with the approval of a CUP.

Williamson Act Standard Uniform Rules

Kern County has adopted a set of rules that identify compatible land uses within agricultural preserves established under the Williamson Act. The rules restrict uses on such land to agricultural or other compatible uses. Agricultural uses include crop cultivation, grazing, commercial wind farms, livestock breeding, dairies, and uses that are incidental to these uses. Other compatible agricultural uses include those associated with public utilities (e.g., gas, electric, communications, water, and other similar public utilities). For purposes of this analysis, the conversion of agricultural land to a solar facility itself would be incompatible with the farming provisions necessary for projects under Williamson Act contracts. Therefore, a proposed solar project on contracted land would be required by Kern County to petition for an early cancellation of the contract. However, the project site does not contain lands under an active Williamson Act contract and, therefore, is not subject to these rules.

4.2.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts on agriculture and forest resources have been evaluated on a qualitative basis using a variety of resources, including in the *Kern County Agricultural Crop Report* (Kern County Department of Agriculture and Measurement Standards 2020), Important Farmland Maps prepared

by the DOC, and the analysis of applicable goals and policies related to agricultural resources in the Kern County General Plan. A change in land use would normally be determined to be significant if the effects described in the thresholds of significance were to occur (see CCR Title 14, Section 15064.7(a)). The evaluation of project impacts is based on a thorough analysis of the Kern County General Plan's applicable goals and policies related to agricultural resources, professional judgment, and the significance criteria established by CEQA.

Thresholds of Significance

As established in Appendix G of the CEQA Guidelines, the Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria to determine if a project could potentially have a significant adverse effect on agricultural resources.

A project would have a significant impact on agriculture and forest resources if it would:

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 uses;

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 forestland or conversion of forestland to non-forest use.

e. Involve other changes in the existing environment which, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use; or

f. Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in Appendix A of this EIR, that the proposed project would not result in significant impacts to some of these environmental issue areas; these issue areas are thus scoped out of this EIR. It was determined that the project would not:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Natural Resources Agency, to nonagricultural uses;

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 forestland or conversion of forestland to non-forest use;

e. Involve other changes in the existing environment which, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use; or

f. Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).

As detailed in the NOP/IS, there is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project area. Therefore, construction and/or operation of the proposed project would not result in the conversion of designated farmland to a nonagricultural use. Additionally, none of the parcels included as part of the proposed project or in the vicinity of the project are subject to a Williamson Act Land Use contract and implementation of the project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or a Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code). No land in the vicinity of the proposed project site is zoned as forest land or timberland, or for timberland production. Thus, there would be no impacts related to loss of forestland or timberland, or the conversion of forest land to non-forest use. Therefore, no further analysis of these impacts is warranted in this EIR.

Project Impacts

Impact 4.2-1: The project would conflict with existing zoning for agricultural use or a Williamson Act Contract.

Agricultural Zoning. As previously discussed, the project site has zone classifications of A-1 (Limited Agriculture), M-1 (Light Industrial), and R-1 (Low Density Residential). The project would change the zone classifications within the project site in Zone Maps 192, 208-5, 208-6, and 209-1 from A-1 and R-1 to A (Exclusive Agriculture). The portions of the project site within Zone Map 209-2 that are zoned M-1 would remain as such. Pursuant to Section 19.12.030G of the Kern County Zoning Ordinance, construction and operation of solar facilities within the A Zone District require approval of a CUP. Solar facilities are considered to be a compatible use and are permitted on properties zoned for exclusive use with the approval of a CUP. Therefore, with approval of the change in zone classification to A (Exclusive Agriculture) and the CUPs, the proposed project would not conflict with agricultural zoning.

In addition, the project is located within the Antelope Valley – East Kern Water Agency's (AVEK) service area and the potential for future farming activities is limited due to the basin groundwater adjudication status. The project area is located on mostly undeveloped land in an area that does not currently have any water-demanding activities.

According to AVEK's *2017 Annual Water Resources Report*, the Judgment and Physical Solution process for the Antelope Valley Groundwater Adjudication reached a milestone in December of 2015 with a settlement between local groundwater producers including public water suppliers, landowners, small pumpers, and non-pumping parties. As the Judgment identified the region in a state of overdraft, the pumping rights among these producers is to be managed to reduce groundwater level declines and subsidence. The Watermaster Board, an Advisory Committee, the Watermaster Engineer, and an Attorney was established with the Judgment. The Physical Solution portion of the Judgment provides direction for this reduction of groundwater use within the adjudicated area.

The year 2017 was the second of 7 years that required a reduction of groundwater production. This is known as the Rampdown Period. The amount that each Party may produce from the Antelope Valley region's adjudicated basin Native Safe Yield will be reduced linearly (20 percent per year), as necessary, in equal annual increments to a final allowed Production Right. Given the fact that the site has not been agriculturally farmed in the last 10 years, and is unlikely to be farmed in the future due to water availability, implementation of the proposed project is not anticipated to conflict with existing agricultural uses within the groundwater basin.

Williamson Act Contract Lands. The project site does not contain lands that are subject to Williamson Act contracts, either active or in nonrenewal. There are no lands under Williamson Act contracts adjacent to or in the vicinity of the project site. The project site is not located within an Agricultural Preserve. Therefore, the proposed project would not conflict with a Williamson Act contract and no impact would occur.

Given the fact that the project proponent is seeking approval of zone change requests to rezone property to A (Exclusive Agriculture), to allow for compatibility with the proposed solar energy development pursuant to Kern County Zoning Ordinance, Chapter 19.12.030.G, implementation of this project is not expected to conflict with existing agricultural use. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for evaluating potential cumulative impacts to agricultural and forest resources is considered the Antelope Valley. This geographic scope was selected because the land within the region possesses relatively similar agricultural opportunities, soil conditions, climate, and water availability. As shown in **Table 3-3**, *Cumulative Projects List*, of Chapter 3, *Project Description*, there are approximately 26 solar and non-solar projects proposed or approved throughout the Antelope Valley in Kern County and in the desert portion of Kern County outside the Antelope Valley. Of the projects listed in Kern County, 2 would be located on Prime Farmland and would thus have the potential to contribute to a cumulative loss of farmland.

Although development of the project would result in the conversion of land zoned for agricultural use to a nonagricultural use, the proposed project would not result in the loss of farmland as the project site is not located on land mapped by DOC as Important Farmland and has never been used for agriculture. Further, the development of solar power-generating facilities on the project site is not anticipated to affect the potential for agricultural production to occur in adjacent or more distant areas within the Antelope Valley. It is possible that, in the future event that the project is decommissioned and the PV solar panels and associated facilities are removed, the project site could be devoted to farming or other agricultural uses. Therefore, the project would not substantially contribute to a cumulative impact related to agricultural resources in Kern County. Cumulative impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

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Section 4.3
Air Quality

4.3.1 Introduction

This section of the EIR describes the affected air quality environment and regulatory setting for the project. It also describes the impacts on air quality that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable.

Information in this section is based primarily on the *Air Quality and Greenhouse Gas Study* prepared by Rincon (Rincon 2020) located in Appendix C-1 of this EIR. The analysis was prepared in accordance with the Eastern Kern Air Pollution Control District's (EKAPCD) Rule 210.1 New and Modified Stationary Source Review (NSR), *Guidelines for Implementation of the California Environmental Quality Act (CEQA)* and Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* documents.

Since the preparation of the initial *Air Quality and Greenhouse Gas Study*, the project footprint has been reduced by approximately 15 percent from approximately 2,700 acres to approximately 2,300 acres. The 15-percent reduction in project footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction, and a potentially commensurate reduction of criteria pollutant emissions and toxic air contaminant (i.e. diesel particulate matter) emissions generated during construction. Furthermore, the increased setback from the nearby communities of Boron and Desert Lake reduces the project's localized impacts on nearby sensitive receptors. Therefore, the following discussion that is based on the approximately 2,700-acre footprint represents the worst-case potential impacts related to air quality.

4.3.2 Environmental Setting

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic drainage features. The project site is located in the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of EKAPCD. The MDAB includes the eastern half of Kern County, the northern part of Los Angeles County, most of San Bernardino County except for the southwest corner, and the eastern edge of Riverside County. It is separated from the South Coast Air Basin, to its south, by the San Gabriel and San Bernardino Mountains. It is separated from the San Joaquin Valley, to the northwest, by the Tehachapi Mountains and the south end of the Sierra Nevada.

Local Climate and Meteorology

The project site is located in the unincorporated area of Kern County near the communities of Desert Lake and Boron, situated in the Mojave Desert portion of the MDAB. The mountains in the lower region generally reach heights of 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB come from the west and southwest and are due to a combination of the proximity of MDAB to coastal and central regions and the location of the Sierra Nevada Mountains to the north that prevent air from passing through. EKAPCD has jurisdiction over air quality management in the Mojave Desert portion of Kern County. The

EKAPCD jurisdiction spans the northeastern corner of the MDAB and encompasses the eastern portion of Kern County, including the incorporated cities of Ridgecrest and California City.

Air pollution, especially the dispersion of air pollutants, is directly related to a region's features. Air quality is a function of both the rate and location of pollutant emissions and the meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects ambient air quality.

During summer, the MDAB is normally influenced by the Pacific subtropical high cell off the coast that prevents cloud formation and encourages daytime solar heating. Cold air masses moving south from Canada and Alaska do not generally influence the MDAB because the frontal systems are weak and diffuse before they reach the desert. Therefore, desert moisture comes in the form of warm, moist, unstable air masses from the south and the MDAB averages three to seven inches of rain annually. Thus, it is classified as a dry-hot desert climate where temperatures can be in excess of 95 degrees Fahrenheit for sixty to seventy days per year with almost no precipitation.

Ambient Air Quality Standards

National and State Standards

Regulation of air pollution is achieved through both federal and State ambient air quality standards and permitted emission limits for individual sources of air pollutants. As required by the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (EPA) has identified criteria pollutants and established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide, suspended particulate matter (PM), and lead. Suspended PM has standards for both PM with an aerodynamic diameter of 10 micrometers or less (respirable PM, or PM_{10}) and PM with an aerodynamic diameter of 2.5 micrometers or less (fine PM, or $PM_{2.5}$).

To protect human health and the environment, EPA has set "primary" and "secondary" ambient standards for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

Regional and Local Standards

The California Air Resources Board (CARB) has established separate standards for the state (i.e., the California Ambient Air Quality Standards [CAAQS]). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants. The CARB established CAAQS for all the federal pollutants and sulfates, hydrogen sulfide, and visibility-reducing particles. Regulations have set NAAQS and CAAQS limits in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The standards are presented in **Table 4.3-1**, *National and State Criteria Pollutant Standards and Eastern Kern Air Pollution Control District Attainment Status.*

Table 4.3-1. National and State Criteria Pollutant Standards and Eastern Kern Air Pollution Control District Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Primary	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm	Non-Attainment	—	Non-Attainment (Marginal)[b]
	8-hour	0.070 ppm		0.070 ppm[a]	
Particulate Matter (PM_{10})	AAM[c]	20 µg/m^3	Non-Attainment	–	Unclassified/ Attainment
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Unclassified	12.0 µg/m^3	Unclassified/ Attainment
	24-hour	No Standard		35 µg/m^3	
Carbon Monoxide (CO)	1-hour	20 ppm	Unclassified	35 ppm	Unclassified/ Attainment
	8-hour	9.0 ppm		9 ppm	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	0.053 ppm	Unclassified
	1-hour	0.18 ppm		100 ppb[d]	
Sulfur Dioxide (SO_2)	24-hour	0.04 ppm	Attainment	0.14 ppm	Unclassified
	3-hour	–		0.5 ppm	
	1-hour	0.25 ppm		75 ppb	
Lead	30-day Average	1.5 µg/m^3	Attainment	—	Unclassified/ Attainment
	Rolling 3-Month Average	—		0.15 µg/m^3	
Sulfates	24-hour	25 µg/m^3	Attainment	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (42 µg/m^3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		

Notes:

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

b No federal 1-hour standard (revoked as of June 15, 2004).

c AAM = annual arithmetic mean

d To attain this standard, the 3-year average of the 98th percentile daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).

Source: CARB, 2016; EKAPCD, 2018.

As shown in **Table 4.3-1**, *National and State Criteria Pollutant Standards and Eastern Kern Air Pollution Control District Attainment Status*, the EKAPCD is currently classified as non-attainment for the one-hour State ozone standard as well as non-attainment for the national and State eight-hour ozone standards. Additionally, the EKAPCD is classified as non-attainment for the State 24-hour PM_{10} standard. The EKAPCD is currently in attainment and/or unclassified status for all other ambient air quality standards. California has also established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles; however, air emissions of these pollutants are not expected to occur under the project and thus, these pollutants are not addressed further in this EIR.

Local Air Quality

To assess localized CO impacts, the significance thresholds are based on the state CO standards, shown previously in **Table 4.3-1**, *National and State Criteria Pollutant Standards and Eastern Kern Air Pollution Control District Attainment Status*, which are 20 parts per million (ppm) for 1-hour CO concentration levels and 9 ppm for 8-hour CO concentration levels. If CO concentration levels with the project would be less than the standards, then there would be no significant impact on local air quality. If future CO concentrations with the project would be above the standards, then the increase due to the project would determine if the impact would be significant or less than significant. A project would have a significant impact on local air quality if the project would result in an increase of 1 ppm or more for the 1-hour averaging time or 0.45 ppm or more for the 8-hour averaging time.

Ambient Air Monitoring

CARB has established and maintains a network of sampling stations (called the State and Local Air Monitoring Stations [SLAMS] network) that work in conjunction with local air pollution control districts (APCDs) and air quality management districts to monitor ambient pollutant levels. The SLAMS network in Kern County consists of eight stations that monitor various pollutant concentrations. The locations of these stations were chosen to meet monitoring objectives, which, for the SLAMS network, call for stations that monitor the highest pollutant concentrations, representative concentrations in areas of high population density, the impact of major pollution emissions sources, and general background concentration levels.

The EKAPCD is responsible for monitoring air quality in the Kern County portion of the MDAB to determine whether pollutant concentrations meet State and national air quality standards. The nearest air monitoring station to the project site is located in Mojave at 923 Poole Station, approximately 23 miles west of the edge project site. The Poole monitoring station monitors ambient concentrations of ozone, lead, SO_2, PM_{10} and $PM_{2.5}$. Because NO_2 data not available from the Poole monitoring station, data for NO_2 has been taken from the next closest available monitoring station, the Lancaster-43301 Division Street monitoring station, located approximately 33 miles southwest of the project site. Because monitoring is not generally conducted for pollutants that are no longer likely to exceed ambient air quality standards, there is no recent monitoring data available for CO or SO_2. Ambient monitoring data obtained for 2016 through 2018 is summarized below in **Table 4.3-2**, *Air Quality Data Summary (2016–2018).*

Table 4.3-2. Air Quality Data Summary (2016–2018)

Pollutant	Monitoring Year		
	2016	2017	2018
Ozone (O_3)[a]			
Maximum concentration, ppm (1-hour average)	0.104	0.097	0.111
Number of days State/national 1-hour standard exceeded	2/0	1/0	8/0
Maximum concentration, ppm (8-hour average)	0.093	0.085	0.094
Number of days State/national 8-hour standard exceeded	52/52	35/35	53/53
Nitrogen Dioxide (NO_2)[b]			
Maximum concentration, ppm (1-hour average)	0.048	0.046	0.047
Number of days State/national standard exceeded	0/0	0/0	0/0
Annual average concentration, ppm	8	*	8
Exceed standard (state/national)	No/No	No/No	No/No
Fine Particulate Matter ($PM_{2.5}$)[a]			
Maximum concentration, $\mu g/m^3$ (24-hour)	25.7	26.9	39.0
Number of days national standard exceeded (state/national)	NA/0	NA/0	NA/2
Annual average concentration, $\mu g/m^3$	7.4	5.5	7.1
Exceed standard (state)	No	No	No

Table 4.3-2, continued

Pollutant	Monitoring Year		
	2016	2017	2018
Respirable Particulate Matter (PM_{10})[a]			
Maximum concentration, μg/m^3 (24-hour)	139.2	93.4	93.1
Number of days standard exceeded (state/national)	18/0	10/0	19/0
Annual average concentration, μg/m^3	23.8	*	*
Exceed standard (state)	Yes	*	*
Carbon Monoxide (CO)[c]			
Maximum concentration (1-hour average)	ND	ND	ND
Maximum concentration (8-hour average)	ND	ND	ND
Sulfur Dioxide (SO_2)[c]			
Maximum concentration (1-hour average)	ND	ND	ND
Maximum concentration (24-hour average)	ND	ND	ND

Notes:

ppm = parts per million by volume, μg/m^3 = micrograms per cubic meter, ND = no data

[a] Based on ambient concentrations obtained from the Mojave-923 Poole Street air station.

[b] Because NO_2 is not monitored at the 923 Poole Street monitoring station, data for NO2 has been taken from the next closest available monitoring station, the Lancaster-43301 Division Street monitoring station.* Means there was insufficient data available to determine the value.

[c] Because monitoring is not generally conducted for pollutants that are no longer likely to exceed ambient air quality standards, there is no recent monitoring data available for CO or SO_2.

Source: MBI, 2020a.

Criteria Air Pollutants

Ozone

Ozone (O_3) is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving precursor organic compounds (POC) and nitrogen oxides (NO_X). POC and NO_X are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of POC and NO_X under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with summertime temperature inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone. Exposure to elevated ozone concentrations can cause eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

Health Effects

While ozone in the upper atmosphere protects the earth from UV-B, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to high ozone levels.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation

and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation, lung tissue damage, and a reduction in the amount of air inhaled into the lungs. Health effects include potential increased susceptibility to respiratory infections and reduced ability to exercise. Health effects are more severe in people with asthma and other respiratory ailments. People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. Also, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures. Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and damage materials such as rubber, paints, fabric, and plastics (CARB and American Lung Association of California, 2007).

Reactive Organic Gases (ROGs) and Volatile Organic Compounds (VOCs)

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including reactive organic gases (ROGs) and volatile organic compounds (VOCs), which include all hydrocarbons except those exempted by CARB. Therefore, ROGs are a set of organic gases based on State rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by Federal law. Both VOCs and ROGs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

Health Effects

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

Carbon Monoxide (CO)

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, which contributes more than 66 percent of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature

inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Health Effects

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

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin in the blood. Exposure to elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome; and increased daily mortality rate (Fierro et al., 2001).

Oxides of Nitrogen (NO_X)

Oxides of nitrogen (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone and reacts in the atmosphere to form acid rain. NO_X is emitted from solvents and combustion processes in which fuel is burned at high temperatures, principally motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. In terms of NO_X emissions, the two principal species of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2), with the vast majority (95 percent) of the NO_X emissions being comprised of NO. NO is converted to NO_2 by several processes, the two most important of these are: (1) the reaction of NO with ozone; and (2) the photochemical reaction of NO with hydrocarbons. A brownish gas, NO_X is a strong oxidizing agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates.

Health Effects

NO_X is an ozone precursor that combines with ROG to form ozone. See the ozone section above for a discussion of the health effects of ozone. Direct inhalation of NO_X can cause a wide range of health effects. Health effects of NO_X include irritation of the lungs, lung damage, and lowered resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of NO_2 may lead to changes in airway responsiveness and lung function in individuals with pre-existing respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO_2 may lead to increased susceptibility to respiratory infection and may cause irreversible lung damage. Other health effects associated with NO_2 are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current

standard may worsen the effect of allergens in allergic asthmatics, especially in children. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NO_X contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms. NO_X also contributes to visibility impairment (California Air Pollution Control Officers Association [CAPCOA], 2019).

Sulfur Dioxide (SO_2)

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

SO_2 is a colorless, irritating gas with a "rotten egg" smell that is formed primarily by the combustion of sulfur-containing fossil fuels. Historically, SO_2 was a pollutant of concern in Kern County, but with the successful implementation of regulations, the levels have been reduced significantly.

Health Effects

High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Health effects from exposure to emissions of SO_2 include aggravation of lung diseases, especially bronchitis, and constricting of breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. Short-term exposures of individuals to elevated SO_2 levels during moderate activity may result in health effects including breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other health effects that have been associated with longer-term exposures to high concentrations of SO_2, in conjunction with high levels of particulate matter, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO_2 also is a major precursor to particulate matter that is 2.5 microns or less ($PM_{2.5}$), which is a significant health concern and a main contributor to poor visibility (see also the discussion of health effects of particulate matter).

SO_2 not only has a bad odor, but can irritate the respiratory system. Exposure to high concentrations for short periods of time can constrict the bronchi and increase mucous flow, making breathing difficult. SO_2 can also irritate the lung and throat at concentrations greater than 6 ppm in many people; impair the respiratory system's defenses against foreign particles and bacteria when exposed to concentrations less

than 6 ppm for longer time periods; and enhance the harmful effects of ozone (combinations of the two gases at concentrations occasionally found in the ambient air appear to increase airway resistance to breathing).

SO_2 tends to have more toxic effects when acidic pollutants, liquid or solid aerosols, and particulates are also present. Effects are more pronounced among "mouth breathers," e.g., people who are exercising or who have head colds. These effects include:

- Health problems, such as episodes of bronchitis requiring hospitalization associated with lower-level acid concentrations;
- Self-reported respiratory conditions, such as chronic cough and difficult breathing, associated with acid aerosol concentrations (individuals with asthma are especially susceptible to these effects. The elderly and those with chronic respiratory conditions may also be affected at lower concentrations than the general population);
- Increased respiratory tract infections associated with longer term, lower level exposures to SO_2 and acid aerosols; and
- Subjective symptoms, such as headaches and nausea, in the absence of pathological abnormalities due to long-term exposure.

SO_2 easily injures many plant species and varieties, both native and cultivated. Some of the most sensitive plants include various commercially valuable pines, legumes, red and black oaks, white ash, alfalfa, and blackberry. The effects include:

- Visible injury to the most sensitive plants at exposures as low as 0.12 ppm for eight hours;
- Visible injury to many other plant types of intermediate sensitivity at exposures of 0.30 ppm for eight hours; and
- Positive benefits from low levels in a very few species growing on sulfur-deficient soils.

Increases in SO_2 concentrations accelerate the corrosion of metals, probably through the formation of acids. SO_2 is a major precursor to acidic deposition. Sulfur oxides may also damage stone and masonry, paint, various fibers, paper, leather, and electrical components.

Increased SO_2 also contributes to impaired visibility. Particulate sulfate, much of which is derived from SO_2 emissions, is a major component of the complex total suspended particulate mixture.

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

Particulate matter (PM) pollution consists of very small liquid and solid particles floating in the air. Some particles are large and dark enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. PM is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. PM also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. PM or airborne dusts are the small particles that remain suspended in the air for long periods of time. Particulates of concern are those that are 10 microns or less in diameter (PM_{10}) and 2.5 microns or less in diameter ($PM_{2.5}$). Thus, $PM_{2.5}$ is a subset of PM_{10}. PM_{10} and $PM_{2.5}$ are

small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

The composition of PM_{10} and $PM_{2.5}$ can vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM_{10} and $PM_{2.5}$. In addition to those listed previously, secondary particles can also be formed as precipitates from photochemical reactions of gaseous SO_2 and NO_X in the atmosphere to create sulfates (SO_4) and nitrates (NO_3), respectively. Secondary particles are of greatest concern during the winter months when low inversion layers tend to trap the precursors of secondary particulates.

In the western U.S., there are sources of PM_{10} in both urban and rural areas. PM_{10} and $PM_{2.5}$ are emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. Because particles originate from a variety of sources, their chemical and physical compositions vary widely.

Health Effects

PM_{10} and $PM_{2.5}$ particles are small enough—about one seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses and can be trapped in the nose, throat, and upper respiratory tract. Health effects from exposure to PM_{10} and $PM_{2.5}$ begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. PM_{10} and $PM_{2.5}$ can aggravate respiratory disease and cause lung damage, cancer, and premature death. Sensitive populations, including children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis, are especially vulnerable to the effect of PM_{10}. Of greatest concern are recent studies that link PM_{10} exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM_{10} can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States. Non-health related effects include reduced visibility and soiling of buildings.

Premature deaths linked to particulate matter are now at levels comparable to deaths from traffic accidents and secondhand smoke. One of the most dangerous pollutants, fine particulate matter (e.g., from diesel exhaust) not only bypasses the body's defense mechanisms and becomes embedded in the deepest recesses of the lung but also can disrupt cellular processes. Population-based studies in hundreds of cities in the United States and around the world have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks. Long-term studies of children's health conducted in California have demonstrated that particulate pollution may significantly reduce lung function growth in children (CARB and American Lung Association of California, 2007).

A recent study provides evidence that exposure to particulate air pollution is associated with lung cancer. This study found that residents who live in an area that is severely affected by particulate air pollution are at risk of developing lung cancer at a rate comparable to nonsmokers exposed to secondhand smoke. This study also found approximately 16 percent excess risk of dying from lung cancer due to fine particulate air pollution (Air & Waste Management, 2006).

Another study shows that individuals with existing cardiac disease can be in a potentially life-threatening situation when exposed to high levels of fine air pollution. Fine particles can penetrate the lungs and cause the heart to beat irregularly, or can cause inflammation, which could lead to a heart attack (Peters et al., 2001).

Attaining the California particulate matter standards would annually prevent about 6,500 premature deaths, or 3 percent of all deaths. These premature deaths shorten lives by an average of 14 years. This is roughly equivalent to the same number of deaths (4,200 to 7,400) linked to secondhand smoke in 2000. In comparison, motor vehicle crashes caused 3,200 deaths, and 2,000 deaths resulted from homicide. Attaining the California particulate matter and ozone standards would annually prevent 4,000 hospital admissions for respiratory disease, 3,000 hospital admissions for cardiovascular disease, and 2,000 asthma-related emergency room visits. Exposure to diesel particulate matter (DPM) causes about 250 excess cancer cases per year in California (Kern County, 2006).

Sulfates

Sulfates (SO_4^{2-}) are particulate product that comes from the combustion of sulfur-containing fossil fuels. When sulfur monoxide or SO_2 is exposed to oxygen, it precipitates out into sulfates (SO_3 or SO_4). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

Health Effects

CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in oxygen intake, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. When acidic pollutants and particulates are also present, SO_2 tends to have an even more toxic effect. In addition to particulates, SO_3 and SO_4 are also precursors to acid rain. SO_X and NO_X are the leading precursors to acid rain. Acid rain can lead to corrosion of man-made structures and cause acidification of water bodies. Sulfates are particularly effective in degrading visibility and, because they are usually acidic, can harm ecosystems and damage materials and property (CARB, 2009).

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Historically, lead was used to increase the octane rating in automobile fuel. However, because gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and that use has been mostly phased out, the ambient concentrations of lead have dropped dramatically. EKAPCD no longer monitors ambient levels of atmospheric lead in the MDAB.

Health Effects

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ. Recent studies also show that lead may be a factor in high blood pressure and subsequent heart disease. Lead can also be deposited on the leaves of plants, presenting a hazard to grazing animals and humans through ingestion (EPA, 2012).

This highly toxic metal has been used for many years in everyday products, and has been found to cause a range of health effects, from behavioral problems and learning disabilities, to seizures and death. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children six years old and under are most at risk, because their bodies are growing quickly.

If not detected early, children with high levels of lead in their bodies can suffer from:

- Damage to the brain and nervous system;
- Behavior and learning problems (such as hyperactivity);
- Slowed growth;
- Hearing problems; and
- Headaches.

Lead is also harmful to adults. Adults can suffer from:

- Difficulties during pregnancy;
- Other reproductive problems (in both men and women);
- High blood pressure;
- Digestive problems;
- Nerve disorders;
- Memory and concentration problems; and
- Muscle and joint pain.

Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products.

Other Pollutants

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. H_2S in the atmosphere would likely oxidize into SO_2 that can lead to acid rain. At low concentrations H_2S, which has a characteristic "rotten egg" smell, may cause irritation to the eyes, mucous membranes and respiratory system, dizziness and headaches. In high concentrations (800 ppm can cause death) hydrogen sulfide is extremely hazardous, especially in enclosed spaces. Occupational Safety and Health Administrations (OSHA) has the primary responsibility for regulating workplace exposure to H_2S.

Health Effects

Exposure to low concentrations of H_2S may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Exposure to higher concentrations (above 100 ppm) can cause olfactory fatigue, respiratory paralysis, and death. Brief exposures to high concentrations of H_2S (greater than 500 ppm) can cause a loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. No health effects have been found in humans exposed to typical environmental concentrations of H_2S (0.00011–0.00033 ppm). Deaths due to breathing in large amounts of H_2S have been reported in a variety of different work settings, including sewers, animal processing plants, waste dumps, sludge plants, oil and gas well drilling sites, and tanks and cesspools.

Vinyl Chloride

Vinyl chloride monomer is a sweet-smelling, colorless gas at ambient temperature. Landfills, publicly owned treatment works, and polyvinyl chloride (PVC) production are the major identified sources of vinyl chloride emissions in California. PVC can be fabricated into several products, such as PVC pipes, pipe fittings, and plastics.

Health Effects

In humans, epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of liver angiosarcoma, which is a rare cancer, and have suggested a relationship between exposure cancers of the lung and brain. There are currently no adopted ambient air standards for vinyl chloride.

Short-term exposure to vinyl chloride has been linked with the following acute health effects (USEPA, 2019:

- Acute exposure of humans to high levels of vinyl chloride via inhalation in humans has resulted in effects on the central nervous system, such as dizziness, drowsiness, headaches, and giddiness.
- Vinyl chloride is reported to be slightly irritating to the eyes and respiratory tract in humans. Acute exposure to extremely high levels of vinyl chloride has caused loss of consciousness; irritation to the lungs and kidneys; inhibition of blood clotting in humans; and cardiac arrhythmias in animals.

- Tests involving acute exposure of mice to vinyl chloride have shown high acute toxicity from inhalation exposure to the substance.

Long-term exposure to vinyl chloride concentrations has been linked with the following chronic health effects (USEPA 2019):

- Liver damage may result in humans from chronic exposure to vinyl chloride, through both inhalation and oral exposure.
- A small percentage of individuals occupationally exposed to high levels of vinyl chloride in air have developed a set of symptoms termed "vinyl chloride disease," which is characterized by Raynaud's phenomenon (fingers blanch and numbness and discomfort are experienced upon exposure to the cold), changes in the bones at the end of the fingers, joint and muscle pain, and scleroderma-like skin changes (thickening of the skin, decreased elasticity, and slight edema).
- Central nervous system effects (including dizziness, drowsiness, fatigue, headache, visual and/or hearing disturbances, memory loss, and sleep disturbances) as well as peripheral nervous system symptoms (peripheral neuropathy, tingling, numbness, weakness, and pain in fingers) have also been reported in workers exposed to vinyl chloride.

Several reproductive/developmental health effects from vinyl chloride exposure have been identified (USEPA, 2019):

- Several case reports suggest that male sexual performance may be affected by vinyl chloride. However, these studies are limited by lack of quantitative exposure information and possible co-occurring exposure to other chemicals.
- Several epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects, while other studies have not reported similar findings.
- Epidemiological studies have suggested an association between men occupationally exposed to vinyl chloride and miscarriages during their wives' pregnancies, although other studies have not supported these findings.
- Long-term exposure to vinyl chloride has also been identified as a cancer risk. Inhaled vinyl chloride has been shown to increase the risk of a rare form of liver cancer (angiosarcoma of the liver) in humans. Animal studies have shown that vinyl chloride, via inhalation, increases the incidence of angiosarcoma of the liver and cancer of the liver.

Visibility Reducing Particles

Visibility-reducing particles is a measure of visibility. CARB does not yet have a measurement method that is accurate or precise enough to designate areas in the State as being in attainment or nonattainment. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. Except for Lake County (which is designated to be in attainment), California's attainment status with respect to visibility-reducing particles is currently designated as unclassified.

Toxic Air Contaminants (TAC)

Toxic air contaminants (TACs), as known under the California Clean Air Act of 1988 (CCAA), are 10 pollutants have been identified through ambient air quality data as posing the most substantial health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to brain and nervous system and respiratory disorders. CARB provides TAC emission inventories for only the larger air basins.

Sources include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners and motor vehicle exhaust. TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the Act must prepare and submit toxic emission inventory plans and reports to CARB and periodically update those reports. While TACs do result in potential health risks for those exposed, the project would not emit TACs with the exception of diesel particulate matter, which, therefore, is the only TAC described further in this analysis.

Diesel Particulate Matter

DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute approximately 24 percent of the statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about 5 percent of total DPM.

Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated by the California Office of Environmental Health Hazard Assessment (OEHHA). CARB estimates that approximately 70 percent of the cancer risk that the average Californian faces from breathing TACs stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Using information from OEHHA's assessment, CARB estimates that diesel-particle levels measured in California's air in 2000 could cause 540 "excess" cancers (beyond what would occur if there were no diesel particles in the air) in a population of one million people over a 70-year lifetime. Other researchers and scientific organizations, including the National Institute for Occupational Safety and Health, have calculated similar cancer risks from diesel exhaust as those calculated by OEHHA and CARB.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs,

which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks (OEHHA – ALA, 2001).

Airborne Fungus (Coccidioides immitis)

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms include fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps may develop on the skin. One important fact to mention is that these symptoms are not unique to Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease require specific laboratory tests such as: (1) microscopic identification of the fungal spherules in infected tissue, sputum or body fluid sample; (2) growing a culture of CI from a tissue specimen, sputum, or body fluid; (3) detection of antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids; and (4) administering the Valley Fever Skin Test (called coccidioidin or spherulin), which indicate prior exposure to the fungus (Valley Fever Center for Excellence 2019). It should be noted that the incident rate for Valley Fever in Kern County in the project site area and within the MDAB is significantly less (at approximately 50 cases per 100,000 population) than the incident rate in Kern County within the San Joaquin Valley Air Basin, where the highest incidence rate within California occurs (at approximately 321 cases per 100,000 population) (California Department of Public Health, 2018 and Kern County Public Health Services Department, 2019).

Valley Fever is not contagious and, therefore, cannot be passed on from person to person. Most of those who are infected would recover without treatment within six months and would have a life-long immunity to the fungal spores. In severe cases, especially in those patients with rapid and extensive primary illness, those who are at risk for dissemination of disease, and those who have disseminated disease, antifungal drug therapy is used. The type of medication used and the duration of drug therapy are determined by the severity of disease and response to the therapy. The medications used include ketoconazole, itraconazole and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these treatments are often helpful, evidence of disease may persist and years of treatment may be required (Valley Fever Center for Excellence, 2019).

Table 4.3-3, *Range of Complications of Valley Fever Cases*, presents the range of Valley Fever complications based on information from the Valley Fever Center for Excellence.

Table 4.3-3. Range of Complications of Valley Fever Cases

Infection Classification	Percent of Total Diagnosed Cases
No Complications	50–60 percent
Acute Pneumonia	40–50 percent
Chronic Progressive Pneumonia	5 percent
Pulmonary Nodules and Cavities	5–10 percent
Disseminated	1–5 percent
Source:Valley Fever Center for Excellence, 2019.	

Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. In addition, 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 for development projects, and at quarry 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. 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 (California Department of Conservation, 2000).

Coronavirus Disease 2019

COVID-19 is an infectious disease caused by the SARS-CoV-2 strain of coronavirus, a group of related RNA viruses that cause diseases in mammals and birds. Coronaviruses cause respiratory tract infections that can range from mild to lethal and include some causes of the common cold, while more lethal varieties can cause SARS, MERS, and COVID-19. COVID-19 can cause fever, cough, fatigue, shortness of breath, and loss of smell and taste. While the majority of cases result in mild symptoms, some progress to acute respiratory distress syndrome, multi-organ failure, septic shock, and blood clots. COVID-19 primarily spreads through close contact with an infected person and via respiratory droplets produced from coughs or sneezes. The droplets usually fall to the ground or onto surfaces rather than travelling through air over long distances. Less commonly, people may become infected by touching a contaminated surface and then touching their face. COVID-19 is most contagious during the first three days after the onset of symptoms, although spread is possible before symptoms appear, and from people who do not show symptoms.

Recommended measures to prevent infection include frequent hand washing, maintaining physical distance from others, quarantine, covering coughs, and keeping unwashed hands away from the face. The use of cloth face coverings has been recommended by health officials in public settings to minimize the risks of transmission. Currently, there are no vaccines nor specific antiviral treatments for COVID-19. Management involves the treatment of symptoms, supportive care, isolation, and experimental measures. The World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency of international concern on January 30, 2020, and a pandemic on March 11, 2020. Local transmission of the disease has occurred in most countries across all six WHO regions.

A small increase in long-term exposure to $PM_{2.5}$ has been found to lead to an increase in the death rate of COVID-19 (Harvard School of Public Health 2020). The study suggests that long-term exposure to $PM_{2.5}$ is associated with higher COVID-19 mortality rates, even after adjustment for a wide range of socioeconomic, demographic, weather, behavioral, epidemic stage, and healthcare-related confounders. Long-term exposure to $PM_{2.5}$ emissions may also add to the potential susceptibility for COVID-19. People of color may live in areas already burdened by air pollution (NRDC 2014,). People of color may also have a higher risk of getting sick or dying from COVID-19 (California Department of Public Health 2020).

As of May 11, 2021, Kern County had 109,101 cases of COVID-19, with 1,373 deaths out of 900,202 residents. Forty-five percent of County residents who have had COVID-19 are Hispanic, while 26% are unknown, 16% are Caucasian, 8% are other, 3% are African American, and 2% are Asian. (Kern County 2021).

Attainment Status

In California, air quality management responsibilities exist at local, state, and federal levels of government. In general, air quality management planning programs developed during the past few decades have been in response to requirements established by the FCAA. However, the enactment of the California Clean Air Act (CCAA) and its subsequent revisions has produced changes in the structure and administration of air quality management programs in California. The attainment status of the project area is described below for federal and state criteria pollutants.

Federal

The EPA has identified nonattainment and attainment areas for each criteria air pollutant. Under amendments to the FCAA, EPA has classified air basins or portions thereof as "attainment," "nonattainment," or "unclassifiable" based on whether or not the national standards have been achieved. EPA uses two categories to designate areas with respect to $PM_{2.5}$ and NO_2, which include the following: (1) does not meet the standard (nonattainment) and (2) cannot be classified or better than national standards (unclassifiable/attainment). EPA uses four categories to designate for SO_2, but the only two that are applicable in California are nonattainment or unclassifiable. EPA uses three categories to designate for PM_{10}: attainment, nonattainment, and unclassifiable.

The FCAA uses the classification system to design cleanup requirements appropriate for the severity of the pollution and to set realistic deadlines for reaching cleanup goals. If an air basin is not in federal attainment (that is, it does not meet federal standards) for a particular pollutant, the basin is classified as a marginal, moderate, serious, severe, or extreme nonattainment area based on the estimated time it would take to reach attainment. Nonattainment areas must take steps towards attainment by a specific timeline.

State

The state designation criteria specify four categories: nonattainment, nonattainment-transitional, attainment, and unclassified. A nonattainment designation indicates that one or more violations of the state standard have occurred. A nonattainment-transitional designation is a subcategory of nonattainment that indicates improving air quality with only occasional violations or exceedances of the state standard. In contrast, an attainment designation indicates that no violations of the state standard are available to evaluate

attainment status. Finally, an unclassified designation indicates either no air quality data or an incomplete set of air quality data.

The MDAB in the EKAPCD has been designated as serious nonattainment for the federal O_3 standards, nonattainment for the state eight-hour O_3 standard, nonattainment for the state one-hour O_3 standard, and the state PM_{10} standard. This area is unclassified or in attainment for the federal and state standards for CO; the federal standard for PM_{10}; and the federal and state standards for $PM_{2.5}$. The MDAB within the EKAPCD is in attainment for all other federal and state standards.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include preexisting health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. Ambient air quality standards were established to represent the levels of air quality considered sufficient, with a margin of safety, to protect public health and welfare. Standards are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases.

The sensitive receptors with the highest potential to be affected by the project include residential land uses located in the surrounding communities of Desert Lake and Boron. The sensitive receptors closest to the project site are single-family residences located approximately 520 feet north of Site 3 boundary across Twenty Mule Team Road in the community of Desert Lake. In Boron, the nearest sensitive receptors are single-family residences located approximately 1,650 feet north of Site 2 boundary across South Wesley Street.

4.3.3 Regulatory Setting

In California, air quality is regulated by several agencies, including EPA, CARB, and local air districts such as the EKAPCD. Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, some State and local regulations may be more stringent than federal regulations. The project site is located within the MDAB, which is under the jurisdiction of the EKAPCD.

Federal

U.S. Environmental Protection Agency

EPA is the federal agency responsible for overseeing state air programs as they relate to the FCAA, approving the State Implementation Plans (SIPs), establishing NAAQS and setting emission standards for

mobile sources under federal jurisdiction. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead. EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. EPA's primary role at the State level is to oversee the State air quality programs. EPA sets federal vehicle and stationary source emission standards and oversees approval of all SIP, as well as providing research and guidance in air pollution programs. The SIP is a State level document that identifies all air pollution control programs within California that are designed to meet the NAAQS. The EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

Clean Air Act

The FCAA is the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes EPA to establish NAAQS to protect public health and public welfare and to regulate emissions of hazardous air pollutants.

One of the goals of the FCAA was to set and achieve NAAQS in every state by 1975 in order to address the public health and welfare risks posed by certain widespread air pollutants. The setting of these pollutant standards was coupled with directing the states to develop SIPs, applicable to appropriate industrial sources in the state, in order to achieve these standards. The FCAA was amended in 1977 and 1990 primarily to set new goals (dates) for achieving attainment of NAAQS since many areas of the country had failed to meet the deadlines.

Section 112 of the FCAA addresses emissions of hazardous air pollutants. Prior to 1990, FCAA established a risk-based program under which only a few standards were developed. The 1990 Clean Air Act Amendments revised Section 112 to first require issuance of technology-based standards for major sources and certain area sources. "Major sources" are defined as a stationary source or group of stationary sources that emit or have the potential to emit 10 tons per year or more of a hazardous air pollutant or 25 tons per year or more of a combination of hazardous air pollutants. An "area source" is any stationary source that is not a major source.

For major sources, Section 112 requires that EPA establish emission standards that require the maximum degree of reduction in emissions of hazardous air pollutants. These emission standards are commonly referred to as "maximum achievable control technology" or "MACT" standards. Eight years after the technology-based MACT standards are issued for a source category, EPA is required to review those standards to determine whether any residual risk exists for that source category and, if necessary, revise the standards to address such risk (EPA 2019).

State

California Air Resources Board

CARB is the state agency responsible for establishing CAAQS, adopting and enforcing emission standards for various sources, including mobile sources (except where federal law preempts their authority), fuels,

consumer products, and TACs. CARB is also responsible for providing technical support to California's 35 local air districts, which are organized at the county or regional level, overseeing local air district compliance with state and federal law, approving local air plans and submitting the SIP to EPA. CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles.

For the purposes of managing air quality in California, the California Health & Safety Codes gave CARB the responsibility to, "based upon similar meteorological and geographic conditions and consideration for political boundary lines whenever practicable," divide the state into air basins. Kern County is located within the MDAB.

Title V and Extreme Designation

Title V of the CAA, as amended in 1990, creates an operating permit program for certain defined sources. In general, owner/operators of defined industrial or commercial sources that emit more than 25 tons per year (tpy) of NO_X and ROG must process a Title V permit. In "Extreme Designation" areas, the definition of a major source which requires Title V permitting, changes from 25 tpy to 10 tpy. This change results in more businesses having to comply with Title V permitting requirements under the Extreme nonattainment designation.

Title V does not impose any new air pollution standards, require installation of any new controls on the affected facilities, or require reductions in emissions. Title V does enhance public and EPA participation in the permitting process and requires additional record keeping and reporting by businesses, which results in significant administrative requirements.

California Renewables Portfolio Standard Program

Established in 2002 under SB 1078 and accelerated by SB 107 [2006] and SB 2 [2011], California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. In 2015, SB 350 further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. The California Public Utilities Commission (CPUC) and the California Energy Commission are jointly responsible for implementing the program. SCE is on track to meeting these obligations, and currently has contracts to generate 41.4 percent of its electricity from renewable resources by the year 2020 (California Public Utilities Commission, 2019). While not assumed in the analysis below, the legislature is likely to increase the existing RPS requirements; more specifically, Senate Bill 100 [2017] proposes to require a 50 percent renewable resource target by December 31, 2026, and 60 percent by December 31, 2030.

California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588)

Enacted in 1981, AB 2588 is a state-wide program that requires facilities that exceed recommended Office of Environmental Health Hazards Assessment (OEHHA) levels to reduce risks to acceptable levels. Typically, during construction and operation diesel trucks and/or equipment generate diesel emissions. Diesel exhaust is composed of particulate matter and gases that contain potentially cancer-causing substances. DPM emissions include over 40 substances listed by the EPA as hazardous air pollutants, and/or by CARB as TACs. CARB adopted a comprehensive diesel risk reduction plan in 2000 with a goal of reducing DPM emissions associated with health risk by 85 percent by 2020.

California State Implementation Plan

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The EPA has the responsibility to review all State Implementation Plans to determine if they conform to the requirements of the CAA. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register. As discussed below, the *EKCAPCD 2017 Ozone Attainment Plan* informs the District's portion of the SIP.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan applicable to air quality as related to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the proposed project. Therefore, they are not listed below.

Chapter 1. Land Use, Open Space and Conservation Element

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act (CEQA), the appropriate decision making body, as part of its deliberations, will ensure that:

1. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and
2. The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be

supported by factual evidence to the extent that such a statement is required pursuant to CEQA.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21: The County shall support air district efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including but not limited to:

1) Minimizing idling time.
2) Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

1) Pave dirt roads within the development.
2) Pave outside storage areas.
3) Provide additional low VOC producing trees on landscape plans.
4) Use of alternative fuel fleet vehicles or hybrid vehicles.
5) Use of emission control devices on diesel equipment.
6) Develop residential neighborhoods without fireplaces or with the use of EPA certified, low emission natural gas fireplaces.
7) Provide bicycle lockers and shower facilities onsite.
8) Increase the amount of landscaping beyond what is required in the Zoning Ordinance (Ch. 19.86).
9) The use and development of park and ride facilities in outlying areas.
10) Other strategies that may be recommended by the local air pollution control districts.

Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5. Energy Element

Solar Energy Development

Goal

Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Kern County Best Management Practices for Dust Management

In 2013, solar developers and planners from Los Angeles and Kern Counties began a series of meetings to discuss the best practices for protecting air quality and minimizing construction impacts from solar projects. The process incorporated feedback from the Mojave Air and Space Port, members of the Mojave Chamber of Commerce, Rosamond Municipal Advisory Council, and numerous other community leaders. Subsequent to these meetings, Kern County has developed a new approach to best control fugitive dust emissions and improve air quality in the high desert. The County's approach recognizes that effective dust control management must be site-specific and cannot be "one-size-fits-all" because standard methods do not adequately meet the challenges of such a unique environment as the Mojave Desert region. An effective strategy has to be based on soil conditions, topography, adjacent land uses, and wind direction.

Conditions imposed on the new solar projects in Kern County are more extensive and rigorous than ever before. These include:

- Development of a Site Specific Dust Control Plan that considers ongoing community stakeholder input, to the extent feasible and practicable.
- Use of Global Positioning System (GPS) or lasers to level posts, generally avoiding grading except when elevation changes exceed design requirements.
- When grading is unavoidable, it is to be phased and done with the application of approved chemical dust palliatives (chemical substances applied to a road surface to reduce airborne dust) that stabilize the earth.
- Use of dust suppression measures during road surface preparation activities, including grading and compaction.
- Final road surfaces must be stabilized to achieve a measurable threshold friction velocity (TFV – the wind speed at which erosion starts) equal to or greater than 100 centimeters per second.
- If ground is cleared, plant roots must be left in place where possible.
- Expanded onsite watering processes.

- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved (i.e., without asphalt) surface at the construction site.
- All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard.
- Sending mailings to residents within 1,000 feet of a project site.

Kern County is also carefully monitoring all solar construction activities to ensure that all mitigation measures are followed and are adequate to minimize dust-related health concerns.

Eastern Kern Air Pollution Control District

The air pollution control agency for the Kern County portion of the MDAB is the EKAPCD. EKAPCD develops plans and implement control measures in their jurisdiction. These controls primarily affect stationary sources such as factories and plants. EKAPCD implements air quality programs required by state and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. EKAPCD is also responsible for managing and permitting existing, new, and modified sources of air emissions within the MDAB portion of Kern County.

EKAPCD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. EKAPCD established and enforces rules and regulations based on federal and state air pollution laws. Applicable rules are as follows:

Rule 201

Rule 201 establishes permitting requirements for stationary sources. Although the proposed project does not involve traditional stationary sources, on March 12, 2015 the EKAPCD adopted rules requiring commercial solar facilities to obtain Authority to Construct and Permit to Operate approval under Rule 201 to address fugitive dust emissions. Under Rule 201, these projects would be required to submit a Fugitive Dust Emissions Control Plan in accordance with Rule 402. In addition, the District is requiring a Fugitive Dust Emissions Monitoring Plan with a recommendation for each facility to install upwind and downwind particulate matter air monitoring, utilization of an Alternative Air Monitoring Strategy, or joining into the EKAPCD regional fugitive dust monitoring network. The monitoring will be used to demonstrate compliance with the District Rules and Regulations.

Rule 210.1

Rule 210.1 establishes stationary source offset levels for new and modified stationary sources of air pollutants. Under this rule, the EKAPCD has established required offsets for when the emissions from a source exceed the following trigger levels:

- PM_{10} – 15 tons/year
- SO_X (as SO_2) – 27 tons/year
- VOCs – 25 tons/year
- NO_X (as NO_2) – 25 tons/year

Rule 401 – Visible Emissions

Rule 401 of the EKAPCD's rules and regulations addresses discharge into the atmosphere of visible emissions from any single source. Visible emissions are described by the EKAPCD as a plume of dust or exhaust created by humanmade or natural sources. A violation is a discharge for a period or periods aggregating more than 3 minutes in any 1 hour which is:

- As dark or darker in shade as designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- Of such opacity as to obscure an observer's view to a degree equal to or greater that does smoke described in Subsection A or 20 percent opacity.

Rule 402 – Fugitive Dust

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

- A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source, excluding unpaved roadways.
- A person shall utilize one or more Reasonably Available Control Measures to minimize fugitive dust emissions from each source type that is part of any active operation, including unpaved roadways.
- A person shall not cause or allow downwind PM_{10} ambient concentrations to increase more than 50 $\mu g/m^3$ above downwind concentrations as determined by simultaneous upwind and downwind sampling utilizing high-volume particulate matter samplers or other EPA-approved equivalent method(s).
- No person shall conduct a large operation without either: (1) conducting onsite PM_{10} air quality monitoring and associated recordkeeping; or (2) filing for and obtaining an approved fugitive dust emission control plan.

Rule 404.1

Rule 404.1 pertains to Particulate Matter Concentrations – Desert Basin and states:

- A person shall not discharge into the atmosphere from any single source operation, in service on the date this Rule is adopted, particulate matter in excess of 0.2 grains per cubic foot of gas at standard conditions.

- A person shall not discharge into the atmosphere from any single source operation, the construction or modification of which commenced after the adoption of this Rule, particulate matter in excess of 0.1 grains per cubic foot of gas at standard conditions.

Rule 419 – Nuisance

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

Rule 423 – National Emission Standards for Hazardous Air Pollutants and Source Categories (NESHAPS)

All sources of hazardous air pollution shall comply with applicable standards, criteria and requirements set forth therein of provisions of Title 40, Chapter I, Parts 61 and 63, Code of Federal Regulations.

2017 Ozone Attainment Plan

In 2008, USEPA adopted a more stringent 8-hour ozone NAAQS of 0.075 ppm. Although EKAPCD attained the 1997 8-hour ozone NAAQS, and the Indian Wells Valley planning area met the new (2008) ozone NAAQS, the EKAPCD's Design Value was higher than 0.075 ppm. In 2012, a portion of the EKAPCD was classified "marginal" nonattainment pursuant to the 2008, 8-hour Ozone NAAQS Air Quality Designations. However, EKAPCD failed to meet the 0.075 ppm standard by the applicable attainment date and was reclassified as "moderate" nonattainment, effective June 3, 2016. As a result, EKAPCD was required to submit a SIP revision for the nonattainment area by January 1, 2017, which showed compliance with statutory and regulatory conditions applicable to the "moderate" designation (EKAPCD, 2017).

EKAPCD, in partnership with CARB, conducted photochemical modeling along with supplemental analyses to determine whether the EKAPCD could attain the 2008 ozone NAAQS by the "moderate" nonattainment deadline. Modeling indicated EKAPCD would not meet the 0.075 ppm standard by the moderate deadline but could attain it by 2020, which is the attainment date for "serious" nonattainment areas. Pursuant to Section 181(b)(3) of the CAA "Voluntary Reclassification," EKAPCD requested CARB formally submit a request to USEPA asking for voluntary reclassification of EKAPCD from "moderate" to "serious" nonattainment for the 2008, 8-hour ozone NAAQS, and revise the attainment date to December 31, 2020 (EKAPCD, 2017). USEPA reclassified EKAPCD (except for the Indian Wells Valley planning area) as "serious" nonattainment on August 6, 2018 (USEPA, 2018).

The 2017 Ozone Attainment Plan was adopted by EKAPCD on July 27, 2017, which addresses all required elements, emissions reductions, and control measures necessary to demonstrate attainment with the 2008 8-hour ozone NAAQS by 2020. CARB approved the 2017 Ozone Attainment Plan as a revision to the SIP and submitted it to USEPA on October 25, 2017 (CARB, 2017a). USEPA has not yet approved the plan.

Additionally, EKAPCD has determined commercial solar power plants generate fugitive dust emissions (PM_{10}) in eastern Kern County. Therefore, in accordance with Rule 201 (Permits Required) and 210.1 (New and Modified Stationary Source Review, NSR), the EKAPCD is requiring that each commercial solar facility obtain a District Air permit.

To assist in compliance with EKAPCD rules, including fugitive dust (Rule 402), the EKAPCD is requesting that each facility install upwind and downwind particulate matter air monitoring. The particulate matter air monitors will be used to assist solar facility operators in showing and maintaining compliance with EKAPCD rules and regulations.

Air Quality Management Plan

The EKAPCD has adopted an attainment plan (2017 Ozone Attainment Plan for 2008 Federal 75 ppb 8-hour Ozone Standard [EKAPCD Ozone Plan]) for ozone pursuant to the FCAA, which serves as the District's Air Quality Management Plan. The EKAPCD Ozone Plan provided an update to the EKAPCD's 1994 Ozone Attainment Demonstration (Attainment Plan) and established a goal of being in attainment for the eight-hour NAAQS for ozone by the "Serious" classification deadline of December 31, 2020. The EKAPCD Ozone Plan includes planning all required elements, emissions reductions, and control measures necessary to demonstrate attainment with the 2008, eight-hour Ozone NAAQS by 2020.

Particulate matter ($PM_{2.5}$ and PM_{10}) attainment strategies for NAAQS in Eastern Kern County have been subdivided into three areas: the Indian Wells Valley (IWV) area, the Kern River/Cummings Valley (KR/CV) area, and the remainder of the EKAPCD's jurisdiction, which includes the project site. The IWV and KR/CV zones are considered separate planning areas for $PM_{2.5}$ and PM_{10} and have their own attainment strategies. The remainder of the EKAPCD area, where the project is located, is designated unclassified/attainment for the NAAQS for $PM_{2.5}$ and PM_{10} standards. Therefore, the project site is not under the jurisdiction of any $PM_{2.5}$ and PM_{10} attainment plans.

Kern County Public Health Services Department

Section 101080 of the California Health and Safety Code authorizes a local health officer to declare a local health emergency in the health officer's jurisdiction, or any part thereof, when the health officer determines that there is an imminent and proximate threat of the introduction of any contagious, infections, or communicable disease, chemical agent, non-communicable biological agent, toxin, or radioactive agent. On April 2, 2020, the Kern County Health Officer issued an Order that was implemented to garner additional tools to assist with Kern County's compliance with Executive Order N-33-20 issued by the Governor of the State of California and the California Department of Public Health's gathering guidance due to COVID-19. The April 2, 2020 order was rescinded on May 2, 2020 by the Kern County Health Officer. The Kern County Public Health Services Department and the Kern County Health Officer continue to provide guidance and recommendations for residents and business of Kern County to safely conduct business, including construction activities, during this COVID-19 pandemic.

4.3.4 Impacts and Mitigation Measures

Methodology

The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality district in the project area, approved CEQA air quality checklists, and considering other federal criteria. The analysis presented within this section is based on both qualitative and quantitative approaches for determining air quality impacts associated with construction, operation, and maintenance of the project. The findings in the Air Quality Report prepared for the project (located in Appendix C-1 of this

EIR), which was prepared in accordance with Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* documents.

Criteria Air Pollutants Emissions

Construction and operational emissions were estimated from several emissions models and associated spreadsheet calculations, depending on the source type and data availability. The primary emissions models used included CARB's on-road vehicle emission factor model (EMFAC2017) and the off-road diesel equipment emissions analysis and inventory (OFFROAD2017). Emission factors were obtained from the EPA AP-42 Compilation of Air Pollutant Emissions Factors (EPA 2006). Short-term and annual emissions were estimated using appropriate emission factors, the number of pieces of equipment, daily operating hours, and the associated schedules. The following construction and operational sources and activities were analyzed for emissions:

- On-site construction equipment exhaust emissions (all criteria pollutants) – based on EMFAC2017 and OFFROAD2017 emission factors and estimated equipment schedules
- On-site construction equipment fugitive dust emissions (PM_{10} and $PM_{2.5}$) – based on EPA AP- 42 emission factors and estimated equipment schedules
- On-site and off-site haul truck (includes delivery, freight, and dump/water trucks) exhaust emissions (all criteria pollutants) – based on EMFAC2017 and estimated vehicle miles traveled
- On-site and off-site entrained fugitive dust emissions for paved and unpaved road travel – based on AP-42 methodology and estimated vehicle miles traveled
- Worker vehicle emissions for trips to and from the site – based on EMFAC2017 and estimated vehicle miles traveled
- Worker vehicle entrained fugitive dust emissions for paved roads – based on AP-42 methodology and estimated vehicle miles traveled.

Trip generation rates for employees and vendors were provided by EPD Solutions, Inc. in the project specific *Traffic Impact Analysis* and are presented in Appendix L-1. It was assumed that one-third of vendor vehicles would be medium-heavy duty trucks and two-thirds would be heavy-heavy duty trucks. Similarly, it was assumed that 72 percent of the worker commute vehicles were light-duty automobiles and the remaining 28 percent were light-duty trucks. Percentages were derived from the distribution of vehicle miles travelled from EMFAC2017.

Construction at some of the project sites that make up the project may occur simultaneously, and phases of construction would overlap. Overall project emissions were apportioned to each site based on the site acreage compared with the project gross acreage. Construction emissions associated with the project are discussed below by each individual project site and if construction activities occurred at some sites simultaneously.

Health Risk Assessment

Health impacts associated with TACs are generally from long-term exposure. Typical sources of TACs include industrial processes such as petroleum refining operations, commercial operations such as gasoline

stations and dry cleaners, and diesel exhaust. Health impacts from TAC emissions during the operational phase of the project are not expected because on-site routine maintenance and periodic PV panel washing, and off-site employee-commute trips would generate nominal DPM emissions from exhaust and would not be a substantial source of ongoing TAC emissions. However, the use of large-scale off-road diesel equipment during project construction may result in a short-term increase of TAC emissions. DPM would be the TAC emitted in the largest quantity during construction and is the primary contaminant of concern for the project, thus health risks were assessed as they relate to DPM exposure.

The significance threshold for health risks differs from that used for criteria pollutants in that no specific air quality standards have been established for DPM emissions or many other TACs. Instead, significance thresholds are determined based on an analysis of the number of excess health risks relative to a chosen risk level. Health effects from carcinogenic air toxics usually are described in terms of cancer risk. Non-carcinogenic hazards include chronic and acute effects. Acute effects are due to short-term exposure, while chronic effects are due to long-term exposure to a substance. For chronic and acute risks, the hazard index is calculated as the summation of the hazard quotients for all chemicals to which an individual would be exposed.

Average concentrations of DPM at the highest exposed existing receptor were used to estimate potential chronic and carcinogenic health risk. The health risk calculations were based on the standardized equations contained in the current Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2015). Toxicity values for the pollutants of concern were acquired from the OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines and Inhalation Reference Exposure Levels (REL) as of April 2019 (OEHHA 2015). The carcinogenic health risk equations follow a dose response relationship where the dosage is averaged over a particular timeframe. To provide a conservative analysis, the timeframe for construction and decommissioning activities were assumed to be equivalent and no adjustments were made to the exposure duration (i.e. exposure duration 100 percent of the time was assumed). Additionally, the high-end breathing rate by age bin was used and no fraction of time as residence was applied. To assess a hypothetical worst-case scenario, it was assumed that an individual could be exposed to construction emissions as a child and decommissioning emissions as an adult over the course of a 70-year lifetime. Children are more affected by DPM emissions than adults because of the relatively greater amount of air that they breathe on a daily basis compared to their body weight.

The air dispersion modeling for the health risk assessment was performed using the most recent EPA AERMOD dispersion model, Version 19191. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (not a factor in this case). AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. For this analysis, AERMOD ready metrological data from the Edwards AF AUX North (Station ID: 723171), which was pre-processed with AERMET, Version 14134, was obtained from CARB. The meteorological station is approximately seven miles from the nearest point of the project site, the southwest corner of Site 4, and 13 miles from the furthest point of the project site, the southeastern corner of Site 1. Emission rates were assumed to vary by the hour and the day; therefore, hourly average emissions rates were limited to the hours of 6:00 a.m. to 5:00 p.m. Monday through Friday. The model was run to obtain the maximum one-hour and average concentration across the five-year period described above for each year of anticipated construction (i.e., 2021 and 2022). In addition to the identified nearby sensitive receptors, a Cartesian grid spaced at 500 meter intervals that encompassed the project site and a square area of 15,000 meters by 15,000 meters was used to evaluate the project's potential health impact and validate that the

defined sensitive receptors captured the highest off-site exposure. "Fence line" receptors for each project site spaced every 100 meters were also evaluated.

The total PM_{10} exhaust emissions for all on-site diesel equipment and on-site mobile emissions for the entire construction period were divided by the construction working days to determine the maximum hourly emission rate (pounds per hour [lbs/hour]). AERMOD was used to determine the non-pollutant specific concentration at receptor points by source using a unit emission rate of 1 gram per second per square meter ($g/sec\text{-}m^2$). The non-pollutant specific concentration was then multiplied by the actual pollutant specific emission rates (i.e., annual average in pounds per year [lbs/yr] and maximum hourly in lbs/hour) to determine the cumulative source ground level pollutant specific concentration at each receptor subsequently used to determine cancer and noncancer health impacts using the CARB Hot Spots Analysis and Reporting Program Version 2 (HARP 2) version 19121. Chronic, acute, and carcinogenic health risk were further refined by age bin based on the EPA (2005) guidance on the use of early life exposure adjustment factors (Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-003F) and standardized dose algorithms contained in the current OEHHA guidance. Note that the estimated concentration is not a specific prediction of the actual concentrations that would occur at any one point or any specific time over the course of the construction period. Actual concentrations are dependent on many variables, particularly the number and type of equipment working at specific distances during time periods of adverse meteorology. Various activities would occur at different sites throughout the overall project, and equipment would be close to adjacent receptors for a limited period of time, and then several miles from the same receptor at other times. Each project site was input to AERMOD as an area source where construction emissions were apportioned to each project site based on its percentage of the project's gross acreage. Emissions from construction trucks and equipment were assigned a release height of 3.1 meters, which is the approximate average height of the exhaust port plus a nominal amount of plume rise. Health risk for the project was evaluated assuming that construction on each project site occurs simultaneously and health risk for each individual project site was also evaluated, assuming that construction on each site occurs independently. As previously mentioned, only the risk associated with construction and decommissioning activities was assessed because operational emissions would not be significant.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist includes items taken from previous versions of Appendix G of the CEQA *Guidelines*. However, Appendix G was updated in 2018, resulting in minor changes to the checklist items. The analysis herein is based on the updated CEQA *Guidelines*, which differ slightly from the Kern County CEQA Implementation Document and Kern County Environmental Checklist.

A project could have a significant adverse effect on air quality if it would:

The current CEQA *Guidelines* state that a project could potentially have a significant adverse effect to air quality if it would:

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 nonattainment under an applicable federal or state ambient air quality standard. Specifically, if implementation of the project would exceed any of the following adopted thresholds:

i. Eastern Kern Air Pollution Control District:

a. Operational and Area Sources:

- 25 tons per year for ROG
- 25 tons per year for NO_X
- 15 tons per year for PM_{10}.

b. Stationary Sources – determined by District Rules

- Severe nonattainment: 25 tons per year
- Extreme nonattainment: 10 tons per year

c. Expose sensitive receptors to substantial pollutant concentrations;

- Cancer Risk: Emit carcinogenic or toxic contaminants that exceed the maximum individual cancer risk of 10 in one million.
- Non-Cancer Risk: Emit toxic contaminants that exceed the maximum hazard quotient of 1 in one million.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Eastern Kern Air Pollution Control District

The EKAPCD recommends the following daily quantitative regional significance thresholds for long-term project operation in the western portion of the MDAB:

- 137 lbs per day of NO_X
- 137 lbs per day of ROG

Additionally, the EKAPCD has determined that a project would not have a significant impact on air quality if its operation:

- Emits less than the offset trigger levels set forth in Subsection III.B.3 of KCAPCD's Rule 210.1 (from all project sources subject to EKCAPCD Rule 201, New and Modified Source Review Rule);
- Does not cause or contribute to an exceedance of NAAQS or California Ambient Air Quality Standards;
- Does not exceed the District health risk public notification thresholds adopted by the EKCAPCD Board; or,
- Is consistent with adopted federal and state Air Quality Management Plans

For health risk management, the EKAPCD has established the following criteria for land use projects subject to EKAPCD Regulation II (Permits List and Criteria) and Rule 208.2 (Criteria for Finding no Significant Environmental Impact):

- Cancer health risk shall be considered insignificant if expected increase in cancer risk is less than 20 in one million;
- Noncancer health risk is considered insignificant if expected increase in chronic hazard index is less than or equal to 1; or

- Noncancer health risk is considered insignificant if expected increase in acute hazard index is less than or equal to 1.

Project Impacts

Impact 4.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan and if the project implements all reasonably available and feasible air quality control measures. The consistency with the Air Quality Management Plan (AQMP) is discussed below for construction and operation.

Air quality impacts are controlled through policies and provisions of the EKAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations. The CCAA requires air pollution control districts with severe or extreme air quality problems to provide for a 5 percent reduction in nonattainment emissions per year. The Attainment Plans prepared for the EKAPCD complies with this requirement. CARB reviewers approve or amend the document and forward the plan to EPA for final review and approval within the SIP.

Required Evaluation Guidelines

CEQA *Guidelines* and the CAA (Sections 176 and 316) contain specific references regarding the need to evaluate consistencies between the project and the applicable AQMP for the projects. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQMP:

Determination that an AQMP is being implemented in the area where the project is being proposed. EKAPCD's most recently adopted air quality management plan is its Ozone Air Quality Attainment Plan (AQAP) that is approved by CARB and EPA.

The project must be consistent with the growth assumptions of the applicable AQMP. The project, as solar facility, would not introduce land uses that would generate vehicle trips or promote growth in the project area beyond what is projected in the Kern County General Plan and therefore incorporated into the AQAP.

The project must contain in its design all reasonably available and feasible air quality control measures. The project incorporates various policy and rule-required implementation measures that would reduce related emissions.

Because implementation of the project would not result in additional growth beyond what was anticipated by the Kern County General Plan and incorporated into the AQAP, conclusions may be drawn from the following criteria:

- The findings of the analysis conducted using Traffic Analysis Zones (TAZ) show that sufficient employment increase is planned for the project area such that new employment opportunities afforded by the project were included in the growth assumptions used to develop the AQAP.

- The primary source of emissions from the project would be from construction and operation vehicles that are licensed through the State and whose emissions are already incorporated into CARB's emissions inventory.

Construction

Construction of the proposed project would require approximately 12 to 18 months of continuous construction involving several overlapping phases. To provide for a realistic and conservative estimate, construction was assumed to last for 15 months for the purposes of this analysis. Construction of the project would generate air pollutant emissions from entrained dust, off-road equipment use, vehicle emissions, and architectural coatings. Off-site emissions would be generated by construction worker daily commute trips and heavy-duty diesel haul and vendor truck trips. Construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Construction of the gen-tie is incorporated into the provided construction schedule and equipment mix. Therefore, emissions associated with the gen-tie are inherently incorporated into the impacts associated with each site.

As shown in **Table 4.3-4**, *Construction Emissions for Each Site*, construction emissions of ROG, NO_X, SO_X, and PM_{10} would not exceed EKAPCD thresholds during either year of construction (2021 and 2022) of each individual site. Because construction at all sites would disturb over 10 contiguous acres of surface area, implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2 would be required to reduce fugitive dust emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan, respectively and to be compliant with EKAPCD's rules and regulations, such as Rule 201 (Permits Required) and Rule 402 (Fugitive Dust). Per EKAPCD Rule 402, disturbed areas shall be treated with water or application of an EKAPCD-approved chemical dust suppressant [palliative]. Therefore, **Table 4.3-4** also includes estimates of fugitive dust emissions with the application of either water or palliatives consistent with EKAPCD Rule 402 requirements.

Table 4.3-4. Construction Emissions for Each Site

Site	Year	Unmitigated Emissions (tons per phase)[1]						Mitigated Particulate Emissions (tons per phase)[1,2]			
								With Water Control		With Palliative Control	
		ROG	NO_x	SO_x	CO	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
1	2021	0.1	0.7	<0.1	0.9	1.4	0.2	1.2	0.2	0.3	0.2
	2022	0.4	3.1	<0.1	4.2	4.8	0.8	4.5	0.8	4.0	0.7
2	2021	0.2	1.7	<0.1	2.4	3.5	0.6	3.2	0.5	0.8	0.5
	2022	1.2	8.0	<0.1	10.8	12.4	2.0	11.5	1.9	10.3	0.5
3	2021	0.2	1.1	<0.1	1.6	2.4	0.4	2.2	0.4	0.5	0.3
	2022	0.8	5.4	<0.1	7.3	8.3	1.4	7.7	1.3	6.9	1.2
4	2021	0.1	0.8	<0.1	1.1	1.6	0.3	1.5	0.2	0.4	0.2
	2022	0.5	3.7	<0.1	5.0	5.7	0.9	5.3	0.9	4.8	0.8
5	2021	0.1	0.4	<0.1	0.6	0.9	0.1	0.8	0.1	0.2	0.1
	2022	0.3	2.1	<0.1	2.8	3.2	0.5	3.0	0.5	2.7	0.5
Kern County Thresholds		*25*	*25*	*27*	*N/A*	*15*	*N/A*	*15*	*N/A*	*15*	*N/A*
Significant Impact?		*No*	*No*	*No*	*N/A*	*No*	*N/A*	*No*	*N/A*	*No*	*N/A*

Notes: Rounded values used; columns may not add up correctly.

ROG = reactive organic gases; NO_x = nitrogen oxide; SO_X = sulfur oxide; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers; $PM_{2.5}$ = particulate matter less than 2.5 micrometers; N/A = no threshold

[1] Emissions by construction year are based on an estimated construction schedule and construction starting on October 1, 2021.

[2] Numbers take into account implementation of Mitigation Measures MM 4.3-2 (fugitive dust control).

Combined Project Construction (Sites 1 through 5 and Gen-Tie)

While various combinations of sites could be developed without mitigation and still not exceed applicable thresholds, as shown in **Table 4.3-5**, *Combined Construction Emissions for Simultaneous Construction at*

All Sites, concurrent construction at all sites (Sites 1 through 5) would exceed the fugitive dust (PM_{10}) threshold of 15 tons per year in the second year of construction (2022). This exceedance of the PM_{10} threshold is largely due to worker vehicle trips, which is estimated to include up to 1,000 worker roundtrips per day during peak construction periods. Because construction at all sites would disturb over 10 contiguous acres of surface area, implementation of Mitigation Measure MM 4.3-1 and MM 4.3-2 would be required to be compliant with EKAPCD's rules and regulations, such as Rule 201 (Permits Required) and Rule 402 (Fugitive Dust). Per EKAPCD Rule 402, disturbed areas shall be treated with water or application of an EKAPCD-approved chemical dust suppressant [palliative]. In addition, Mitigation Measure MM 4.3-2 requires on-site roads and off-site roads adjacent to the project site to be treated and cleaned, which reduces fugitive dust from on-road mobile sources. Therefore, **Table 4.3-5**, *Combined Construction Emissions for Simultaneous Construction at All Sites*, includes estimates of fugitive dust emissions with the application of either water or palliatives consistent with EKAPCD Rule 402 requirements.

The major contributing source to the exceedance of the PM_{10} threshold during concurrent construction of all sites is worker vehicle trips. A majority of PM_{10} emissions during construction is due to resuspension of entrained dust on the road from vehicles commuting to the construction site. Therefore, this analysis also evaluates a condition requiring no more than 250 worker roundtrips per day per construction activity. A reduction in worker roundtrips to no more than 250 per activity would substantially reduce PM_{10} emissions from commuter vehicles. Implementation of Mitigation Measure MM 4.3-3 would be required to reduce work roundtrips to no more than 250 per activity, reducing PM_{10} emissions to a level that would not exceed EKAPCD thresholds. As shown in **Table 4.3-5**, *Combined Construction Emissions for Simultaneous Construction at All Sites*, implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3 would reduce total construction emissions to levels that would not exceed EKAPCD thresholds. Therefore, impacts would be less than significant with mitigation measures incorporated.

Table 4.3-5. Combined Construction Emissions for Simultaneous Construction or Decommissioning at All Sites

	Unmitigated Emissions (tons per year per phase)						Mitigated Emissions (tons per year per phase)[1]			
							With Water Control		With Palliative Control	
Year	ROG	NO_x	SO_x	CO	PM_{10}	$PM_{2.5}$	PM_{10}	PM_{25}	PM_{10}	PM_{25}
2021	0.7	4.7	<0.1	6.6	9.9	1.6	5.2	0.9	1.6	0.8
2022	3.2	22.3	0.1	30.0	34.5	5.7	14.4	2.7	11.1	1.9
Kern County Thresholds	*25*	*25*	*27*	*N/A*	*15*	*N/A*	*15*	*N/A*	*15*	*N/A*
Significant Impact?	*No*	*No*	*No*	*N/A*	***Yes***	*N/A*	*No*	*N/A*	*No*	*N/A*

Notes: Rounded values used; columns may not add up correctly. Subtotal equals the sum of all exhaust and fugitive dust emissions from off-road construction equipment and on-road vehicles.

ROG = reactive organic gases; NO_x = nitrogen oxide; SO_X = sulfur oxide; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers; $PM_{2.5}$ = particulate matter less than 2.5 micrometers; N/A = no threshold

[1]Numbers take into account implementation of Mitigation Measures MM 4.3-2 (fugitive dust control) and MM 4.3-3 (worker roundtrip restrictions).

Operations

Table 4.3-6, *Operational Emissions*, summarizes estimated emissions associated with operation of the project by each individual site and as a whole. Each site could require up to five full-time employees. It is possible that the project would share an O&M, substation, and/or transmission facilities with one or more nearby solar projects. Sharing of personnel with nearby solar projects could reduce the project's on-site operational staff. However, it was conservatively assumed that each site would require individual operations

and maintenance staff. As shown in **Table 4.3-6**, unmitigated operations emissions from the sites would not exceed EKAPCD thresholds for any criteria pollutant either individually or combined emissions for the project as a whole. Therefore, impacts would be less than significant.

Table 4.3-6. Operational Emissions

Site	Emissions (tons per year)					
	ROG	**NO_x**	**SO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
1	<0.1	<0.1	<0.1	<0.1	0.6	0.1
2	<0.1	<0.1	<0.1	0.2	1.6	0.2
3	<0.1	<0.1	<0.1	0.1	1.1	0.1
4	<0.1	<0.1	<0.1	0.1	0.7	0.1
5	<0.1	<0.1	<0.1	0.1	0.4	<0.1
Total	**<0.1**	**0.1**	**<0.1**	**0.6**	**4.5**	**0.5**
Kern County Thresholds (tons/year)	*25*	*25*	*27*	*N/A*	*15*	*N/A*
Significant Impact?	*No*	*No*	*No*	*N/A*	*No*	*N/A*
Total Annualized (lbs/day)[1]	**0.3**	**0.7**	**<0.1**	**4.6**	**36.8**	**4.3**
EKAPCD Daily Threshold (lbs/day)	*137*	*137*	*N/A*	*N/A*	*N/A*	*N/A*
Significant Impact?	*No*	*No*	*N/A*	*N/A*	*N/A*	*N/A*

Notes: Rounded values used; columns may not add up correctly. Subtotal equals the sum of all exhaust and fugitive dust emissions from on-road

and on-site vehicles.

ROG = reactive organic gases; NO_x = nitrogen oxide; SO_X = sulfur oxide; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers; $PM_{2.5}$ = particulate matter less than 2.5 micrometers; N/A = no threshold

[1] Annualized at 244 working days per year

Decommissioning

At the end of the project's useful life (anticipated to be 30 to 40 years), the solar facility would be repowered or decommissioned. The PV arrays and supporting equipment largely sit on the surface of the land, and removal of the arrays would cause minimal alteration from its natural state, nor would extensive ground-disturbing activities be required. Any other activities required for deconstruction of the on-site facilities would require similar types and levels of equipment as those used during the construction phase. Therefore, decommissioning activities at each individual site in a sequential schedule would not generate emissions exceeding established County thresholds. As shown in **Table 4.3-3**, *Range of Complications of Valley Fever Cases*, if all sites are decommissioned simultaneously, generated PM_{10} emissions would exceed the annual threshold of 15 tons per year currently established by the County. With the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3, the highest level of PM_{10} emissions would not exceed the levels presented in Table 4.3-3, which would be up to 14.4 tons per year with the application of water control, and up to 11.1 tons per year with the application of a palliative control.

As previously discussed, implementation of Mitigation Measure MM 4.3-1 and MM 4.3-2 would be required to reduce fugitive dust emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan, respectively and to be compliant with EKAPCD regulations and rules. Implementation of Mitigation Measure MM 4.3-2 would reduce fugitive dust emissions to the extent feasible even if decommissioning would occur at all sites simultaneously. Mitigation Measure MM 4.3-3 would restrict worker roundtrips to 250 per day per decommissioning activity. No other criteria air pollutant (ROG, NO_X, or SO_X) thresholds would be exceeded during decommissioning regardless of whether decommissioning of sites occurred consecutively or simultaneously.

Furthermore, the project applicant would be required to develop a Decommissioning Plan for review and approval by the Kern County Planning and Natural Resources Department. All decommissioning and

restoration activities would adhere to the requirements of the appropriate governing authorities and be conducted in accordance with all applicable federal, state, and county regulations. Additionally, recommendations related to the decommissioning of utility sized solar facilities are included as a requirement of all proposed solar projects in Kern County to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. Therefore, impacts would be less than significant.

Emissions Displaced During Operation

The operation of the project as a renewable energy source could indirectly cause the replacement of fossil fuel energy production facilities and thereby displace criteria pollutants created by existing power generation sources. The project would generate a maximum of 530 MW of electricity at any given time. Over the 30-year lifespan of the project, approximately 44,413 gigawatt-hours (GWh) of electricity would be produced, which equates to 1,480 GWh of electricity per year. **Table 4.3-7**, *Criteria Pollutant Emissions Displaced by the Project*, shows the criteria pollutant emissions that would be displaced by the project. It is noted that this estimate only includes emissions generated by the combustion of natural gas and coal and does not include operational employee trips associated with natural gas or coal combustion or the emissions associated with extracting and transporting those power sources. It is also noted that this estimate only includes the displacement of emissions from the portion of the California electricity market that comes from fossil fuels (approximately 70 percent of the market) and does not include displacement of emissions from the portion of the California electricity market generated by non-combustion sources (i.e., wind, solar, nuclear, hydro-electric).

Table 4.3-7. Criteria Pollutant Emissions Displaced by the Project

	ROG	NO_x	SO_x	CO	PM_{10}	$PM_{2.5}$
Annual Displacement (tons/year)	0.8	399.6	15.7	43.8	12.8	5.5
Project Lifetime Displacement (tons)	22.9	11,987.9	472.0	1,312.6	383.5	165.0
Notes: ROG = reactive organic gases; NO_x = nitrogen oxide; SO_X = sulfur oxide; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers; $PM_{2.5}$ = particulate matter less than 2.5 micrometers.						

Consistency with Air Quality Management Plan

Construction, operation and maintenance, and decommissioning of the project would result in emissions of criteria pollutants including ozone precursors, such as ROG and NO_X as well as particulate matter. The EKAPCD has prepared air quality attainment plans to achieve federal ozone standards, the most recent of which is the *2017 Ozone Attainment Plan for the 2008 Federal 75 ppb 8-Hour Ozone Standard*. The EKAPCD is unclassifiable/in attainment for CO, PM_{10}, $PM_{2.5}$, lead, and the one-hour ozone NAAQS standards so there are no attainment plans for those pollutants. As previously mentioned, $PM_{2.5}$ and PM_{10} attainment strategies in Eastern Kern County are subdivided into the IWV area, the KR/CV area, and the rest of the EKAPCD area. The project is not located in either the IWV or KR/CV area and is in the unclassified/attainment area of the EKAPCD. Therefore, the project site is not under jurisdiction of any $PM_{2.5}$ and PM_{10} attainment plans. The EKAPCD has determined that projects with emissions above the thresholds of significance for criteria pollutants would conflict with or obstruct implementation of the EKAPCD's air quality plan. As discussed above, during construction, operation and decommissioning of the proposed project, emissions of ozone precursors (ROG and NO_X) would not exceed the project-level significance thresholds and therefore would not conflict with implementation of existing air quality plans. Therefore, this impact would be less than significant.

Mitigation Measures

MM 4.3-1 To control NO_X and PM emissions during construction, the project proponent/operator and/or its contractor(s) shall implement the following measures during construction of the project, subject to verification by the County:

a. Off-road equipment engines over 25 horsepower shall be equipped with EPA Tier 3 or higher engines, unless Tier 3 construction equipment is not locally available.

b. All equipment shall be maintained in accordance with the manufacturer's specifications.

c. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.

d. Notification shall be provided to trucks and vehicles in loading or unloading queues that their engines shall be turned off when not in use for more than 5 minutes.

e. Electric equipment shall be used to the extent feasible in lieu of diesel or gasoline-powered equipment.

f. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_X emissions.

g. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.

h. Existing electric power sources shall be used to the extent feasible. This measure would minimize the use of higher polluting gas or diesel generators.

i. The hours of operation of heavy-duty equipment and/or the quantity of equipment in use shall be limited to the extent feasible.

MM 4.3-2 The project proponent/operator shall ensure construction of the project shall be conducted in compliance with applicable rules and regulations set forth by the Eastern Kern Air Pollution Control District. Dust control measures outlined below shall be implemented where they are applicable and feasible. The list shall not be considered all-inclusive and any other measures to reduce fugitive dust emissions may be required by appropriate agencies to respond to urgent issues on site:

a. All soil being actively excavated or graded shall be sufficiently water to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soils areas. Watering shall take place a minimum of three times daily where soil is being actively disturbed, unless dust is otherwise controlled by rainfall or use of a dust suppressant.

b. Vehicle speed for all onsite construction vehicles shall not exceed 15 miles per hour on any unpaved surface at the construction site. Signs identifying construction vehicle speed limits shall be posted along onsite roadways at the site entrance and exit and along unpaved site access roads.

c. Vehicle speeds on all offsite unpaved project-site access roads (i.e., outside the project boundary) construction vehicles shall not exceed 25 mph. Signs identifying vehicle

speed limits shall be posted along unpaved site access roads and at the site entrance/exit.

d. All onsite unpaved roads and offsite unpaved project-site access road(s) shall be effectively stabilized of dust emissions using water or Eastern Kern Air Pollution Control District -approved dust suppressants/palliatives sufficient to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. If water is used, watering shall occur a minimum of three times daily, sufficient to keep soil moist along actively used roadways. During the dry season, unpaved road surfaces and vehicle parking and staging areas shall be watered immediately prior to periods of high use (e.g., worker commute periods, truck convoys, etc.) Reclaimed (non-potable) water shall be used to the extent available.

e. Reduce and/or phase the amount of the disturbed area (e.g., grading, excavation) where possible.

f. All disturbed areas shall be sufficiently watered or stabilized by an Eastern Kern Air Pollution Control District - approved methods to prevent excessive dust. On dry days, watering shall occur a minimum of three times daily on actively disturbed areas. Watering frequency shall be increased whenever wind speeds exceed 15 miles per hour or, as necessary, to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. Reclaimed (non-potable) water shall be used to the extent available.

g. All clearing, grading, earth moving, and excavation activities will cease during periods when dust plumes of 20 percent or greater opacity affect public roads or nearby occupied structures.

h. All disturbed areas anticipated to be inactive for periods of 30 days or more shall be treated to minimize wind-blown dust emissions. Treatment may include but is not limited to the application of an Eastern Kern Air Pollution Control District -approved chemical dust suppressant, gravel, hydro-mulch, revegetation/seeding, or wood chips.

i. All active and inactive disturbed surface areas shall be compacted where feasible.

j. Limit equipment and vehicle access to disturbed areas.

k. Where applicable, permanent dust control measures shall be implemented as soon as possible following completion of any soil disturbing activities.

l. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate methods sufficient to reduce visible dust emissions to a limit of 20 percent opacity. If necessary and where feasible, three-sided barriers shall be constructed around storage piles and/or piles shall be covered by use of tarps, hydro-mulch, woodchips, or other materials sufficient to minimize wind-blown dust.

m. Water shall be applied prior to and during the demolition of onsite structures sufficient to minimize wind-blown dust.

n. Where acceptable to the fire department, weed control will be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering.

o. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or shall maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with California Vehicle Code Section 23114.

p. Gravel pads, grizzly strips, or other material track-out control methods approved for use by the Eastern Kern Air Pollution Control District shall be installed where vehicles enter or exit unpaved roads onto paved roadways.

q. Haul trucks and off-road equipment leaving the site shall be washed with water or high pressure air and/or use rocks/grates at the Project entry points when necessary to remove soil deposits and to minimize the track-out/deposition of soil onto nearby paved roadways.

r. Paved road surfaces located adjacent to the site access road(s), including adjoining paved aprons, shall be cleaned as necessary to remove visible accumulations of track-out material. If dry sweepers are used, the area shall be sprayed with water prior to sweeping to minimize the entrainment of dust. Reclaimed water shall be used to the extent available.

s. Portable equipment, 50 horsepower or greater, used during construction activities (e.g., portable generators, concrete batch plant) will require California statewide portable equipment registration (issued by the California Air Resources Board) or an Eastern Kern Air Pollution Control District permit.

t. The Fugitive Dust Control Plan shall identify a designated person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize the transport of dust offsite and to ensure compliance with identified fugitive dust control measures. Their duty hours shall include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the Eastern Kern Air Pollution Control District Compliance Division prior to the start of any grading, earthwork, or demolition.

u. Signs shall be posted at the project site entrance and written notifications shall be provided a minimum of 30 days prior to initiation of project construction to residential land uses located within 1,000 feet of the project site. The signs and written notifications shall include the following information: (1) project name; (2) anticipated construction schedule(s); and (3) telephone number(s) for designated construction activity monitor(s) or, if established, a complaint hotline.

v. The designated construction monitor will document and immediately notify Eastern Kern Air Pollution Control District of any air quality complaints received. If necessary, the applicant and/or contractor will coordinate with Eastern Kern Air Pollution Control District to identify any additional feasible measures and/or strategies to be implemented to address public complaints.

MM 4.3-3 If construction of all Sites (Sites 1 through 5) occur concurrently, the project proponent/operator and/or its contractor(s) shall restrict worker roundtrips to 250 per day per construction activity. Prior to issuance of grading permits, the project proponent/operator and/or its contractor(s) shall prepare a detailed plan for reducing worker trips, including but not limited to worker rideshare programs or other travel demand management strategies. The plan shall be submitted to and approved by the Kern County Planning and Natural Resources Department prior to the issuance of grading permits.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3, impacts would be less than significant.

Impact 4.3-2: The project would expose sensitive receptors to substantial pollutant concentrations.

Sensitive receptors are particularly sensitive to air pollution because they are persons that are ill, elderly, or have lungs that are not fully developed. Locations where such persons reside, spend considerable amount of time, or engage in strenuous activities are also referred to as sensitive receptors. Typical sensitive receptors include inhabitants of long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. As detailed in the sensitive receptors discussion under Section 4.3.2, the closest sensitive receptors are approximately 520 feet from the project borders. Implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3 would ensure that all readily available and feasible air quality control measures would be implemented to reduce emissions associated with construction.

Toxic Air Contaminants

Projects are considered for potential health risks wherein a new or modified source of TACs is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to TACs. The primary TAC of concern for this project would be diesel particulate matter emitted within the project site from the construction and operation phases of the project. Based on the distance of sensitive receptors to the project site, an HRA was performed to determine the potential cancer risk to the closest sensitive receptors of the project site due to diesel particulate matter emissions resulting from diesel construction equipment and diesel trucks.

Construction

Construction of the solar facility would require use of heavy-duty construction equipment and diesel trucks which would emit DPM. The following subsections detail the carcinogenic and chronic health risks associated with construction and decommissioning at each Site. As previously mentioned, construction and associated emissions related to the gen-tie are incorporated into the provided construction schedule and equipment mix. Therefore, emissions associated with the gen-tie are already incorporated into the impacts associated with each Site.

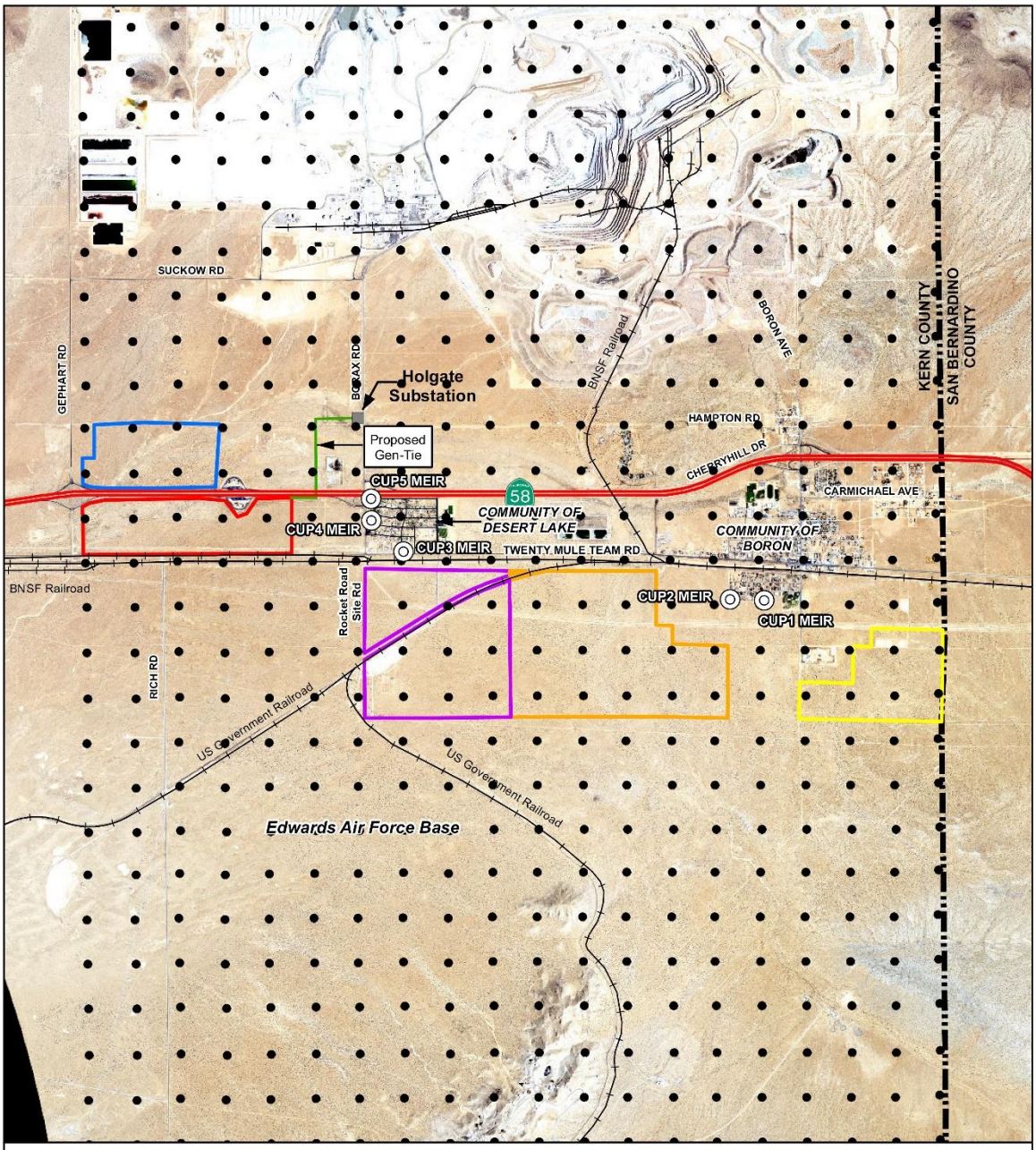
Figure 4.3-1, *Sensitive Receptor Locations*, shows the receptor grid used to model health risk and the maximum exposed individual resident (MEIR) associated with each Site and all Sites combined. **Table 4.3-8**, *Health Risks Associated with Diesel Particulate Emissions during Construction and*

Decommissioning at Each Site, shows the carcinogenic and chronic health risks at MEIR of each Site. It should be noted that information presented in **Figure 4.3-1** and **Table 4.3-8** are based on the approximately 2,700-acre footprint of the project. The reduced footprint caused increased setback from the nearby communities of Boron and Desert Lake and reduced the project's localized impacts on nearby sensitive receptors. Therefore, the analysis is conservative.

Table 4.3-8. Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning at Each Site

Site	Carcinogenic Risk By Age Group						Chronic Risk Hazard Quotient
	3rd Trimester	0-2 Years	2-16 Years	16-30 Years	16-70 Years	Risk Sum[1]	
Construction Emissions (15 months)							
1	1.12E-07	1.70E-06	3.48E-07	5.21E-08	4.51E-08	1.81E-06	1.58E-03
2	2.35E-07	3.55E-06	7.29E-07	1.09E-07	9.45E-08	3.79E-06	3.32E-03
3	1.23E-07	1.86E-06	3.81E-07	5.71E-08	4.94E-08	1.98E-06	1.74E-03
4	1.01E-07	1.52E-06	3.12E-07	4.67E-08	4.05E-08	1.62E-06	1.42E-03
5	4.07E-09	6.15E-08	1.26E-08	1.89E-09	1.64E-09	6.56E-08	5.74E-05
Risk Criteria	**2.00E-05**						**1.0**
Exceed Criteria?	*No*	*No*	*No*	*No*	*No*	*No*	*No*
Construction and Deconstruction Emissions (30 months in a 70-year lifetime)[2]							
1	1.12E-07	1.70E-06	3.48E-07	5.21E-08	9.03E-08	2.03E-07	1.58E-03
2	2.35E-07	3.55E-06	7.29E-07	1.09E-07	1.89E-07	4.24E-07	3.32E-03
3	1.23E-07	1.86E-06	3.81E-07	5.71E-08	9.88E-08	2.22E-07	1.74E-03
4	1.01E-07	1.52E-06	3.12E-07	4.67E-08	8.09E-08	1.82E-07	1.42E-03
5	4.07E-09	6.15E-08	1.26E-08	1.89E-09	3.27E-09	7.35E-09	5.74E-05
Risk Criteria	**2.00E-05**						**1.0**
Exceed Criteria?	*No*	*No*	*No*	*No*	*No*	*No*	*No*

Notes:
[1] Summed risk is based on the anticipated exposure duration due to the project and represents the maximum risk anticipated based on the risk across the most impacted age bins. Summed risk for construction includes the summation of risk at the 3rd trimester and a fraction of risk from 0-2 years spanning a total of 15 months of exposure. Summed risk for construction and decommissioning includes summation of risk at the third trimester and risk from 30 months of exposure during the 16-70 age bin.
[2] Health risks associated with Construction and Deconstruction emissions assume that one could be exposed to emissions during 15 months of construction and emissions from 15 months of deconstruction 30 years later. Only individuals in the 16-70 age bin could be exposed to 15 months of emissions from both construction and decommissioning activities for a total exposure of 30 months.
Source: Appendix C-1 of this EIR.



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

Source: Appendix C-1 of this EIR

FIGURE 4.3-1. SENSITIVE RECEPTOR LOCATIONS

Site 1

The highest off-site modeled average DPM concentration of 0.021 µg/m^3 and point of maximum impact (PMI) would occur at the northwestern fence-line of the most southern portion of Site 1, approximately 0.75 miles from the southeastern boundary of Boron. As shown in **Figure 4.3-1**, *Sensitive Receptor Locations*, the MEIR is located at the southern boundary of Boron along Ferguson Street, approximately 215 feet north of the northern boundary of Site 1. The DPM concentration at the MEIR would be 0.008 µg/m^3. As shown in **Table 4.3-6**, *Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning at Each Site*, excess cancer risk and chronic risk associated with project construction and decommissioning would not exceed the risk criteria at the Site 1 MEIR.

Site 2

The highest off-site modeled average DPM concentration of 0.023 µg/m^3 and PMI would occur at the northern fence-line of Site 2, approximately 1,690 feet from the western boundary of Boron. As shown in **Figure 4.3-1**, *Sensitive Receptor Locations*, the MEIR is located at the western boundary of Boron along South Wesley Road, approximately 75 feet east of the eastern boundary of Site 2. The DPM concentration at the MEIR would be 0.017 µg/m^3. As shown in **Table 4.3-6**, *Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning at Each Site*, excess cancer risk and chronic risk associated with project construction and decommissioning would not exceed the risk criteria at the Site 2 MEIR.

Site 3

The highest off-site modeled average DPM concentration of 0.025 µg/m^3 and PMI would occur at the northern fence-line of Site 3, approximately 390 feet from the southern boundary of Desert Lake. As shown in **Figure 4.3-1**, *Sensitive Receptor Locations*, the MEIR is located at the southern boundary of Desert Lake along 20 Mule Team Road, approximately 440 feet north of the northern boundary of Site 3. The DPM concentration at the MEIR would be 0.009 µg/m^3. As shown in **Table 4.3-6**, *Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning at Each Site*, excess cancer risk and chronic risk associated with project construction and decommissioning would not exceed the risk criteria at the Site 3 MEIR.

Site 4

The highest off-site modeled average DPM concentration of 0.022 µg/m^3 and PMI would occur at the northern fence-line of Site 4, approximately 0.9 miles from the western edge of Desert Lake. As shown **in Figure 4.3-1**, *Sensitive Receptor Locations*, the MEIR is located at the eastern boundary of Desert Lake on Sierra View Street, approximately 275 feet east of the eastern boundary of Site 4. The DPM concentration at the MEIR would be 0.007 µg/m^3. As shown in **Table 4.3-8**, *Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning at Each Site*, excess cancer risk and chronic risk associated with project construction and decommissioning would not exceed the risk criteria at the Site 4 MEIR.

Site 5

The highest off-site modeled average DPM concentration of 0.022 µg/m^3 and PMI would occur at the northern fence-line of Site 5, approximately 1.5 miles from the northwestern corner of Desert Lake. As

shown in **Figure 4.3-1**, *Sensitive Receptor Locations*, the MEIR is located at the eastern boundary of Desert Lake, approximately 1.0 miles east of the eastern boundary of Site 5 along SR 58. The DPM concentration at the MEIR would be 0.0003 $\mu g/m^3$. As shown in **Table 4.3-8**, *Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning at Each Site*, excess cancer risk and chronic risk associated with project construction and decommissioning would not exceed the risk criteria at the Site 5 MEIR.

Gen-Tie

None of the gen-tie route options are located adjacent to sensitive receptors. At its closest point, the gen-tie route option on the north side of SR 58 and west of Borax Road would be located approximately 1,720 feet northwest of residences along Sierra View Street in Desert Lake. These are the sensitive receptors nearest to any of the proposed gen-tie routes, and they would experience a temporary increase in DPM exposure during construction of the project. The construction and associated emissions related to the gen-tie are a small fraction of the overall construction occurring for the project. Because of this, the excess cancer risk and chronic risks associated with the gen-tie corridor would be less than the excess cancer risk and chronic risk associated with each Site described above and therefore would not exceed the risk criteria.

Combined Project Impacts (Sites 1 through 5 and Gen-Tie)

The project components at all Sites (Sites 1 through 5) and the gen-tie corridor would be constructed over a period of 12 to 18 months. In addition to the analysis of health risk associated with construction of each individual Site, the worst-case scenario where construction at all Sites and gen-tie corridor would occur simultaneously was assessed to provide the most conservative health risk assessment. The highest off-site modeled average DPM concentration of 0.306 $\mu g/m^3$ and PMI would occur along the northern fence line of Site 3, approximately 475 feet south of SR 58. The combined project MEIR was determined to be at the same location as Site 2 MEIR. DPM at the MEIR for the combined be 0.021 $\mu g/m^3$ at a residence located at the southwestern corner of Boron at the intersection of South Wesley Street and Ferguson Street, approximately 75 feet east of Site 2 eastern boundary and 235 feet north of Site 1 northern boundary. **Table 4.3-9**, *Combined Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning*, shows the combined carcinogenic and chronic health risks at the combined project MEIR. As shown therein, excess cancer risk and chronic risk associated with project construction and decommissioning would not exceed the risk criteria at the combined project MEIR even if construction occurred at all Sites simultaneously. Therefore, the proposed project would not expose sensitive receptors to substantial concentrations of TACs and this impact would be less than significant.

Table 4.3-9. Combined Health Risks Associated with Diesel Particulate Emissions during Construction and Decommissioning

Site	Carcinogenic Risk By Age Group						Chronic Risk Hazard Quotient
	3rd Trimester	0-2 Years	2-16 Years	16-30 Years	16-70 Years	Risk Sum[1]	
Construction Emissions (15 months)							
Maximum Risk	3.03E-07	4.57E-06	9.37E-07	1.40E-07	1.22E-07	4.87E-06	4.27E-03
Risk Criteria	**2.00E-05**						**1.0**
Exceed Criteria?	*No*	*No*	*No*	*No*	*No*	*No*	*No*
Construction and Deconstruction Emissions (30 months in a 70-year lifetime)[2]							
Maximum Risk	3.03E-07	4.57E-06	9.37E-07	1.40E-07	2.43E-07	5.46E-07	4.27E-03
Risk Criteria	**2.00E-05**						**1.0**
Exceed Criteria?	*No*	*No*	*No*	*No*	*No*	*No*	*No*

Notes:
[1] Summed risk is based on the anticipated exposure duration due to the project and represents the maximum risk anticipated based on the risk across the most impacted age bins. Summed risk for construction includes the summation of risk at the 3rd trimester and a fraction of risk from 0-2 years spanning a total of 15 months of exposure. Summed risk for construction and decommissioning includes summation of risk at the third trimester and risk from 30 months of exposure during the 16-70 age bin.
[2] Health risks associated with Construction and Deconstruction emissions assume that one could be exposed to emissions during 15 months of construction and emissions from 15 months of deconstruction 30 years later. Only individuals in the 16-70 age bin could be exposed to 15 months of emissions from both construction and decommissioning activities for a total exposure of 30 months.
Source: Appendix C-1 of this EIR.

Operations

As previously discussed, health impacts due to DPM are largely related to construction equipment exhaust. Because limited construction equipment would be in use during operational activities and the estimated PM_{10} emissions (i.e., DPM equivalent) related to exhaust emissions (**Table 4.3-4**) are minimal, health impacts from operational activities would be less than significant.

Criteria Air Pollutants

Sierra Club vs. County of Fresno (December 24, 2018)

In *Sierra Club V. County of Fresno* (S219783) (*Sierra Club*) the Supreme Court held that CEQA requires environmental impact reports to either (i) make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (ii) explain why such an analysis is infeasible (6 Cal.5th at 1165-66). However, the Court also clarified that that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure." *Id.* at 1665. However, correlating the project's criteria air pollutant to specific health impacts, particularly with respect to O_3 is not possible because there is no feasible or established scientific method to perform such analysis. This

conclusion is supported by both the SJVAPCD and the SCAQMD who have determined that this type of analysis is speculative and infeasible and there are no unique issues for the SJVAPCD that would make this analysis invalid.

Writing as amicus curiae in *Sierra Club*, the SJVAPCD explained that "[t]he 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 (National Ambient Air Quality Standards [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" (SJVAPCD, 2015).

Instead, the SJVAPCD explained that it assesses a project's potential to exceed NAAQS by evaluating the project's compliance with district thresholds of significance, which are measured in mass emissions (SJVAPCD, 2015). As explained by SJVAPCD, its thresholds are based on factual, scientific data and have been set at a level that ensures that NAAQS will not be exceeded, taking into consideration all cumulative emission sources (SJVAPCD, 2015). The SJVAPCD explained that attempting to connect criteria pollutant emissions to localized health impacts will "not yield reliable information because currently available modeling tools are not well suited for this task" (SJVAPCD, 2015). Available models are only equipped to model the impact of all emissions sources on an air basin-wide or regional basis, not on a project-level basis, and "[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved" (SJVAPCD, 2015).

This inability to "accurately ascertain local increases in concentration" of mass emissions and then to further link emissions with health effects is particularly true for O_3 and its precursors NO_X and ROG and VOC; O_3 is not directly emitted into the air, but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure (SJVAPCD, 2015). Given the complex nature of this process, and the fact that O_3 can be transported by wind over long distances, "a specific tonnage amount of NO_X or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area" (SJVAPCD, 2015). For this reason, the photochemical analysis for O_3 is done on a regional scale and it is inappropriate to analyze O_3 impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA (*CEQA Guidelines* Section 15145; *Laurel Heights Improvement Association V. Regents of the University of California 1988*).

The SJVAPCD also explained that the disconnect between the tonnage of precursor pollutants and the concentration of O_3 or particulate matter formed in a particular area is especially important to understand in considering potential health effects because it is the concentration, not the tonnage, that causes health effects (SJVAPCD, 2015). The SJVAPCD explained that even if a model were developed that could accurately assess local increases in concentrations of pollutants like O_3 and particulates, it would still be "impossible, using today's models, to correlate that increase in concentration to a specific health impact" (SJVAPCD, 2015). The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health impacts as, even with relatively high levels of emissions, the SJVAPCD cannot determine "whether and to what extent emissions from an individual project directly impact human health in a particular area" (SJVAPCD, 2015). The SJVAPCD explained that this is particularly true for development projects like the project, where most of the criteria pollutants derive from mobile and area sources and not stationary sources. The SCAQMD also, as amicus curiae in *Sierra Club*, made similar points, reiterating that "an agency should not be required to perform analyses that do not produce reliable or meaningful results" (SCAQMD, 2015). SCAQMD agrees that it is

very difficult to quantify health impacts with regard to O_3, opining that the only possible means of successfully doing so is for a project so large that emissions would essentially amount to *all* regional increases (SCAQMD, 2015). With regard to particulate matter, the SCAQMD noted that while the CARB has created a methodology to predict expected mortality from large amount of $PM_{2.5}$, the primary author of the methodology has reported that it "may yield unreliable results due to various uncertainties" and CARB staff has been directed by its Governing Board to reassess and improve it, which factor "also counsels against setting any hard-and-fast rule" about conducting this type of analysis (SCAQMD, 2015). The amicus briefs filed by SJVAPCD and SCAQMD in *Sierra Club* are attached as Appendices C-2 and C-3, respectively, of this EIR.

Ambient Air Quality Standards

The USEPA and CARB have established NAAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the EKAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the NAAQS. Accordingly, elevated levels of criteria air pollutants as a result of a project's emissions could cause adverse health effects associated with these pollutants. The EKAPCD is designated as attainment area for O_3 (1 hour), PM_{10}, and $PM_{2.5}$ and nonattainment for O_3 (8 hours) under the NAAQS, and nonattainment for O_3, PM_{10}, and $PM_{2.5}$ under the CAAQS.

Project Heath Effects of Criteria Air Pollutants

A receptor can be hypothetically exposed to a substance through several different pathways. Typically, the primary environmental exposure pathway is direct inhalation of gaseous and particulate air pollutants. However, there is the potential for exposure via non-inhalation pathways due to the deposition of particulate pollutants (DPM) in the environment.

Aside from DPM, heavy-duty vehicle operations and construction equipment during the grading and building phases of construction can produce substantial amounts of criteria air pollutants, primarily pre-cursor ozone pollutants (ROG and NO_X), CO, NO_2, and particulate matter. Since none of these criteria air pollutants from project implementation would be emitted in sufficient quantity to potentially exceed both the NAAQS and CAAQS, and the emissions are considered minimal, an ambient air quality analysis was not warranted.

However, regarding health effects of criteria air pollutants, the project's potential to result in regional health effects associated with ROG, NO_X, PM_{10}, and $PM_{2.5}$ on specific vulnerable populations cannot be calculated given existing scientific constraints. A scientific method to calculate the exact number of individuals in a vulnerable population that will get sick has not been developed, and therefore, it is assumed localized health effects associated with NO_X, PM_{10}, and $PM_{2.5}$ emissions from project implementation could occur. The project proposes the construction and operation of a large-scale utility solar project that would require dust-generating construction activities such as pile-driving, mowing, and grading, over a large area. Due to the open nature of the project site, blowing dust could occur and result in the dispersal of criteria air pollutants such as $PM_{2.5}$ and potentially contribute to the transmission of respiratory diseases like COVID-19. While COVID-19 is thought to spread mainly through close contact from person-to-person, the CDC is still learning how the virus spreads and the severity of the illness it causes (CDC, 2020b). COVID-19 research and causality are still in the beginning stages. A recent study found that a small increase in long-term exposure to $PM_{2.5}$ may lead to an increase in the death rate of COVID-19 (Harvard School of Public Health

2020). The study suggests that long-term exposure to $PM_{2.5}$ is associated with higher COVID-19 mortality rates, even after adjustment for a wide range of socioeconomic, demographic, weather, behavioral, epidemic stage, and healthcare-related confounders. Long-term exposure to $PM_{2.5}$ emissions may also add to the potential susceptibility for COVID-19. People of color may also have a higher risk of getting sick or dying from COVID-19 (California Department of Public Health 2020) and may live in areas already burdened by air pollution (NRDC 2014). Onsite workers and residents near Project activities potentially could be exposed to increased levels of $PM_{2.5}$ from Project activities due to the emissions of $PM_{2.5}$ from the Project. $PM_{2.5}$ emissions from diesel emissions during construction and operation of the proposed Project, could increase susceptibility to COVID-19.

While construction dust suppression measures would be implemented in Mitigation Measure MM 4.3-2, exposure to dust during construction could still occur which could increase the health susceptibility and increase the severity of the disease. Therefore, the project would implement Mitigation Measure MM 4.3-5, which requires implementation of a COVID-19 Health and Safety Plan in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates; however, the exact reduction from implementation of these mitigation measures cannot be quantified given existing scientific constraints.

Impacts are potentially significant because the Project will increase $PM_{2.5}$ emissions. While $PM_{2.5}$ emissions from Project implementation will be reduced as much as is feasible with implementation of MM 4.3-1 through MM 4.3-3 and MM 4.3-5, this impact cannot be mitigated to a level of less than significant as there is not herd immunity for COVID-19. Thus, impacts remain significant and unavoidable even with all feasible mitigation.

Naturally Occurring Asbestos

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

Construction Fugitive Dust

During construction (site preparation and grading), fugitive dust (PM_{10}) would be generated from site grading and other earth-moving activities. The majority of this fugitive dust would remain localized and would be deposited near the project site. Mitigation Measures MM 4.3-1 and MM 4.3-2 would reduce construction gaseous emissions and fugitive dust emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan, respectively in accordance with EKAPCD Rule 402. Furthermore, implementation of Mitigation Measure MM 4.3-3 would be required to reduce work roundtrips to no more than 250 per activity, reducing PM_{10} emissions to a level that would not exceed EKAPCD thresholds. Implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3 would reduce PM_{10} emissions to levels that would not exceed EKAPCD thresholds.

Dustbusters Research Group

In 1991, the Dustbusters Research Group formed a task force to develop best management practices for mitigating wind erosion, reducing blowing dust, and improving air quality in the Antelope Valley. The Dustbusters Research Group consists of private entities as well as federal, city and county government

representatives and has developed and implemented a land treatment program to minimize wind erosion through vegetative and mechanical procedures.

In 2010 the Antelope Valley Dustbusters Research Group (Dustbusters) prepared the *Homeowners Guide to Controlling Windblown Sand and Dust;* refer to Appendix C-4. This report studied sources of sand and dust in the region and provided processes for property owners to control sand and dust through the use of wind breaks and wind barriers, including a wood chip berm, tall vegetation, and a porous wind fence. The study notes that blowing sand seldom reaches a height of greater than three feet above the ground, thus a wind break or wind barrier should be at least this high to be effective. If the height of the barrier is doubled to 6 feet, rather than three feet, the capacity is increased by at least four times. The study goes on to discuss solid wind barriers such as concrete walls and wood fences. These barriers collect blowing sand on the upwind side until the collected sand reaches the top of the barrier. Because these barrier surfaces are vertical, they collect much more sand than a sloped berm of the same height.

During construction of the project site, ground disturbance can generate windblown dust and sand. The placing of wind breaks and barriers in the direction of prevailing winds will protect properties downwind from the impacts of blowing dust and sand. Wind in the project area blows primarily from the west for a majority of the year (Weatherspark 2021). The project will require the implementation of Mitigation Measure MM 4.3-4. This mitigation measure requires the construction of a 6-foot tall solid barrier as either a solid fence or wall as shown in **Figure 4.3-2**, *Solid Barrier Location*, to mitigate wind blow dust generated by the project to the communities of Desert Lake and Boron. This barrier will be installed prior to operation of the site, with dust control measures being implemented during construction. The portions of the project site where the barrier is not required, will be fenced with chain-link fence. As required by Mitigation Measure 4.4-19, the entire project site shall be fenced with desert tortoise exclusion fencing, including areas with the barrier. As part of routine maintenance, on-site staff will monitor the buildup of wind-blown materials around the base of the barrier and clear out debris and tumbleweeds on an as-needed basis on both sides of the barrier. The barrier shall be maintained in good condition and graffiti free during the life of the project and replaced as needed to remain effective.

The 2010 Dustbusters report also describes how undisturbed soil and vegetation have the natural ability to prevent wind erosion. Therefore, implementation of Mitigation Measure 4.1-3 would be required, which states that wherever possible, within the proposed project boundary, the natural vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All-natural vegetation adjacent to the proposed project boundary shall remain in place as permitted by Fire Code.

Therefore, project impacts due to blowing dust and sand would be further mitigated with the implementation of Mitigation Measures MM 4.3-4 and MM 4.1-3, and impacts would be reduced to a less than significant level.

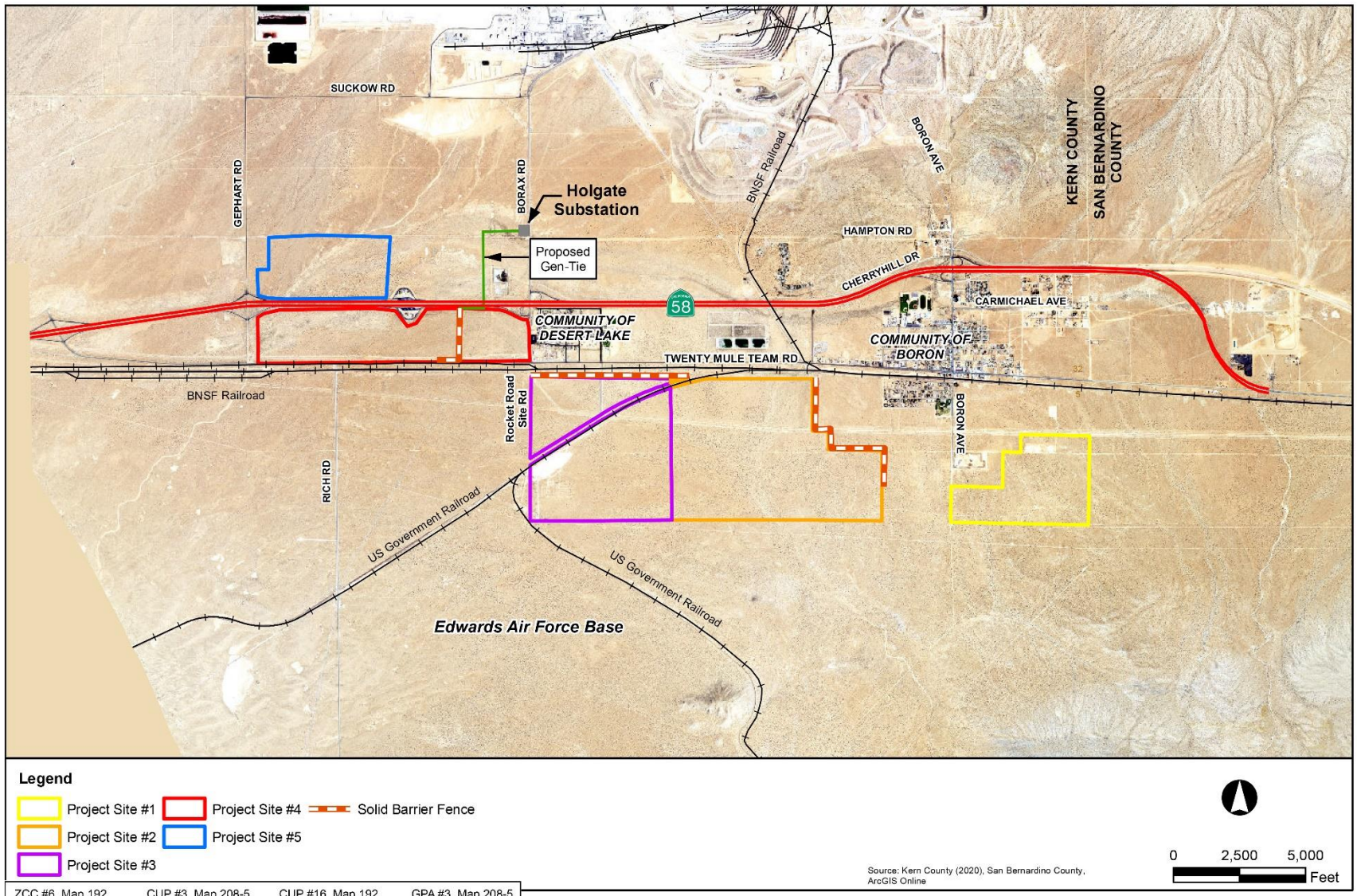


FIGURE 4.3-2. SOLID BARRIER LOCATION

Carbon Monoxide

Exposure to high concentrations of CO can result in dizziness, fatigue, chest pain, headaches, and impairment of central nervous system functions. EKAPCD is currently classified as in attainment or unclassified for CO; however, there is a potential for the formation of microscale CO "hotspots" to occur immediately around points of congested traffic. A project's indirect CO emissions would be significant if they contribute to a violation of the State standards for CO (9.0 ppm averaged over 8 hours and 20 ppm over 1 hour). Hotspots can form if such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and/or is operating on roadways crowded with non-project traffic. CO hotspots are of particular concern in densely populated metropolitan areas where there are buildings that impeded dispersion of pollutants from an intersection. The EKAPCD does not encompass any metropolitan areas and as such has not developed a screening methodology to determine if CO thresholds would be exceeded. To provide context, the Bay Area Air Quality Management District (BAAQMD) CO screening methodology considers potential CO hotspots to occur at intersections that exceed 44,000 vehicles per hour or intersections that exceed 24,000 vehicles per hours where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass) (BAAQMD 2017). As shown in the *Traffic Impact Analysis* prepared for the project by EPD Solutions, Inc. (Appendix L-1), construction traffic for each project site is expected to access the sites via one or more of the following roadways: Gephart Road, Borax Road, Boron Avenue, 20 Mule Team Road, and SR-58. Of these roads, SR-58 experiences the greatest volume of existing traffic ranging from 15,350 to 16,300 per day. During peak project construction there would be 2,110 project-related daily trips which could increase the daily traffic volume on SR-58 to up to 17,744 vehicles. The other local roads used during construction would experience a significantly lower daily traffic volume of 440 to 3,400 vehicles per day.

Even at the high end of the daily traffic volume (i.e., 17,744) this quantity of daily vehicle trips could not result in the level of vehicles per hour at a single intersection to generate a CO hotspot due to the small magnitude of emission sources and the low emission rates that occur due to catalytic converters. Additionally, the project site is located in a rural flat area where air dispersion is not impeded by buildings or nearby terrain such that exist in metropolitan areas; therefore, CO emissions generated would disperse rapidly. As such, construction traffic would not generate CO hotpots and construction impacts would be less than significant.

The project would have a total of five full-time employees once operational. This number of employees would generate a negligible increase in traffic. Therefore, no CO hotspots would be created during project operation and impacts would be less than significant.

Valley Fever

During the proposed ground disturbing activities associated with the project, the potential exists that such activities could disturb dust particles and, if present, *Coccidioides immitis* (CI) spores, which could then be released into the air and potentially be inhaled by on-site workers and nearby sensitive receptors; exposure to these spores can cause an illness in some individuals known as Valley Fever. Because dust can be an indicator that increased efforts are needed to control other airborne particulates (including CI spores, if any), the project is required to control dust and the potential for exposure to any CI spores as well as provide

training and awareness of Valley Fever via Mitigation Measures MM 4.3-2, MM 4.3-4, MM 4.3-6 and MM 4.3-7.

Mitigation Measure MM 4.3-2 requires the project to have comprehensive site construction controls in place to proactively control the generation of fugitive dust as required and regulated by the EKAPCD Rule 402. This Rule also requires the site to have a designated dust monitor, as well as visible signage for nearby residents with the phone number for the site construction management and the EKAPKD for nearby residents use if they see blowing dust. Mitigation Measure MM 4.3-4 requires the construction of a 6-foot tall solid barrier as either a solid fence or wall to mitigate wind blow dust generated by the project to the communities of Desert Lake and Boron.

Mitigation Measure MM 4.3-5 requires the project to provide training to construction workers on measures they must take to proactively control and reduce fugitive dust and the potential for the release of CI spores during their ground disturbing activities, training on specific worker/task safety procedures, and general information regarding symptoms testing and treatment options for Valley Fever. All workers are trained in and are expected to use their "stop work" authority if their activities are deemed to be causing the release of fugitive dust. This Mitigation Measure also requires the project to develop an educational Valley Fever Training Handout for distribution to onsite workers and nearby residents. This handout contains general information about the causes, symptoms, and treatment instructions regarding Valley Fever, including contact information of local health departments and clinics knowledgeable about Valley Fever. Mitigation Measure MM 4.3-5 requires the implementation of a COVD-19 Health and Safety Plan. Mitigation Measure MM 4.3-6 is proposed to ensure appropriate public awareness regarding Valley Fever.

With the implementation of Mitigation Measures MM 4.3-2, and MM 4.3-5 through MM 4.3-7, the potential for the release of CI spores, if present, and the associated potential for workers or nearby residents to contract Valley Fever would be minimized; accordingly, the project would not add significantly to the existing exposure level of construction workers or nearby residences to the CI fungus.

Mitigation Measures

Implement Mitigation Measures MM 4.1-3 (see Section 4.1, *Aesthetics*, for full text), MM 4.3-1, MM 4.3-2, and:

MM 4.3-4 Prior to the issuance of building and grading permits, the project proponent shall submit materials showing the final design plans for a 6-foot tall solid barrier (fence or wall) in the locations shown on **Figure 4.3-2**, *Solid Barrier Location,* to the Kern County Natural Resources Department for review and approval. Any barrier used shall be a natural color, such as light brown, that will blend with the desert environment. White, bright green, blue or other colors will not be accepted. A copy of the final design plans shall also be provided to the California Department of Fish and Wildlife. The approved barrier shall be fully installed prior to the last inspection by Kern County Public Works. No extensions of time for construction installation shall be granted. The applicant shall continuously comply with the following:

a. As part of routine maintenance, on-site staff shall monitor the buildup of wind-blown materials around the base of the fence and clear out debris and tumbleweeds on both sides of the barrier on an as-needed basis; and

b. The solid barrier shall be maintained during the life of the project in good condition, graffiti free and replaced as needed to remain effective.

MM 4.3-5 At the time of project implementation, a COVID-19 Health and Safety Plan should be prepared in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. A copy of the COVID-19 Health and Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department for review and approval.

MM 4.3-6 To minimize personnel and public exposure to potential Valley Fever–containing dust on and off site, the following control measures shall be implemented during project construction:

a. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved off site to other work locations.

b. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground.

c. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.

d. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying.

e. To the greatest extent feasible, heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system.

f. Workers shall receive training in procedures to minimize activities that may result in the release of airborne *Coccidioides immitis* spores, to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days of the training session.

g. A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department.

h. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health–approved respirators shall be provided to onsite personal, upon request. When exposure to dust is unavoidable, provide appropriate ational Institute for Occupational Safety and Health-approved respiratory protection to affected workers. If respiratory protection is deemed necessary, employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144).

MM 4.3-7 Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs.

Level of Significance after Mitigation

Even with implementation of Mitigation Measures MM 4.1-3 (refer to Section 4.1 Aesthetics) and MM 4.3-1 through MM 4.3-7, the uncertainty of the project's regional and localized health impacts associated with criteria air pollutants, such as $PM_{2.5}$ along with indirect linkages of criteria pollutants and COVID-19, on vulnerable populations would result in significant and unavoidable project-level impacts.

Impact 4.3-3: The project would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Substantial objectionable odors are normally associated with agriculture, wastewater treatment, industrial uses, or landfills. The project would involve the construction, operation and maintenance, and decommissioning of a solar energy facility and associated infrastructure that do not produce objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. Construction-related odors would disperse and dissipate and would not cause substantial odors at the closest sensitive receptors (nearby residences). In addition, construction-related odors would be short-term and would cease upon completion of construction. Operation of the project would not emit any odorous compounds.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less significant.

Cumulative Setting, Impacts, and Mitigation Measures

With respect to cumulative air quality impacts, Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County Planning Department 2006) requires three steps for estimating the potential significance of cumulative impacts:

- Evaluate localized impacts (Guideline Instruction 16a);
- Evaluate consistency with existing air quality plans (Guideline Instruction 16b); and
- Summarize CARB air basin emissions (Guideline Instruction 16c).

Impact 4.3-4: The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality.

The project is located within the Kern County portion of the MDAB, which is an area that is designated as non-attainment for federal and State ozone standards as well as State PM_{10} standards and is under the

jurisdiction of the EKAPCD. The EKAPCD's approach for assessing cumulative impacts is based on the forecasts of attainment and ambient air quality standards in accordance with requirements of the federal and State clean air acts. With respect to determining the significance of a project's contribution to regional emissions, Kern County, in its Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports document, states that projects that produce emissions that exceed the adopted thresholds of the EKAPCD for ROG, NO_X, and PM_{10} shall be considered significant for a project level and/or cumulatively for impacts to air quality. Thus, based on Kern County's guidance, if an individual project results in air emissions of ROG, NO_X, and PM_{10} that exceed the EKAPCD's thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these pollutants for which the project region is in non-attainment under an applicable federal or State ambient air quality standard. Even though the project does not exceed applicable thresholds on an individual basis, the project may contribute to a cumulatively considerable net increase in construction emissions for NO_x and PM_{10}, as discussed below. The project would not result in a cumulatively considerable net increase in operations-related criteria pollutant emissions, as discussed below.

Localized Impacts

A total of 26 projects, including several renewable energy projects, were considered as part of the cumulative project analysis and the primary source of criteria pollutant emissions would be generated during their respective construction phases. During operation, the only likely sources of emissions for renewable facilities would be limited to vehicular emissions associated with routine employee vehicle trips for maintenance and monitoring activities, the energy storage system facilities, and emergency backup generators. Additionally, employee trips may also be made for the washing of solar PV panels, which may only occur seasonally throughout the year. As such, the concurrent operation of all related projects along with the project is not anticipated to exceed EKAPCD CEQA thresholds.

Operation of the project would result in an overall net reduction of emissions by providing electricity that would displace energy produced from fossil fuels. Operation of the project does not exceed the project-level regulatory thresholds and, therefore, would not contribute to a long-term cumulative increase in criteria pollutants. The project's incremental contribution to operational impacts would not be cumulatively considerable.

With respect to short-term localized construction emissions, given that the MDAB is currently designated as nonattainment for both O_3 and PM_{10}, the addition of these pollutants resulting from cumulative construction and decommissioning emissions could contribute to these existing air quality violations. Assuming on a worst-case basis that the construction schedules for all cumulative projects would overlap with each other and with the proposed project, the localized effect could result in cumulatively significant construction emissions. Additionally, at a Basinwide level, the project, when considered with other reasonably foreseeable planned solar projects with the MDAB, could potentially result in significant cumulative construction emissions, in particular, for NO_x and PM_{10}. Even with the implementation of MMs 4.3-1 through 4.3-7 and applicable rules for projects within the MDAB, the project would still result in a contribution to significant cumulative short-term, construction-related air quality impacts.

Localized Health Impacts from Regional Emissions – Operations

Impacts of criteria pollutant emissions are evaluated on a regional level with current environmental models designed for such analysis. Current environmental science models are not designed to be able to convert

specific project emission levels of criteria pollutants emitted in a particular area to a localized human health impact. As such, a qualitative discussion of the adverse health effect resulting from the project level criteria pollutants is all that can be feasibly provided at this time.

As previously discussed, the criteria air pollutant standards developed by the state are based on levels of air quality that are deemed necessary, with an adequate margin of safety, to protect public health. The EKAPCD and Kern County have established quantitative daily and annual thresholds for criteria pollutant emissions to enforce and meet these standards on a regional level. As such, projects that do not exceed EKAPCD's daily operational significance thresholds and meet EKAPCD's land use criteria for project operation would not have a significant impact on regional air quality and likewise resulting human health impacts related to criteria pollutants would be less than significant. As discussed above, criteria pollutant emissions generated from operations at the project sites would not exceed EKAPCD thresholds for any criteria pollutant either at individual sites or combined emissions for the project as a whole. Emissions of ozone precursors ROG and NO_X would not exceed the project-level significance thresholds. Further criteria pollutant emissions generated from project operation would be below the EKAPCD significance threshold by an order of magnitude or more. As such, it is not expected that operation of the project would result in a substantial increase in criteria pollutant concentration regionally or locally. Therefore, related health effects would be less than significant.

Consistency with Existing Air Quality Plans

The Kern Council of Governments (Kern COG) Regional Conformity Analysis Determination demonstrates that the regional transportation expenditure plans in the Kern County portion of the Mojave Desert air quality planning area will not hinder the efforts set out in CARB's SIP for the area's nonattainment pollutant (ozone). 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 City of Bakersfield, County of Kern, and Kern COG.

As shown in **Table 4.3-5**, *Combined Construction Emissions for Simultaneous Construction at All Sites*, operation of the project would not generate emissions exceeding any established EKAPCD emissions thresholds. Each site would be staffed by five operations personnel during normal weekday working hours. It is anticipated that these employees would be drawn from the existing Kern County population. Thus, the project would not generate population, households, or substantial employment for any of the traffic analysis zones used to determine conformity. Therefore, the project would be consistent with the adopted growth forecast and would be in conformance with the Kern COG Regional Conformity Analysis Determination. Additionally, as discussed above, the project would not conflict with or obstruct implementation of the EKAPCD's air quality plan. Therefore, this is considered a less than significant impact.

Cumulative Toxic Air Contaminants

Combined TACs emission impacts from the project and other existing and planned projects are considered cumulatively significant when air quality standards are exceeded. Since the project would not be a significant source of TACs, it is not expected to pose a significant cumulative TAC impact. Since the majority of the projects are also solar plants, TACs would not be considered a significant impact for those projects either. Therefore, TACs impacts would not be cumulatively considerable and impacts would be less than significant.

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 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, cumulative 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. Additionally, as the majority of the other projects are also solar plants, traffic would be minimal and would not result in CO "Hotspots." Therefore, CO impacts would not be cumulatively considerable and impacts would be less than significant.

CARB Air Basin Emissions

CARB maintains the inventory of air emissions in California. Emissions (i.e., ROG, NO_X, and PM_{10}) data for all of MDAB and the Kern County subset of the MDAB was obtained from the CARB Emissions Inventory database. Per the County's guidelines for the cumulative impact assessment, project emissions should be compared to the air basin's current emissions inventory and projected emissions inventory. The data for both areas were obtained for the 2012 and 2025 Estimated Annual Average Emissions. Data for the entire MDAB and the Kern County portion of the MDAB are presented in **Table 4.3-10**, *Emissions Inventory in the MDAB and the Kern County Portion of MDAB*. **Table 4.3-11**, *Project Emission Projections*, compares the emissions generated by the proposed project and the 2025 projected annual emissions for the Kern County portion of the MDAB as well as the MDAB as a whole.

As shown in **Table 4.3-11**, the project's contribution to regional air emissions in Kern County and the MDAB would be minimal and thus not cumulatively considerable in terms of county and region-wide emissions. Compliance with applicable EKAPCD rules requiring emissions controls, such as Rule 402 (Fugitive Dust), and implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3 would further reduce construction emissions and the regional contribution to the cumulative impact during the construction period would be minimal. Additionally, because operational emissions would not result in significant emissions of ozone, for which the EKAPCD and surrounding air districts of the San Joaquin Valley and MDAB are in nonattainment, the project would not contribute to a long-term cumulative increase in criteria pollutants. Furthermore, the project would introduce a non-fossil fuel-based energy source to the region thus providing a positive benefit to regional air quality. Thus, project construction, decommissioning, and operations and maintenance would not result in a cumulatively considerable increase in emissions of nonattainment pollutants and impacts would be considered less than significant.

Table 4.3-10. Emissions Inventory in the MDAB and the Kern County Portion of MDAB

Inventory Segment	2012 Emissions (tons/year)			2025 Emissions (tons/year)		
	ROG	NO_x	PM_{10}	ROG	NO_x	PM_{10}
Mojave Desert Air Basin						
Total Emissions	24,313	64,273	48,425	18,491	46,267	56,429
Percent Stationary Sources	24	34	44	43	66	43
Percent Area-wide Sources	23	1	49	20	2	52
Percent Mobile Sources	53	65	7	37	33	5
Total Stationary Source Emissions	5,873	22,024	21,228	7,964	30,459	24,218
Total Area-wide Source Emissions	5,490	785	23,988	3,643	715	29,675
Total Mobile Source Emissions	12,950	41,464	3,208	6,884	15,093	2,537

Table 4.3-10, continued

Inventory Segment	2012 Emissions (tons/year)			2025 Emissions (tons/year)		
	ROG	NO_x	PM_{10}	ROG	NO_x	PM_{10}
Kern County Portion of MDAB						
Total Emissions	4,179	12,760	5,767	3,522	10,841	5,990
Percent Stationary Sources	11	51	18	14	75	22
Percent Area-wide Sources	21	2	60	28	2	59
Percent Mobile Sources	68	48	22	58	23	19
Total Stationary Source Emissions	434	6,482	1,029	500	8,110	1,288
Total Area-wide Source Emissions	898	197	3,468	982	215	3,537
Total Mobile Source Emissions	2,847	6,081	1,270	2,040	2,515	1,164

Notes: NO_x = nitrogen oxide; PM_{10} = particulate matter less than 10 micrometers; ROG = reactive organic gases; MDAB = Mojave Desert Air Basin

Source: Appendix C-1 of this EIR

Table 4.3-11. Project Emission Projections

Inventory Segment	2025 Emissions (tons/year)		
	ROG	NO_x	PM_{10}
Proposed Project	3.9	27.1	48.8
Kern County Portion of MDAB	3,522	10,841	5,990
MDAB	18,491	46,267	56,429
Project Percent of Kern County Portion of MDAB	0.11	0.25	0.82
Project Percent of MDAB	0.02	0.06	0.09

Notes: Emissions for the project include construction emissions from 2021-2022 and operational emissions.

NO_x = nitrogen oxide; PM_{10} = particulate matter less than 10 micrometers; ROG = reactive organic gases; MDAB = Mojave Desert Air Basin

Source: Appendix C-1 of this EIR

Mitigation Measures

Implementation of Mitigation Measures MM 4.3-1 through MM 4.3-3 (refer to Impact 4.3-1) and MM 4.3-4 through MM 4.3-7 (refer to Impact 4.3-2).

Level of Significance after Mitigation

The uncertainty of the project's regional and localized health impacts associated with criteria air pollutants, such as $PM_{2.5}$ along with indirect linkages of criteria pollutants and COVID-19, on vulnerable populations would result in significant and unavoidable cumulative level impacts.

Cumulative Impacts Summary

As discussed in Section 4.3.4, the construction emissions generated by the project individually would not exceed EKAPCD thresholds. With regard to project level construction emissions, Mitigation Measures MM 4.3-1 through MM 4.3-7 would reduce impacts related to NOx and PM_{10} from diesel emissions, reduce dust generation, restrict worker trips, and address potential Valley Fever risk by implementing fugitive dust control measures, establishing a public complaint protocol for excessive dust generation, and requiring Valley Fever-related training for construction workers. However, assuming on a worst-case basis that the construction schedules for all cumulative projects would overlap with each other and with the proposed project, cumulative impacts during construction could remain significant and unavoidable related to NO_x and PM_{10} emissions.

Operation of the project would result in an overall net reduction of emissions by providing electricity that would displace energy produced from fossil fuels. Operation of the project does not exceed the project-level regulatory thresholds and, therefore, would not contribute to a long-term cumulative increase in criteria pollutants. The project's incremental contribution to operational impacts would not be cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 through MM 4.3-7.

Level of Significance after Mitigation

Cumulative impacts would be less than significant during temporary construction and decommissioning of the project after implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7 due to the incremental effects of the project. Cumulative impacts related to operation would be less than significant. The uncertainty of the project's regional and localized health impacts associated with criteria air pollutants, such as $PM_{2.5}$ along with indirect linkages of criteria pollutants and COVID-19, on vulnerable populations would result in significant and unavoidable cumulative level impacts.

Section 4.4
Biological Resources

4.4.1 Introduction

This section describes the affected environment and regulatory setting for biological resources that have been confirmed present, as well as those that have the potential to be present, on the project site. The physical and regulatory settings for the project are described, as well as an evaluation of the existing biological conditions on the project site and its vicinity. The criteria used to evaluate the significance of potential impacts on biological resources are indicated and the methods used in evaluating these potential impacts are described. The analysis presented in this section is based on the *Biological Evaluation – Aratina Solar Project* prepared by EnviroPlus Consulting, Inc. (EPC) (EPC 2020) and the *Jurisdictional Waters and Wetlands Delineation* prepared by Rincon Consultants, Inc. (Rincon 2020) located in Appendix D-1 and D-2, respectively, of this EIR. All of these reports were peer reviewed by professional biologists employed by Michael Baker International, Inc. on behalf of the Kern County Planning and Natural Resources Department.

Additionally, in February 2019, a habitat assessment for the potential occurrence of Mohave ground squirrel (*Xerspermophilus mohavensis*) was conducted by Dr. Philip Leitner. A vegetation community assessment was also conducted in February 2019 by Mr. Mark Bagley. In April and May 2019, species specific surveys were conducted for federally or state-listed rare, special-status, protected, threatened, or endangered plants and wildlife. Refer to Appendix D-1. Information presented in the *Biological Evaluation – Aratina Solar* was generated from literature searches, multi-agency databases, maps, and other documents to include a 20-mile radius around the project area and associated power connections.

Additional information pertaining to the on-site western Joshua tree population is based on the *Western Joshua Tree Census Report* prepared by Eremico Biological Services, LLC (Eremico Biological Services 2021) located in Appendix D-3. Potential mitigation for project impacts to western Joshua tree also considers correspondence provided by the California Department of Fish and Wildlife (CDFW) following its review of the *Western Joshua Tree Census Report* (CDFW 2021; see Appendix D-4). Further, evaluation herein of the potential effects of utility-scale solar energy facilities on avian mortality rates incorporates information from *A Review of Avian Monitoring and Mitigation Information at Existing Utility-Scale Solar Facilities,* commissioned by the U.S. Department of Energy (DOE 2015; see Appendix D-5).

Please note that the acreages identified in the inventories of existing biological resources are based on surveys of a previous, larger version of the project, which encompassed approximately 2,667 acres. The current project plan has a reduced footprint, covering approximately 2,317 acres, that is entirely within the originally surveyed areas. As such, the information presented herein fully accounts for potential impacts resulting with the currently proposed project.

4.4.2 Environmental Setting

The project site is located within an unincorporated area in the southeastern corner of Kern County, to the west and south of the communities of Boron and Desert Lake and is situated in the Mojave Desert.

Climate

Prevailing winds come from the west and southwest and are due to a combination of the proximity to coastal and central regions and the location of the Sierra Nevada Mountains to the north that prevent air from passing through. During summer, this area is normally influenced by the Pacific subtropical high cell off the coast that prevents cloud formation and encourages daytime solar heating. Cold air masses moving south from Canada and Alaska do not generally influence the local climate because the frontal systems are weak and diffuse before they reach the desert. Therefore, desert moisture comes in the form of warm, moist, unstable air masses from the south and averages three to seven inches of rain annually. Thus, it is classified as a dry-hot desert climate where temperatures can be in excess of 95 degrees Fahrenheit (°F) for 60 to 70 days per year with almost no precipitation (Appendix C-1 of this EIR).

The desert area around Boron and Desert Lake has an average annual temperature ranging from 55 °F to 75 °F (weatherandclimate.com 2019). The coldest month is December and average temperatures range between 46 °F and 68 °F. The warmest month is August and average temperatures range between 63 °F and 84 °F. The mean precipitation is approximately 4 inches. Most of the annual precipitation, in the form of rain, falls between the months of December and March.

Vegetation Communities

The project is located in the Mojave Desert Region of the Desert Floristic Province. Landforms in the region include granite-derived flood plains, alluvial flats and fans, and small clay pans. A vegetation community assessment was conducted by Mr. Mark Bagley, senior botanist, between February 12 and 18, 2019. Seven vegetation communities were identified on-site during this assessment and account for approximately 2,644.9 acres of the total 2,666.7 acres (refer to Figure 4 in Appendix D-1 of this EIR). These vegetation communities include: *Larrea tridentata - Ambrosia dumosa* shrubland alliance (creosote bush – white bursage scrub); *Larrea tridentata* shrubland alliance (creosote bush scrub); *Ambrosia dumosa* shrubland alliance (white bursage scrub); *Atriplex spinifera* shrubland alliance (spinescale scrub); *Atriplex polycarpa* shrubland alliance (allscale scrub); successional allscale - spinescale scrub; successional spinescale scrub; and *Yucca brevifolia* woodland alliance (Joshua tree woodland). It should be noted that the Joshua tree woodland alliance occurs in small patches (up to 10-20 acres) within the creosote bush – white bursage scrub shrubland alliance, within the white bursage scrub vegetation communities, and within the allscale and spinescale scrub shrubland alliances. The Joshua tree woodland was not mapped during the vegetation community assessment; however, all individual Joshua trees were recorded and mapped during the special-status plant species protocol surveys conducted in April 2019 (see Appendix D-1). **Table 4.4-1**, *Acreage of Vegetation Communities and Unvegetated Features in the Project Site*, provides the acreage of each vegetation community on each site. The dominant vegetation community within the project site consists of the *Larrea tridentata – Ambrosia dumosa* shrubland alliance (creosote bush-white bursage scrub), which comprises approximately 57 percent of the project area. The second most dominant vegetation community is the *Atriplex spinifera* shrubland alliance (spinescale scrub), which comprises approximately 27 percent of the project area.

Table 4.4-1. Acreage of Vegetation Communities and Unvegetated Features in the Project Area

Vegetation Community[1]	Acres (%)					
	Site 1	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Total Acres**
Larrea tridentata – *Ambrosia dumosa* shrubland alliance (creosote bush – white bursage scrub)	209.6 (56%)	743.9 (78%)	462.2 (72%)	93.4 (21%)	0.0 (0%)	1,509.1 (57%)
Larrea tridentata shrubland alliance (creosote bush scrub)	0.0 (0%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	184.2 (74%)	184.2 (7%)
Ambrosia dumosa shrubland alliance (white bursage scrub)	0.0 (0%)	21.0 (2%)	0.0 (0%)	0.0 (0%)	0.0 (0%)	21.0 (<1%)
Atriplex spinifera shrubland alliance (spinescale scrub)[2]	155.1 (42%)	192.4 (20%)	129.2 (20%)	186.6 (42%)	64.8 (26%)	728.1 (27%)
Atriplex polycarpa shrubland alliance (allscale scrub)	0.0 (0%)	0.0 (0%)	0.0 (0%)	105.9 (24%)	0.0 (0%)	105.9 (4%)
Successional allscale – spinescale scrub	0.0 (0%)	0.0 (0%)	0.0 (0%)	56.2 (13%)	0.0 (0%)	56.2 (2%)
Successional spinescale scrub[2]	6.4 (2%)	0.0 (0%)	34.0 (5%)	0.0 (0%)	0.0 (0%)	40.4 (1.5%)
Unvegetated (developed: paved roadways, structures, or other features and disturbed: dirt roadways, bladed areas)	1.1 (0%)	0.0 (0%)	20.7 (3%)	0.0 (0%)	0.0 (0%)	21.8 (<1%)
Total Acres	**372.4 (100%)**	**957.3 (100%)**	**646.0 (100%)**	**442.0 (100%)**	**249.0 (100%)**	**2,666.7 (100%)**

Source: EPC 2020; see Appendix D-1.

[1] *Yucca brevifolia* woodland alliance (Joshua tree woodland) occurred in small patches within other vegetation communities but was not separately quantified.

[2] Sensitive Natural Community (CDFW 2019)

Sensitive Natural Communities

Sensitive natural communities are designated by the CDFW, or occasionally in local policies and regulations, and these communities are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent and/or distribution. These communities are considered threatened enough to warrant some level of protection. For example, federal, state, and most local agencies consider wetlands and riparian habitat as sensitive communities.

Of the seven vegetation communities present on the project site, the following vegetation communities are designated as sensitive natural communities by CDFW: *Atriplex spinifera* shrubland alliance (spinescale scrub), successional spinescale scrub, and *Yucca brevifolia* woodland alliance (Joshua tree woodland). These sensitive natural communities are depicted on **Figure 4.4-1**, *Vegetation Communities Found Onsite*, and described in more detail below.

Atriplex spinifera Shrubland Alliance (Spinescale Scrub) and Successional Spinescale Scrub

The *Atriplex spinifera* shrubland alliance vegetation community comprises 728.1 acres or approximately 27.3 percent of the project area. As shown in **Table 4.4-1**, *Acreage of Vegetation Communities and Unvegetated Features in the Project Site*, 155.1 acres of this vegetation community occurs within Site 1, 192.4 acres occurs within Site 2, 129.2 acres occurs within Site 3, 186.6 acres occurs within Site 4, and 64.8 acres occurs within Site 5.

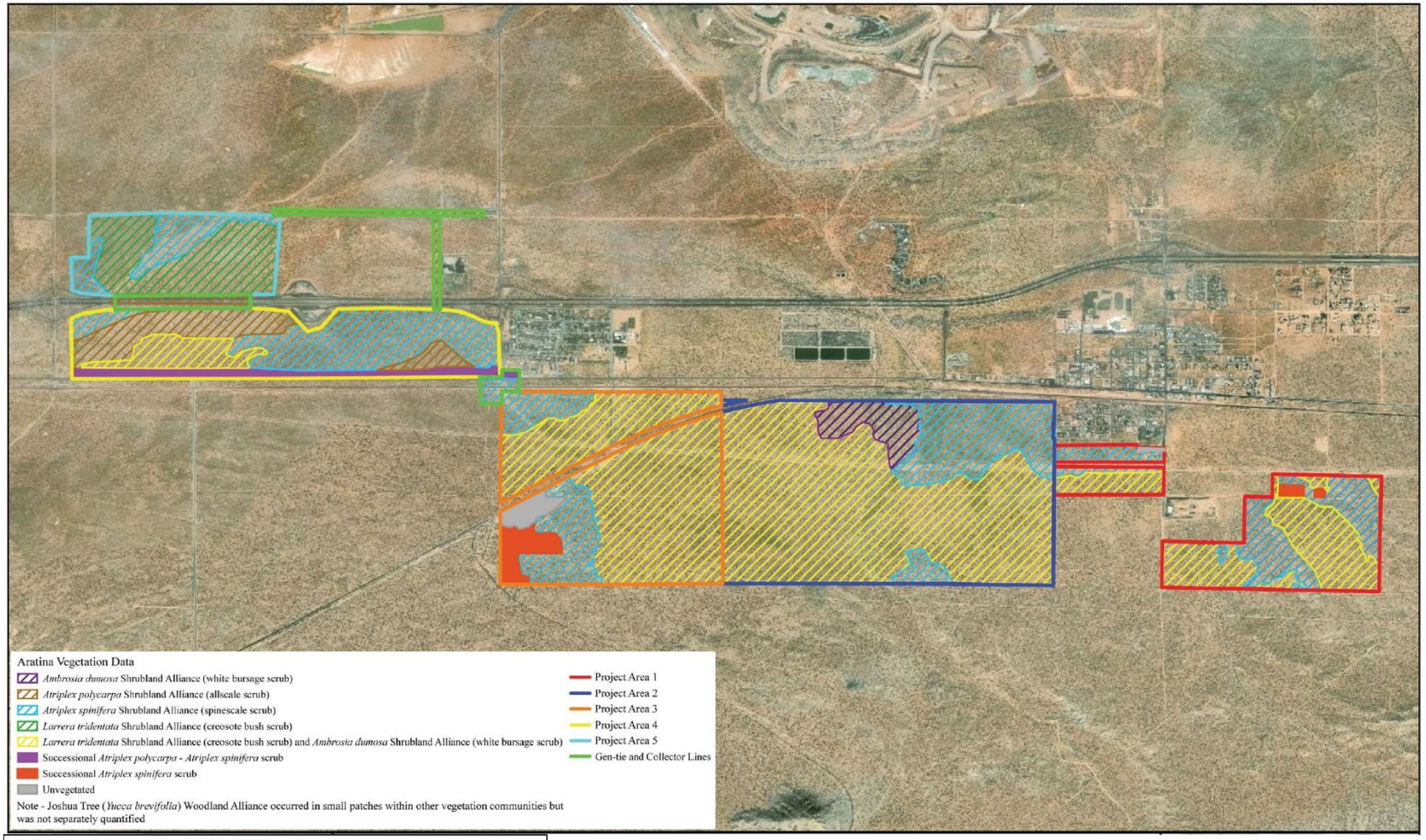


FIGURE 4.4-1. VEGETATION COMMUNITIES FOUND ON SITE

The successional *Atriplex spinifera* scrub vegetation community comprises 40.4 acres of the project area. As shown in **Table 4.4-1**, *Acreage of Vegetation Communities and Unvegetated Features in the Project Site*, 6.4 acres of this vegetation community occurs within Site 1 and 34 acres occurs within Site 3. This vegetation community does not occur within Sites 2, 4, or 5.

This scrub habitat is found between 50 and 800 meters in elevation on alluvial fans and on old lake beds perched above current drainages. Soils are moderately sandy clay loams to fine, silty clays that may be carbonate rich. Within the project area, it was the second most common shrubland alliance. Although largely intact within the project area, there are areas that contain Successional spinescale – allscale, spinescale, and allscale scrub. Other shrubs recorded within this vegetation community include white bursage, cheesebush (*Ambrosia salsola*), goldenhead (*Acampotopappus sphaerocephalus* var. *hirtellus*), horsebrush (*Tetradymia stenolepis*), allscale, winter fat (*Hrascheninnikovia lanata*), box-thorn (*Lycium cooperi*), and creosote bush. Joshua trees are also present. The *Atriplex spinifera* shrubland alliance is designated as a sensitive natural community by CDFW (Appendix D-1 of this EIR).

Yucca brevifolia Woodland Alliance (Joshua Tree Woodland)

The *Yucca brevifolia w*oodland alliance (Joshua tree woodland) occurs in small patches (up to 10-20 acres) within the creosote bush – white bursage scrub shrubland alliance, in the white bursage scrub vegetation communities, and within the allscale and spinescale scrub shrubland alliances. This habitat type is recognized when Joshua trees are evenly distributed at greater than or equal to 1 percent cover over the landscape. Joshua tree woodland generally occurs at an elevation of 750-1,800 meters on alluvial fans, ridges, and gentle to moderate slopes with soils that are comprised of coarse sands, very fine silts, gravel, or sandy loams (Sawyer et al. 2009). Joshua tree woodland was not mapped during the vegetation community assessment for the project; however, all individual Joshua trees were recorded and mapped during the special-status plant species protocol surveys conducted in April 2019.

Joshua trees are protected under the California Desert Native Plants Act (CDNPA) and were noted throughout most of the project area. The Joshua tree is also a protected desert native plant species pursuant to Kern County's Department of Agriculture and Measurement Standards. Harvesting, cutting, and salvaging of Joshua trees in Kern County may only be completed under an approved permit.

Additionally, Joshua trees were petitioned for listing with the U.S. Fish and Wildlife Service (USFWS) as an endangered or threatened species on September 28, 2015. The USFWS posted a 90-day Finding of their review of the petition on September 14, 2016 and found that "…the petition presents substantial scientific or commercial information indicating that listing the Joshua tree (*Yucca brevifolia*) may be warranted…" (USFWS 2016). However, in August of 2019, the USFWS released their Notice of 12-month Petition Findings and determined that listing of the Joshua tree was not warranted at that time (USFWS 2019).

On October 15, 2019, the California Fish and Game Commission (CFGC) received a petition to list the Joshua tree as threatened under the California Endangered Species Act (CESA) (CBD 2019). In February 2020, the CDFW completed a review of the petition, as well as other scientific information available to CDFW. In its review, CDFW determined that "the petition provides sufficient scientific information to indicate that the petitioned action may be warranted" (CDFW 2020). On September 22, 2020, the CFGC accepted for consideration the petition to list the Joshua tree as threatened or endangered under the CESA and made the Joshua tree a candidate species (CFGC 2020a). Subsequently, CFGC adopted a regulation authorizing incidental take of Joshua tree during the candidacy period pursuant to Section 2084 of the Fish

and Game Code for certain energy projects in Kern and San Bernardino Counties listed in the regulation (the "2084 Rule"). The Aratina Solar Project is one of the projects listed in the 2084 Rule. This conditional incidental take authorization is codified in Section 749.10 of Title 14, California Code of Regulations (CFGC 2020b).

Special-Status Species

Special-status species are defined as those plants and wildlife that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or local agencies as being under threat from development pressures as well as natural causes. Some of these species receive specific protection that is defined by the federal or state ESAs. Other species have been designated as special status on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities and/or special districts to meet local conservation objectives.

Special-Status Plant Species

Based on the literature review, a total of 17 special-status plant species have the potential to occur within the boundaries of the project area. Out of the 17 special-status plant species, one species is a candidate for listing as threatened under the CESA, seven species are listed as California Native Plant Society's (CNPS) Rank 1B (defined as plants that are rare and endangered in California and elsewhere), and three species are listed as CNPS Rank 2B (defined as plants that are rare, threatened, or endangered in California). The remaining six plant species are listed as CNPS Rank 4, a watch list of plants with limited distribution and limited information. Of the 17 special-status plant species, eleven species that were determined to either be present or have a "likely" or "possible" potential to occur within the project area. **Table 4.4-2,** *Special-Status Plant Species with the Potential to Occur in the Project Area*, identifies the regulatory status, habitat requirements blooming period for each plant species, as well as the potential for the species to occur on the project site. A detailed description of special-status plant species that have the potential to occur on the project site is provided in the *Biological Evaluation – Aratina Solar* located in Appendix D-1 of this EIR. **Figure 4.4-2**, *California Native Plant Society-Ranked Plants On-site*, illustrates the distribution of CNPS-ranked plants found on the subject property.

In addition, taxa protected under the CDNPA (Division 23 of the California Food and Agricultural Code, Section 80071-80075) (California Food and Agricultural Code 2005) were also considered. Plants protected by the CDNPA that may occur within the project site include golden cholla (*Cylindropuntia echinocarpa*), beavertail (*Opuntia basilaris* var. *basilaris*), and Joshua tree. Joshua trees occur throughout the project area. Golden cholla was noted at scattered locations during the habitat assessment. No beavertail was observed but it is expected to occur infrequently throughout the project area.

Table 4.4-2. Special-Status Plant Species with the Potential to Occur in the Project Area

Common Name (*Scientific Name*)	Rank or Status	Flowering Period	Habitat and Distribution Notes	Occurrence Potential within the Project Area
Joshua tree (*Yucca brevifolia*)	CST	April – May	400-2000 m. Desert flats, slopes. Chenopod scrub, Mojavean desert scrub, Joshua tree woodland. Known to occur on the project area.	**PRESENT** – occurs throughout the project area.

Table 4.4-2, continued

Common Name (*Scientific Name*)	Rank or Status	Flowering Period	Habitat and Distribution Notes	Occurrence Potential within the Project Area
Rosamond eriastrum (*Eriastrum rosamondense*)	1B.1 E	April – May	700-715 m. Alkaline hummocks, often sandy. Chenopod scrub (openings), vernal pools (edges). Known only from the Rosamond and Rogers Dry Lake areas.	**UNLIKELY** – project area does not contain alkaline hummocks.
alkali mariposa-lily (*Calochortus striatus*)	1B.2	April – June	70-1595 m. Alkaline, mesic. Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps. Known to occur south and southwest of project area along edge of Rogers Dry Lake.	**UNLIKELY** – project area does not contain the mesic habitat necessary for this species.
desert cymopterus (*Cymopterus deserticola*)	1B.2 E	March – May	630-1500 m. Sandy. Joshua tree woodland, Mojavean desert scrub. Known to occur on the project area.	**PRESENT** – known occurrences on and near the project area.
recurved larkspur (*Delphinium recurvatum*)	1B.2 E	March – June	3-790 m. Alkaline. Chenopod scrub, cismontane woodland, valley and foothill grassland. Old record on or near west portion of project area.	**POSSIBLE** – old, imprecise record on or near the project area.
Barstow woolly sunflower (*Eriophyllum mohavense*)	1B.2 E	March – May	500-950 m. Gravelly, silty, sandy, or clay soils on level or sloping terrain, as well as in low-lying areas. Chenopod scrub, Mojavean scrub, playas. Several occurrences are in close proximity to project area.	**PRESENT** – known occurrences on and near the project area.
Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*)	1B.2 E	March – May	680-1230 m. Volcanic tuff. Mohavean desert scrub. Possible location on Edwards Air Force Base, south-southwest of the project area.	**UNLIKELY** – project area does not contain volcanic tuff.
Beaver Dam breadroot (*Pediomelum castoreum*)	1B.2	April – May	610-1525 m. Sandy, washes and roadcuts. Joshua tree woodland, Mojavean scrub. Known to occur east and southeast of the project area.	**UNLIKELY** – project area is west and northwest of known range of the species.
sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarium*)	2B.2	April – May	700-1615 m. Sandy. Desert dunes, Great Basin scrub, Sonoran Desert scrub. Known to occur south of the project area on Edwards AFB.	**LIKELY** – project area contains potential habitat; known to occur nearby.
Cove's cassia (*Senna covesii*)	2B.2	March – June	225-1295 m. Dry, sandy desert washes and slopes. Sonoran Desert scrub. Known from north end of Edwards Air Force Base; seeds may have been accidentally brought to this site.	**UNLIKELY** – project area is outside the native range of the species.
Booth's evening-primrose (*Eremothera boothii* ssp. *boothii*)	2B.3	April - September	815-2400 m. Sandy flats, steep loose slopes. Joshua tree woodland, pinyon and juniper woodland. Known to occur north of Kramer Junction, northeast of project area.	**POSSIBLE** – project area contains potential habitat.
white pygmy-poppy (*Canbya candida*)	4.2 E	March – June	600-1460 m. Gravelly, sandy, granitic. Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Known from vicinity of Kramer Junction and on Edwards Air Force Base.	**LIKELY** – project area contains potential habitat; known to occur nearby.
Mojave spineflower (*Chorizanthe spinosa*)	4.2 E	March – July	6-1300 m. Sometimes alkaline. Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, playas. Known to occur in surrounding areas.	**PRESENT** – known occurrences on and near the project area.
golden goodmania (*Goodmania luteola*)	4.2	April – August	20-2200 m. Alkaline or clay. Mojavean desert scrub, meadows and seeps, playas, valley and foothill grassland. Known from North Edwards and Edwards Air Force Base.	**POSSIBLE** – project area contains potential habitat.

Table 4.4-2, continued

Common Name (*Scientific Name*)	Rank or Status	Flowering Period	Habitat and Distribution Notes	Occurrence Potential within the Project Area
Torrey's box-thorn (*Lycium torreyi*)	4.2	March – June	-50-1220 m. Sandy, rocky, washes, streambanks, desert valleys. Mojavean desert scrub, Sonoran Desert scrub. Known from east of project area.	**UNLIKELY** – project area is west of known range of the species.
crowned muilla (*Muilla coronata*)	4.2	March – April	670-1960 m. Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Known to occur east of the project area.	**PRESENT** – known occurrences on and near the project area.
graceful nemacladus (*Nemacladus gracilis*)	4.3	March – May	120-1900 m. Sandy or gravelly. Cismontane woodland, valley and foothill grassland. Known from south of the project area.	**POSSIBLE** – known to occur near project area.

Notes:

CNPS ranks: 1B=plants rare and endangered in California and elsewhere; 2B=plants rare, threatened, or endangered in California but more common elsewhere; 4=plants of limited distribution – a watch list. The number following Rank is the Threat Code: .1=seriously endangered in CA; .2=fairly endangered in CA; .3=not very endangered in CA. Plants with an "E" are endemic to California.

Source: EPC 2020; see Appendix D-1.

Rare Plant Survey

A protocol-level rare plant survey was conducted in April 2019 by EREMICO Biological Services for the proposed project. The purpose of the survey was to determine the occurrence of special-status plant species, sensitive natural communities, and plants protected under the CDNPA on the project site. Five rare plant species were encountered in the project area during the survey. These species were Joshua tree, desert cymopterus, Barstow woolly sunflower, Mojave spineflower, and crowned muilla and were five of the eleven species that were determined to either be present or have a "likely" or "possible" potential to occur within the project area (**Figure 4.4-4**). In addition, four species protected under the CDNPA were observed within the project area during the survey: Joshua tree, silver cholla (*Cylindropuntia echinocarpa*), diamond cholla (*Cylindropuntia ramosissima*), and beavertail. The *Rare Plant Survey at the Proposed Aratina Solar Project* prepared for the proposed project is located in Appendix D-1 of this EIR. **Table 4.4-3**, *Special-Status Plant Species and CDNPA Plants Occurring in the Project Area*, summarizes the findings and the number of rare plant species detected in the project area. **Figure 4.4-3**, *California Native Plant Society-Ranked Plants Onsite*, illustrates the distribution of CDNPA plants found on site.

Table 4.4-3. Special-Status Plant Species and CDNPA Plants Occurring in the Project Area

Common Name (Scientific Name)	Site 1	Site 2	Site 3	Site 4	Site 5	Gen-Ties and Collector Line Areas	TOTAL
Joshua tree (Yucca brevifolia)	460	2,443	936	324	81	32	4,276
desert cymopterus (Cymopterus deserticola)	61	61	10	0	0	0	132
Barstow woolly sunflower (Eriophyllum mohavense)	1	68	0	0	0	0	69
Mojave spineflower (Chorizanthe spinosa)	146	207	0	103	131,223	4,000	135,679
crowned muilla (Muilla coronata)	20	392	521	4	1	0	938
silver cholla (Cylindropuntia echinocarpa)	34	98	36	6	20	2	196
diamond cholla (Cylindropuntia ramosissima)	0	1	1	0	0	0	2
beavertail (Opuntia basilaris var. basilaris)	4	12	10	0	0	0	26
TOTAL	**726**	**3,282**	**1,514**	**437**	**131,325**	**4,034**	**141,318**

Source: EPC 2020; see Appendix D-1.

Joshua Tree

A total of 4,722 western Joshua trees were recorded within the project area (or census area) during a field survey conducted in November 2020; refer to Appendix D-3 (Eremico Biological Services 2021). The approximately 2,464-acre census area included the lands potentially affected by the proposed PV solar development footprint, collector lines, and potential gen-tie line routes. **Table 4.4-4**, *Number of Joshua Trees in the Project Area*, summarizes the findings and number of Joshua trees recorded within the project area. Joshua trees were found within the creosote bush – white bursage scrub shrubland alliance, white bursage scrub vegetation communities, and within the allscale and spinescale scrub shrubland alliances.

Table 4.4-4. Number of Joshua Trees in the Project Area

Joshua Tree (Yucca brevifolia)	By Height Class (Count)			Total (Count)
	Less than 1 meter	1 meter to less than 5 meters	5 meters or greater	
Project Area	976	3,192	527	4,695
Kramer Gen-Tie	6	12	9	27
Census Area Total:	982	3,204	536	4,722
Notes: One meter = approximately 3.28 feet Source: Eremico Biological Services 2021: see Appendix D-3.				

Desert Cymopterus

Desert cymopterus plants were found in a previously known occurrence area, which contains Sites 1 and 2, and in the adjacent area to the west, in Site 3. A total of 132 plants were recorded (Table 4.4-3). Desert cymopterus was not found in Sites 4 and 5 or along gen-tie routes. Desert cymopterus occurred in open inter-shrub spaces with low densities of annual plants and fairly loose sandy soil. Desert cymopterus was primarily in creosote bush – white bursage scrub but also in creosote bush scrub and in small pockets of white bursage scrub (*Ambrosia salsola* shrubland alliance).

Barstow Woolly Sunflower

Barstow woolly sunflowers were recorded at four locations, one in Site 1 and three in Site 2 (refer to Figure 9 in Appendix D-1 of this EIR). They were not found in the other sites or along gen-tie routes. The number of individuals totaled 69 (**Table 4.4-3**). Barstow woolly sunflowers occurred at the edges and in the cracks of small clay pans. Soils consisted of sandy clay with or without a thin gravel surface of decomposed granite. Occasionally, the surface had scattered pebble-sized stones along with the gravel. The habitat surrounding these sites was either spinescale scrub or creosote bush – white bursage scrub.

Mojave Spineflower

An estimated 135,679 Mojave spineflower plants were recorded in the project area (refer to Figure 9 in Appendix D-1 of this EIR). They were most abundant in Site 5 and along the northern gen-tie route, where an estimated 131,000 and 4,000 plants occurred, respectively (**Table 4.4-3**). Mojave spineflower habitat was similar to Barstow woolly sunflower habitat, and they co-occurred at a few locations. Mojave spineflowers were typically in clay pans and open flats of firm clayey soil with some sand on the surface or at edges of open flats in patches of. All locations were in spinescale scrub.

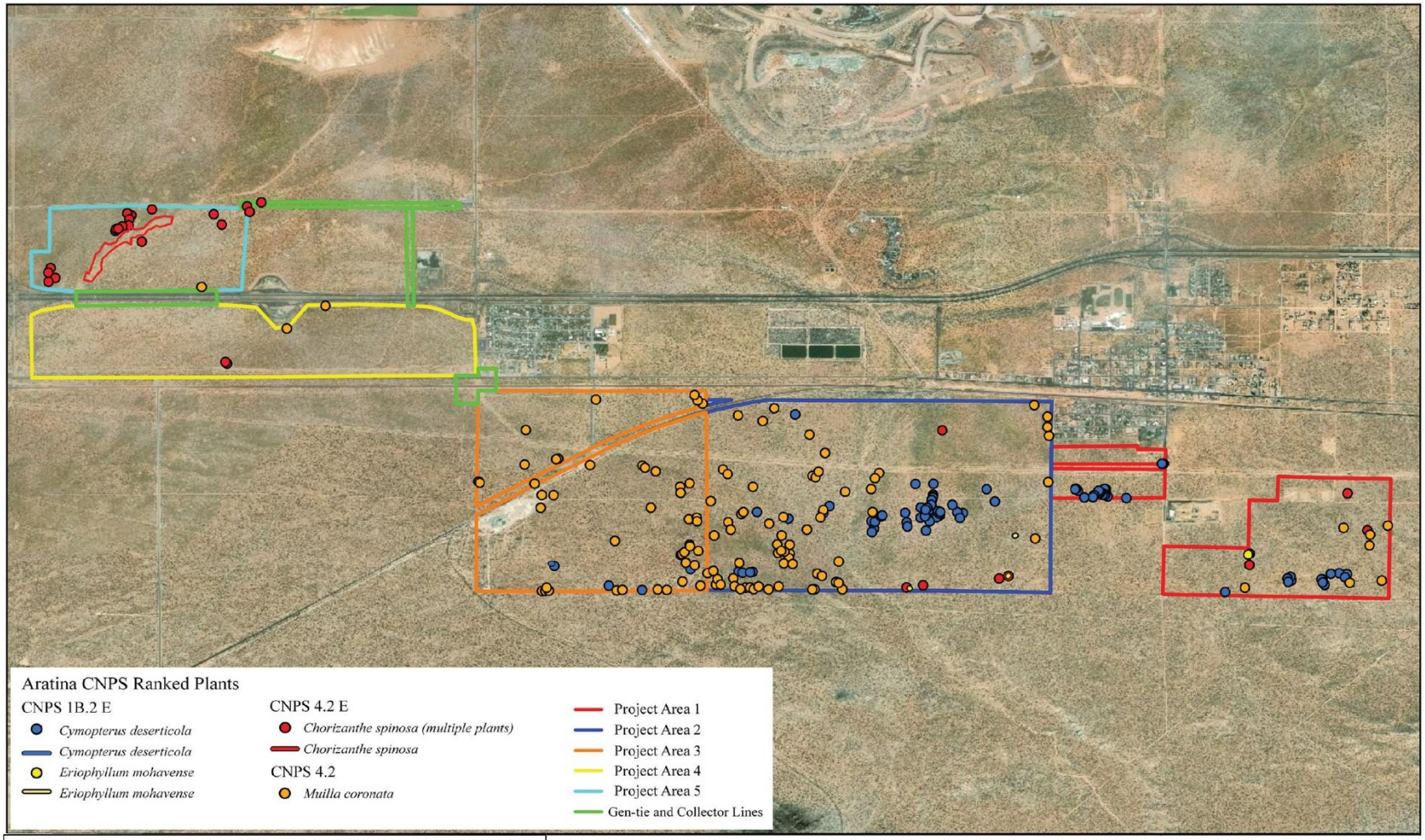


FIGURE 4.4-2. CALIFORNIA NATIVE PLANT SOCIETY-RANKED PLANTS ON SITE

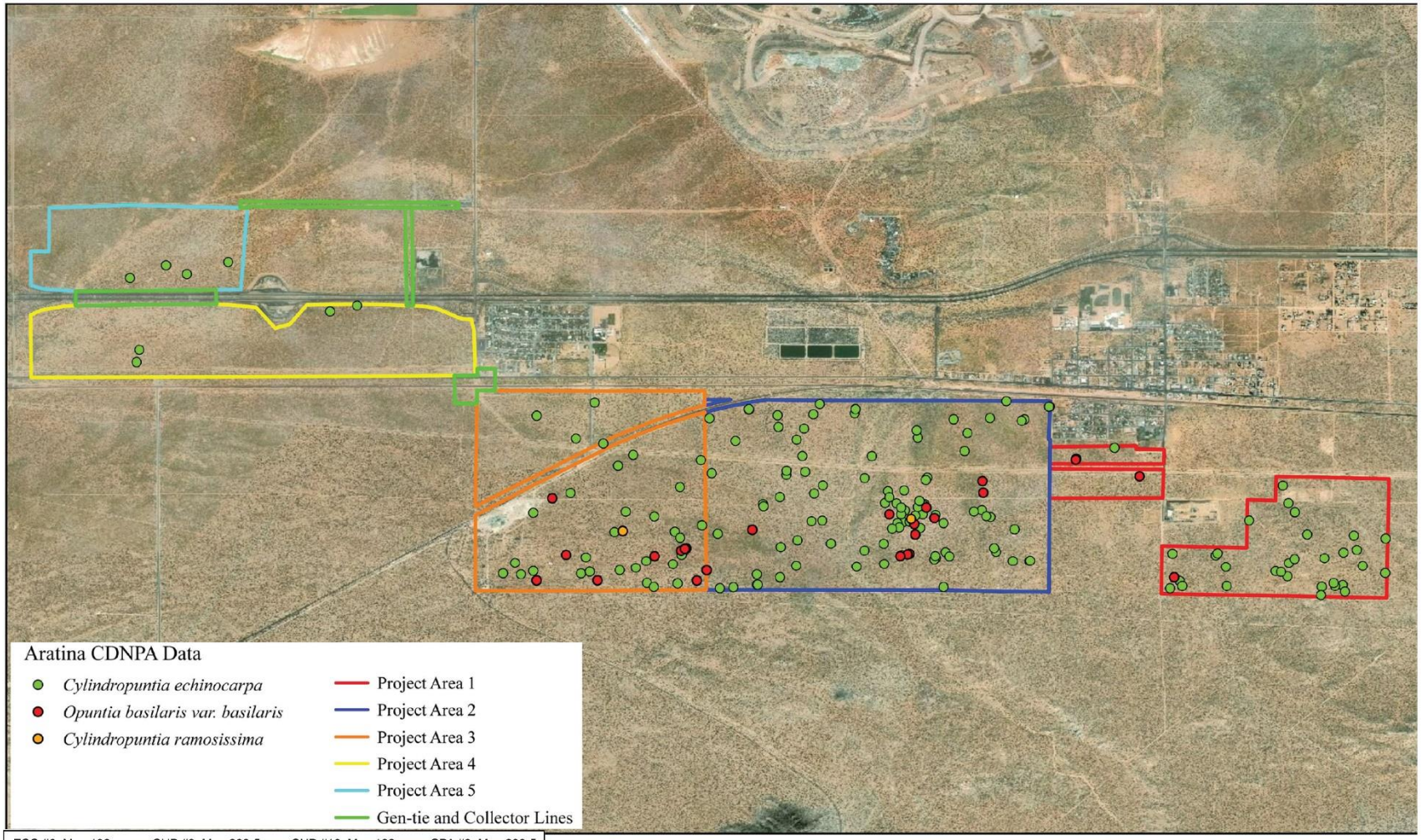


FIGURE 4.4-3. CALIFORNIA NATIVE DESERT PLANT ACT PLANTS ON SITE

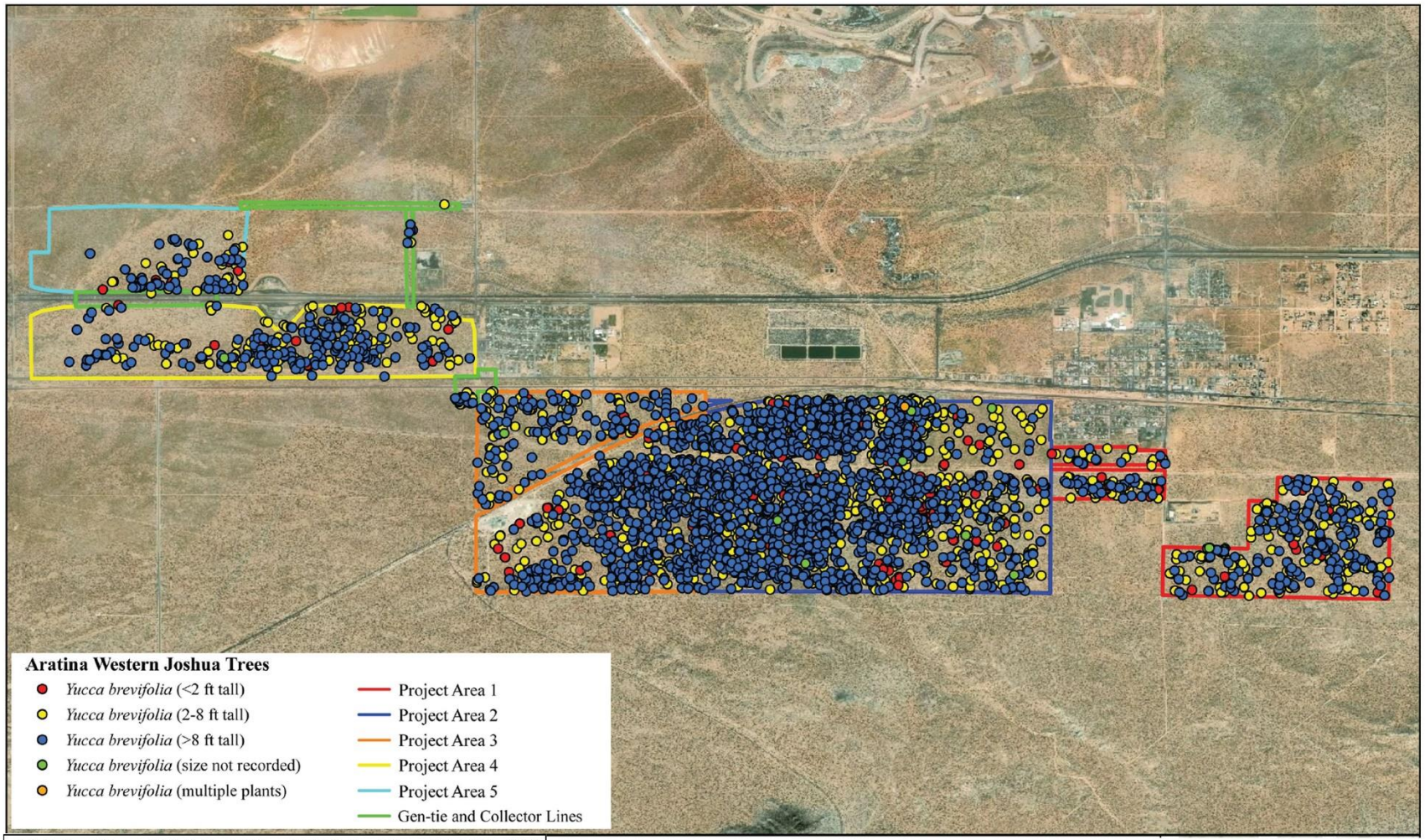


FIGURE 4.4-4. JOSHUA TREE SURVEY

Crowned Muilla

Crowned muilla was found in all the sites but were most abundant in Sites 2 and 3 (refer to Figure 9 in Appendix D-1 of this EIR). An estimated 938 plants were recorded in the project area (**Table 4.4-3**). They mainly occurred in open areas in sandy soil but were also in silty loam and sometime gravel. Vegetation communities included creosote bush – white bursage scrub, creosote bush – allscale scrub, creosote bush – spinescale scrub, and spinescale scrub.

CDNPA Plants

Four CDNPA-protected species were recorded in the project areas: Joshua tree, silver cholla, diamond cholla, and beavertail. A total of 4,500 CDNPA plants were recorded in the project area during the survey (**Table 4.4-3**).

Special-Status Wildlife Species

A total of 11 potentially occurring wildlife species and two insect species were identified during the literature review and database search. Of the 11 wildlife species identified, two are State- and/or federally listed as threatened: the State-threatened Mohave ground squirrel and the federally and State-threatened Agassiz's desert tortoise (*Gopherus agassizii*). The remaining nine wildlife species and the two insect species are State and/or federal special-status species and include golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), mountain plover (*Charadrius montanus*), burrowing owl (*Athene cunicularia* ssp. *hypugaea*), gray vireo (*Vireo vicinior*), the San Joaquin Population of Le Conte's thrasher (*Taxostoma lecontei macmillanorum*), and tricolored blackbird (*Agelauis tricolor*). The two mammal species are desert kit fox (*Vulpes macrotis arsipus*) and American badger (*Taxidea taxus*), and the two insect species are the Crotch bumble bee (*Bombus crotchii*) and Western bumble bee (*Bombus occidentalis*). A detailed description of special-status wildlife species that have the potential to occur on the project site is provided in the *Biological Evaluation – Aratina Solar* located in Appendix D-1 of this EIR.

Crotch Bumble Bee

The Crotch bumble bee is listed as endangered on the International Union for Conservation of Nature Red List (Hatfield et al. 2015). The Xerces Society, Defenders of Wildlife, and the Center for Food Safety submitted *A Petition to the State of California Fish and Game Commission to List the Crotch bumble bee (Bombus crotchii), Franklin's bumble bee (Bombus franklini), Suckley cuckoo bumble bee (Bombus suckleyi), and western bumble bee (Bombus occidentalis occidentalis) as Endangered under the California Endangered Species Act* in October 2018 (Xerces Society et al. 2018). The California Fish and Game Commission designated all four of the petitioned bumble bees as candidate species for listing under CESA on June 12, 2019, in their Notice of Findings (Fish and Game Commission 2019). In November 2020, the Sacramento County Superior Court ruled that these four bumble bee species could not be listed under CESA due to terrestrial insects not qualifying taxonomically as either game or fish. The California Fish and Game Commission filed a notice that it would appeal the decision in February 2021.

The Crotch bumble bee is an important pollinator of wild flowering plants and agricultural crops. Bumble bees are able to fly in cooler temperatures and lower light levels than many other bees, making them excellent pollinators, especially at higher elevations and latitudes. They also perform a behavior called "buzz pollination," in which the bee grabs the flower in her jaws and vibrates her wing muscles to dislodge

pollen from the flower. Many plants, including a number of wildflowers and crops like tomatoes, peppers, and cranberries, benefit from buzz pollination.

Although their combined historic ranges span most of the state of California, Crotch bumble bees currently exist in only a few areas. Currently, the Crotch bumble bee only persists in 20 percent of its historic range and has declined by 98 percent in relative abundance (its abundance relative to other species of bumble bees) (Xerces Society 2019). Analysis suggests sharp declines in both relative abundance and persistence over the last ten years. This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range. Current range size relative to historic range is 74.67 percent (Xerces Society 2020). This species occurs primarily in California, including the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills through most of southwestern California. It has also been documented in southwest Nevada near the California border. Potential for occurrence within or in close proximity to the project area is low to moderate based on California Natural Diversity Database (CNDDB) records of 5 to 10 miles to the southeast, south of Kramer Junction.

Western Bumble Bee

The Western bumble bee is listed as vulnerable on the International Union for Conservation of Nature Red List. As mentioned above, the Xerces Society in collaboration with Defenders of Wildlife and Center for Food Safety submitted a petition to CDFW to list the Crotch bumble bee and three other species, including the Western bumble bee, as endangered. These four species are primarily threatened by habitat loss, diseases, and pesticides. Although their combined historic ranges span most of the state of California, they currently exist in only a few areas.

Like the Crotch bumble bee discussed above, the western bumble bee is an important pollinator of agricultural crops and wild plants. Historically, the western bumble bee was broadly distributed throughout western North America. The western bumble bee was one of the most common bumble bees within its range prior to the late 1990s, but in California is now found only in a few sites in the Sierra Nevada and the northern coast. Potential for occurrence within or in close proximity to the proposed Aratina project area is low to moderate based on CNDDB records of 5 to 10 miles to the southeast, southeast of Kramer Junction.

Agassiz's Desert Tortoise

The Agassiz's desert tortoise was listed by the State of California as a threatened species and by the USFWS as a threatened species throughout its endemic range in the Sonoran and Mojave Deserts north and west from the Colorado River. It is a covered species under the Desert Renewable Energy Conservation Plan (DRECP). It extends from the desert areas of California south of the San Joaquin Valley, eastward across the Mojave Desert into southern Nevada, the extreme southwestern corner of Utah (i.e., the Beaver Dam Slope), and the extreme northwestern corner of Arizona, as well as southeast across the Colorado Desert to the Colorado River on the California side.

Habitat for desert tortoise has been reduced by the development of agriculture, livestock grazing, urbanization and highway and other infrastructure development, military activities, utility projects, recreation and off-highway vehicle use, collecting, invasive species, disease, and increased presence of domestic, feral, and wild predators.

Desert tortoise can be found in a wide variety of desert habitats, such as alluvial fans, washes, canyons, and saltbush plains (Coachella Valley Conservation Commission 2007; Woodbury and Hardy 1948; Lovich and

Daniels 2000; USFWS 1994). Whereas most tortoises in the Mojave Desert are usually associated with creosote scrub on alluvial fans and bajadas (USFWS 2011), they can also be found in saltbush scrub (Stewart 1991). The presence of shrubs in tortoise habitat is extremely important. Shrubs supply shade for the tortoises during hot weather (Marlow 1979), but their roots also provide support and protection for tortoise burrows.

Based on the vegetative and soil characteristics of the project area, as well as the extensive information available for desert tortoise throughout the general region of the project area, the potential for occurrence was determined to be moderately high to high. USFWS protocol surveys were conducted in April and May of 2019 within the project area to determine the extent of desert tortoise presence and potential movement corridors.

Protocol Surveys

USFWS protocol surveys for desert tortoise were conducted by EPC between April 7 and May 16, 2019. The protocol surveys for desert tortoise included a concurrent survey for all other potentially occurring sensitive and special-status wildlife species to include CDFW protocol surveys for burrowing owl. Incidental observations were recorded of all vertebrate species observed. Focus species included desert kit fox, American badger, Mohave ground squirrel, and a variety of other special-status bird species. The *Wildlife Survey of the Proposed Aratina Solar Project* prepared for the project is located in Appendix D-1 of this EIR.

The USFWS protocols define the "action area" of a project to include all areas to be affected directly or indirectly by a project action. For the project area, the action area was defined as the project area plus access routes to the project area. All of the access routes are existing public use paved roads and the action area is therefore essentially the same as the project area. EPC surveyed the entire action area at 10-meter intervals for a total of 783.2 transect miles.

No definitive sign of desert tortoise habitation of the project area was detected. One carcass was located within Site 3 (refer to Figure 10 in Appendix D-1 of this EIR). The disarticulated carcass remains were of an adult female tortoise with a maximum carapace length of 240 mm. The animal was estimated to have died over four years prior to the observation (Berry and Woodman 1984). The cause of death could not be determined. Approximately 50 meters to the south-southeast, a Class 3 burrow (deteriorated condition, definitely tortoise) was located. It appeared likely that this burrow belonged to the tortoise whose carcass was located.

The only other potential tortoise sign detected included seven Class 4 burrows (deteriorated condition, possibly tortoise) seen in Sites 1, 3, and 4 (refer to Figure 10 in Appendix D-1 of this EIR). When burrows deteriorate from weathering and disuse, it is often difficult to determine the species that created or last inhabited the burrow and the observation of Class 4 burrows alone is not indicative of desert tortoise habitation.

No live tortoises, scat, high quality burrows, tracks, courtship rings, or eggs or fragments thereof, or drinking depressions were detected. Observation of any of these items would indicate current habitation by the species.

Additionally, no sign of desert tortoise was detected during the April 2019 rare plant surveys that covered the same project area as the protocol desert tortoise survey.

Mohave Ground Squirrel

The Mohave ground squirrel was listed by the State of California as a threatened species throughout its endemic range in the northwestern Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties (Best 1995) and is a covered species under the DRECP.

The Mohave ground squirrel occurs in a variety of desert shrubland habitats. Although most often found in creosote bush scrub it has also been recorded in desert saltbush scrub, desert sink scrub, desert greasewood scrub, shadscale scrub, Joshua tree woodland, and Mojave mixed woody scrub. Mohave ground squirrel typically occupies areas with open vegetative cover and small bushes (< 0.6 meter (2 feet) in height) spaced approximately 6 to 9 meters (20 to 30 feet) apart. Mohave ground squirrel prefers deep, sandy to gravelly soils on flat to moderately sloping terrain and will avoid rocky areas for the most part (Best 1995) The species is not known to occupy areas of desert pavement. Soil characteristics are particularly important because Mohave ground squirrel construct burrows to provide temperature regulation, avoid predators, and use during the inactive season. The Mohave ground squirrel breeding season is from mid-February to mid-March.

Based on the vegetative and soil characteristics of the project area, as well as the extensive information available for Mohave ground squirrel throughout the general region of the project area, the potential for occurrence was determined to be moderately high to high based on the habitat assessment, described below.

Habitat Assessment

A habitat assessment was conducted for Mohave ground squirrel by Dr. Philip Leitner between February 9 and 12, 2019. This habitat assessment was completed to determine the potential for occurrence of this species within the project site. Potential habitat is land within or adjacent to the geographic range of the Mohave ground squirrel that supports desert shrub vegetation.

The project area is within the geographic range of Mohave ground squirrel and there are 3 CNDDB records of this species being trapped and identified during surveys within the immediate area of the project site. There was one observation of Mohave ground squirrel within the southwest corner of Site 1. There were no observations within Sites 2 through 4. There were two observations immediately adjacent to the proposed Aratina project site, one just west of Site 3 and one just east of the gen-tie/conductor lines located above the Mojave Barstow Freeway.

Given the intact nature of the vegetation communities (creosote bush scrub and Mohave desert scrub), limited human disturbances, the appropriate soil types for burrow construction, and the availability of forage and cover from predators and weather events, Dr. Leitner concluded that the project area may support a Mohave ground squirrel population. During the botanical survey, a botanist who is also experienced with Mohave ground squirrel, heard a call she identified as Mohave ground squirrel (D. LaBerteaux, personal communication, May 17, 2019).

Although presence may be assumed, the distribution of Mohave ground squirrel across the site as well as the density of individual populations, has not been determined. Data from additional surveys could provide details from which the potential for impacts from site development could be evaluated.

Golden Eagle

The golden eagle is a California Fully Protected species; a USFWS Bird of Conservation Concern; is on the California Watch List of Species of Special Concern; is designated as sensitive by the California Department of Forestry and Fire Protection (CALFIRE); and is a covered species under the DRECP. The

golden eagle is also protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act.

The golden eagle occurs in open habitats, especially in the mountains and hills, where it can spot prey from the air. Its diet in the desert regions consists mainly of rabbits and ground squirrels but also includes small mammals; birds; reptiles; insects; and newborn or juvenile mule deer, bighorn sheep, and domestic livestock. It will also eat carrion to include roadkill animals. Golden eagles nest atop tall trees, high on rocky cliffs, or on electrical transmission towers. Often, a breeding pair uses 2-3 or more nests, alternately, over their lifetime. Consequently, the nests can become very large. In the western United States, territories are occupied year-round and can be 22-33 square kilometers (sq km) in size during the breeding season.

The CNDDB and CNDDB QuickView database searches resulted in nine nesting locations for golden eagles in the region surrounding the project area. The most recent record of nesting was in 2012 at a location south of Jawbone Canyon, 27 miles northwest of the project area. Nesting at locations nearest to the project area, in California City, have not been recorded since the 1970s (CNDDB 2019). No additional nesting information was provided by the BLM (Woods 2019) or Edwards AFB (Zimmerman 2019).

While there is no nesting habitat on-site, the project area may be within the home range of an unknown number of nesting golden eagles. Foraging several kilometers from nest sites, golden eagles may use the project area for foraging as it likely supports populations of black-tailed jackrabbits (*Lepus californicus*), California ground squirrels (*Otospermophilus beecheyi*), and other ground squirrel species. No golden eagles were observed using the project area or surrounding areas during the vegetation community assessment conducted in February 2019.

Western Burrowing Owl

The burrowing owl is a USFWS Bird of Conservation Concern; is designated by CDFW as a Species of Special Concern; and is a covered species under the DRECP. Under the CDFW designation, this species must be observed at a burrow site or evidence of recent occupation such as whitewash and feathers must be present in order to positively determine its presence. The burrowing owl is protected under the MBTA.

Burrowing owls typically use a variety of arid and semi-arid environments with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground. They occur in a wide variety of habitats including annual and perennial grasslands, deserts, and scrublands with low-growing vegetation. Agriculture and surface irrigation systems (i.e., earthen canals and ditches) can create habitat by providing bankside burrow sites and prey in the adjacent fields. Burrows are an essential habitat component for this species, and both natural and artificial burrows will be used for nesting. The western burrowing owl typically uses burrows made by desert tortoise, ground squirrels, or badgers, but also may use structures such as cement culverts, wood debris piles; openings beneath cement or asphalt pavement, soil embankments, agricultural fields and canal embankments, stored pipe, and stored shipping pallets.

Nesting generally occurs between February and August, with peak activity from March to July. Nesting sites always have available perching sites, such as fences or raised rodent mounds. They are primarily monogamous and typically breed once per year.

Resident burrowing owls have been recorded more than 10 miles southwest of the project area in the Antelope Valley; more than 10 miles west of the project area south of California City; and more than 15 miles north of the project area in the Rand Mountains. These owls are typically associated with agricultural

activities and other suburban and urban developments. The potential for burrowing owl to be present on the project area is low to moderate based on the current and historical CNDDB records.

Protocol Surveys

As mentioned above, the USFWS protocol surveys for desert tortoise included a concurrent survey for all other potentially occurring sensitive and special-status wildlife species to include CDFW protocol surveys for burrowing owl. Because the CDFW 2012 protocol for burrowing owl is different than for desert tortoise, a breeding season survey was conducted in April and May of 2019 in accordance with CDFW burrowing owl protocols that included a 150-meter wide buffer area survey adjacent to the project site boundaries. Burrowing owl buffers were not walked adjacent to the gen-ties.

Burrowing owl buffers were established around the entire project perimeter where possible. Exceptions included the southern boundary of Sites 1, 2, and 3 and the western boundary of Site 3 where the project area abuts the Edwards Air Force Base property. A portion of the buffer south of Site 4 was also narrowed because of Edwards Air Force lands. Burrowing owl buffers were also not established where the project abutted the communities of Boron and Desert Lake and along SR 58.

No live burrowing owls were observed within the project area. Two active burrowing owl burrows were located within 10 meters of each other in Site 1 (refer to Appendix D-1 of this EIR). No other active burrowing owl burrows were detected. Three inactive burrowing owl burrows were observed within Site 2. All were within 150 meters of each other. No additional burrowing owl sign was found within the project area or the 150-meter wide burrowing owl buffer survey area. Burrowing owl sign was not observed in Sites 3, 4, or 5.

Gray Vireo

The gray vireo is a USFWS Bird of Conservation Concern and is designated by CDFW as a Species of Special Concern. The gray vireo is also protected under the MBTA.

This small songbird inhabits brushy mountain slopes, mesas, open chaparral, scrub oak, and juniper habitats. It breeds in dry thorn scrub, chaparral, pinyon-juniper and oak-juniper scrub, or sagebrush and mesquites of arid foothills and mesas, between approximately 2,000 and 6,500 feet above mean sea level in elevation in the eastern and southern portions of California. The gray vireo is a short-distance migrant that winters in northwestern Mexico near the coast in dry thorn scrub of elephant trees and giant cacti. It migrates to Mexico at the end of August and returns to the southwestern U.S. between March and early May.

The gray vireo forages within 5 feet of the ground, moving actively through the brush on dry slopes seeking out insects and fruits. It nests in shrubs, usually oak or juniper, and lays 3 to 5 eggs and has two broods per year.

There is one CNDDB record of gray vireo over 20 miles northwest of the project area. The location is in Fremont Valley area north of California City. The potential for gray vireo to be present on the project area is low and they may only be detected during migration between nesting areas to wintering locations in Mexico.

Prairie Falcon

The prairie falcon is a USFWS Bird of Conservation Concern and is on the California Watch List of Species of Special Concern. The prairie falcon is also protected under the MBTA.

Prairie falcons are uncommon permanent resident birds that range from the southeastern deserts, northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada Mountains. This species is distributed from annual grasslands to alpine meadows and is primarily associated with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Prairie falcons require sheltered cliff ledges for cover and nesting where they nest in a scrape or utilize an old raven or eagle stick nest on cliff, bluff, or rock outcrop.

While there is no nesting habitat on-site, the proposed project area may be within the home range of an unknown number of foraging and/or nesting prairie falcons based on species accounts to the north, west, and east of the project area. Foraging several kilometers from nest sites, prairie falcons may use the project area for foraging.

Mountain Plover

The mountain plover is a USFWS Bird of Conservation Concern; is designated by CDFW as a Species of Special Concern; and is a covered species under the DRECP. The mountain plover is also protected under the MBTA.

Mountain plovers are migratory birds that winter in California between September and March. Mountain plovers are found in semi-arid plains, grasslands, and plateaus where they favor areas of very short grass and bare soils for nesting. Their nests are associated with prairie dog colonies. Their winter habitats include desert flats and plowed fields where they range widely in winter flocks of up to 100 or more individuals.

Wintering mountain plover have been recorded in the CNDDB as occurring more than 10 miles southwest of the project area on and off Edwards Air Force Base in the Antelope Valley area as well as northwest of the project over 20 miles in distance east of Cantil. The potential for occurrence of mountain plover within the project area may be low but not improbable.

San Joaquin Population of Le Conte's Thrasher

The San Joaquin population of Le Conte's thrasher is a USFWS Bird of Conservation Concern and is designated by CDFW as a Species of Special Concern. The Le Conte's thrasher is also protected under the MBTA.

Le Conte's thrashers in the San Joaquin Valley occur entirely within California, residing only in the southern San Joaquin Valley and adjacent Cuyama Valley and Carrizo Plain (Grinnell and Miller 1944, Sheppard 1996). The highest densities occur in the Maricopa area of southwestern Kern County followed by the McKittrick area in western Kern County and then by the Carrizo-Elkhorn Plains of San Luis Obispo County (Sheppard 1996).

This species is a permanent resident and breeds from early February to late June (Sheppard 1996). The breeding and wintering habitat requirements of this thrasher are specialized and nesting areas must have at least a few larger, dense shrubs for nest placement (Sheppard 1996). Foraging areas must be well drained and have a significant percentage of bare ground and a well-developed litter layer near shrubs.

There is one CNDDB record of Le Conte's thrasher within 10 miles southeast of the project area on Edwards Air Force Base and another record further south of Edwards Air Force Base. Neither of these observations are likely to be Le Conte's thrashers of the San Joaquin population. The potential for Le Conte's thrasher of the San Joaquin population to be present on the project area is not possible due to this species endemic occurrence within the western portions of Kern County.

Tricolored Blackbird

Tricolored blackbird is a USFWS Bird of Conservation Concern; is designated by CDFW as a Species of Special Concern; and is a covered species under the DRECP. The tricolored blackbird is also protected under the MBTA.

Tricolored blackbird populations have declined seriously in recent decades due to loss of freshwater habitats which include freshwater marshes with dense stands of cattails or bulrushes which they require for breeding and rearing young. The tricolored blackbird breeds throughout California west of the Sierra Nevada Mountains and the eastern desert areas. They congregate in dense colonies during the breeding season. They forage in flocks in open areas nearby that include farm fields, pastures, cattle pens, and large lawns that will include other similar bird species such as such as red-winged blackbird (*A. phoeniceus*) and European starlings (*Sturnus vulgaris*).

There are CNDDB records of tricolored blackbirds over 20 miles northwest of the project area in Fremont Valley east of Cantil and east of California City, and over 20 miles southwest of the project area in the Antelope Valley. The potential for tricolored blackbird to be present on the project area is very low due to the lack of appropriate breeding habitat and foraging areas.

Desert Kit Fox

The desert kit fox currently does not have federal or State of California special-status designation; however, it is protected from "take" as a furbearing mammal pursuant to the California Code of Regulations (CCR), Title 14 [Natural Resources], Division 1 [Fish and Game Commission-Department of Fish and Game], Subdivision 2 [Game, Furbearers, Nongame, and Depredators], Chapter 5 [Furbearing Mammals], Section 460 [Fisher, Marten, River Otter, Desert Kit Fox and Red Fox] (Westlaw 2019). Section 460 specifically states that desert kit fox "…may not be taken at any time."

In the California desert region, desert kit fox populations are closely associated with creosote bush scrub communities. In California, the desert kit fox lives in the Mojave and Colorado deserts in inland Southern California from Inyo County to the Mexican border. Desert kit fox range extends into southern Nevada, western Arizona, the southwest tip of Utah, and Mexico.

Kit foxes are semi fossorial and primarily nocturnal, residing in subterranean dens with typical keyhole shaped entrances. The desert kit fox is primarily threatened by large-scale industrial energy development, which causes habitat loss, degradation, and fragmentation (Kadaba 2014). This species is also affected by increased non-native plant cover, urbanization, mortality from vehicle strikes, mortality from off-road vehicle impacts, increased competition with other canids, depredation, agriculture, grazing, climate change, and disease such as rabies and canine distemper transmitted by feral and domestic dogs.

The CNDDB does not track the occurrence of desert kit fox. However, the potential for their occurrence on site is moderate to high. Surveys for this species were included in the April and May 2019 wildlife surveys of the project area.

Survey Results

As stated above, the desert kit fox currently does not have federal or State of California special-status designation; however, it is protected from hunting as a fur-bearing mammal under 14 CCR 460. For this reason, all observations were recorded during the protocol desert tortoise and burrowing owl survey (described above). This included, but was not limited to, the collection of the following data: location of observation, status of den(s) (active, inactive, pupping), and number of entrances to den(s).

A total of 152 desert kit fox dens were located within the project area and within burrowing owl buffer survey areas (refer to Figure 13 in Appendix D-1 of this EIR). This included 4 pupping dens, 11 active dens, and 137 inactive dens. Portions of the project area are occupied by desert kit fox and their dens were found throughout the project area. However, they appeared to generally transition from higher to lower density moving from east to west. Most of the dens, which may persist for years, were inactive (n=137) but 11 active dens and 4 pupping dens were also recorded. All of the active dens were in Sites 1, 2, and 3 while two pupping dens were located in Site 2 and two were located in the burrowing owl buffer survey areas.

American Badger

The American badger is a furbearing mammal that is designated as a California Species of Special Concern and is also subject to hunting regulations under CCR, Title 14, Division 1, Subdivision 2, Chapter 5, Section 641.

American badger occurs throughout most of California and is an uncommon and permanent resident of open desert shrublands, interior and coastal shrublands, forests, herbaceous habitats, and open areas in grasslands and agricultural areas. It digs large burrows in dry, friable soils. They may reuse older burrows, dig new a den every night, or use the burrows of other animals such as coyote, desert tortoise, and kit fox.

Although there are no CNDDB records for American badger in the project area, the potential for their occurrence on site is low to moderately high. Due to the mobility of this species and its preferred foraging habitat, this species is anticipated to potentially occur on site as an occasional transient or forager if no active dens are discovered. Surveys for this species were included in the April and May 2019 wildlife surveys of the project area.

Survey Results

As previously mentioned above, all observations for the American badger were recorded during the protocol desert tortoise and burrowing owl survey.

One inactive American badger den was observed in Site 3 (refer to Figure 13 in Appendix D-1 of this EIR). There were no observations of live badgers or any other badger sign detected. The single American badger den located in Site 3 appeared inactive, suggesting that the species does not occur on the site. However, badgers generally modify existing burrows such as from desert kit fox, making them sometimes difficult to distinguish from a large desert kit fox den or a coyote den. Due to the mobility of this species and its preferred foraging habitat, the American badger is anticipated to potentially occur on the project area as an occasional transient or forager.

Wildlife Movement Corridors

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 does not lie within a recognized wildlife connectivity area as mapped by the California Essential Habitat Connectivity Project. The project site and surrounding area contain expanses of open habitat with little development and the site lacks any significant barriers to local wildlife movement. However, such elements as local highways (i.e., SR 58) and industrial operations (i.e., mining operations such as Borax Mine), along with established local communities such as Boron and Desert Lake, may deter wildlife movement in the project vicinity and the surrounding area.

Wildlife would be expected to traverse the project site unimpeded during foraging and dispersal. Various species may travel between and among surrounding areas of low disturbance (predominantly present immediately to the east, south, and west of the project site), and drainage features such as Twenty Mule Team Creek. The most likely areas for wildlife movement in this portion of the Mojave Desert would be within larger drainages, uninterrupted spans of native vegetation (creosote scrub, Joshua tree woodland, etc.), or along the foothills of the Tehachapi Mountains to the west, or San Gabriel Mountains to the south.

Jurisdictional Waters

Jurisdictional waters include aquatic resources such as streams, creeks, lakes, riparian areas, wetlands, and certain aquatic vegetation communities, which are considered sensitive biological resources and can fall under the jurisdiction of federal and/or State regulatory agencies including the U.S. Army Corps of Engineers (USACE), CDFW, and/or South Lahontan Regional Water Quality Control Board (RWQCB).

According to the *Jurisdictional Waters and Wetlands Delineation* prepared by Rincon in 2019 for the proposed project, five ephemeral drainages were identified and delineated in the project area. These ephemeral drainages convey water flows only during and immediately after high precipitation events. Evidence of fluvial activity in the primary channels of the drainages is distinct, and primarily consists of defined channels with low banks, changes in soil character, and marginally decreased vegetative cover. The delineated drainages, including the primary channels and associated adjacent channels, in general were distinct and separated by local topography and elevations of land that confine them to a definite course when waters rise to their highest level. Vegetation species composition in the drainages and margins generally does not differ from the surrounding areas, although vegetation density is generally slightly lower. Soils consist primarily of unconsolidated particles including sand and gravel. Evidence of sediment sorting was observed. Infiltration rates are high. Overall, the movement of sediment, organic debris, and nutrients is limited.

Table 4.4-5, *Summary of Jurisdictional Features within Project Area*, and the sections below summarize the jurisdictional drainages delineated throughout the project site. No drainages were identified within Sites 1 and 3 based on the absence of flow, channel, bank and bank indicators. The *Jurisdictional Waters and Wetlands Delineation* prepared for the project is located in Appendix D-2 of this EIR. **Figure 4.4-5**, *Ephemeral Drainages Onsite*, illustrates the locations of the five ephemeral drainages that occur within the project site.

Table 4.4-5. Summary of Jurisdictional Features within the Project Area

Drainage ID	Site Location	RWQCB Jurisdiction (acres / linear feet)	CDFW Streambed and Banks (acres / linear feet)
ED-1	5	0.02 / 215	0.03 / 215
ED-2	4, 5	2.67 / 6,106	3.53 / 6,106
ED-3	5	0.34 / 2,031	-20.63 / 2,031
ED-4	2	10.87 / 5,580	43.90 / 5,580
ED-5	2	0.09 / 679	0.12 / 679
Total		**13.99 / 14,611**	**48.21 / 14,611**
Source: Rincon 2020; see Appendix D-2.			

Ephemeral Drainage 1 (ED-1)

ED-1 is located in Site 5, entering the site from the north and moving in a southerly direction for approximately 215 feet. A berm on the north side of the road was present and no significant indicators of bed, bank, or channel were present to the north. The drainage appears to originate from runoff from the roadway. Minor scouring and low banks defined the channel. The drainage bed was approximately 2 feet wide and approximately 3 feet to the tops of the banks. No evidence of flow was present after approximately 220 feet, where the feature dissipated and was indiscernible from the surrounding areas. No evidence of flow was present outside of the single narrow shallow channel (no fluvial activity in adjacent areas outside the channel).

Ephemeral Drainage 2 (ED-2)

ED-2 is located approximately 0.25 mile east of ED-1 in Site 5. A primary drainage channel enters Site 5 from the north and travels in a southeastern direction to culverts immediately north of westbound SR 58. It continues south of SR 58 into Site 4 and exits Site 4 at Twenty Mule Team Road through a culvert. The ordinary high water mark (OWHM) width averaged approximately 25 feet and CDFW top of banks averaged 35 feet across Sites 4 and 5. Vegetation was mostly absent in the active channels. The primary channel was incised and approximately 1-2 feet in height with heavily eroded banks. Indicators primarily included a wider floodplain and small shallow side channels associated with the primary channel. South of SR 58, the channel enters Site 4 via three culverts and contains low gradient terraces and more incised banks approximately 2-3 feet high, with numerous drift piles. Flow indicators here (as with areas north of SR 58) included gravel bars, mud cracks, sand sediment ramps, wrack, and erosion (exposed roots, scour and water-cut benches).

Ephemeral Drainage 3 (ED-3)

ED-3 is located east of ED-2 in Site 5. The primary drainage channel enters the site from the north and travels in a southwestern direction to its confluence with ED-2 approximately 0.3 mile downstream. This drainage is similar to ED-2, with an OWHM approximately 15 feet wide, with a change in vegetation cover and a break in bank slope. A 1-foot wide low-flow channel was also observed in the OWHM that was lined with drift and debris and was devoid of vegetation. Flow indicators were well defined including mud cracks, sediment sorting, organic drift and wrack, and erosion indicators including exposed roots, cut banks, scour, and water-cut benches.

Ephemeral Drainage 4 (ED-4)

ED-4 is located in the center of Site 2, entering the site from the south as a braided feature. The drainage contained two larger single-thread channels in the eastern and western portions with clearly defined steep banks 2-3 foot high. A number of smaller, narrow, shallow braided channels were present between the larger outer channels. The channels contained drift and debris, and were generally devoid of vegetation. Flow indicators were included mud cracks, sediment sorting, organic drift and wrack, and erosion indicators including exposed roots, cut banks, scour, and water-cut benches.

Ephemeral Drainage 5 (ED-5)

ED-5 is located approximately 0.3 mile west of ED-4 in Site 2. The single thread drainage enters the site from the south through an Edwards Air Force Base boundary fence and flows in a northwestern direction. No evidence of flow was present after approximately 700 feet, where the feature dissipated and was indiscernible from the surrounding areas. The OHWM averaged 2 feet wide and was primarily defined by an absence of vegetation and low banks. Drift lines were observed along the banks of the channel, which spanned approximately 3 feet.

USACE Jurisdiction

Based on the ephemeral nature of the drainages delineated on site, the project site did not contain Waters of the U.S. subject to USACE jurisdiction, pursuant to the Clean Water Act (CWA). Although ephemeral drainages were identified and delineated in the project site, all surface water drains to Rogers Dry Lake and no surface connection exists to downstream navigable or interstate waters. Therefore, the USACE is not expected to assert jurisdiction over the features identified on the project site. Refer to Appendix D-2 of this EIR.

RWQCB Jurisdiction

Based on the results of the investigation, the project site did not contain wetland or non-wetland waters of the State subject to the jurisdiction of the RWQCB pursuant to the CWA. However, ephemeral features displaying an OHWM are expected to be jurisdictional waters of the State, pursuant to Porter-Cologne. Potential RWQCB waters are located in Sites 2, 4, and 5, totaling approximately 13.99 acres (14,611 linear feet) across the project site. Refer to Figures 6f through 6j in Appendix D-2 of this EIR.

CDFW Jurisdiction

Based on results of the investigation, drainages were delineated within Sites 2, 4, and 5 that show evidence of recent sediment deposition or OHWM and bed, bank, and channel characteristics and therefore are likely subject to CDFW jurisdiction. Approximately 48.21 acres were delineated using standard CDFW practices. The horizontal extent of CDFW jurisdiction is 14,661 linear feet. Refer to Figures 6a through 6e in Appendix D-2 of this EIR.

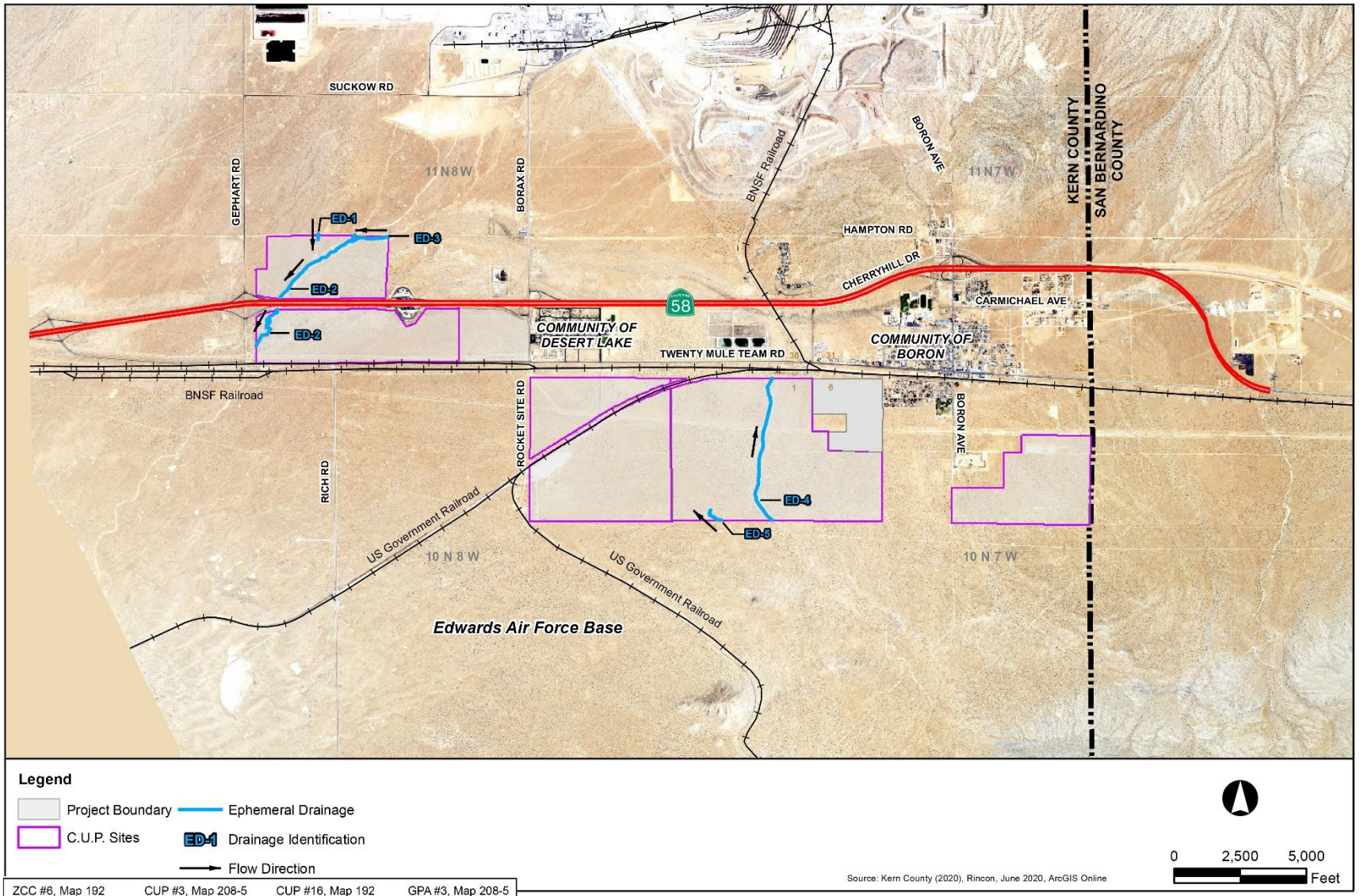


FIGURE 4.4-5. EPHEMERAL DRAINAGES ONSITE

4.4.3 Regulatory Setting

Federal

Endangered Species Act of 1973 (USC, Title 16, Sections 1531 through 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. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

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 or 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. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity. Section 9 lists those 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 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 Code of Federal Regulation (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 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 through 711)

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, domestically implements a series of treaties between the United States and 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 current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property. On December 22, 2017, the Office of the Solicitor of the Department of the Interior issued a Memorandum (Opinion M-37050) regarding the MBTA prohibition on incidental take, which substantially modifies the Department's policy regarding the enforcement of the MBTA against the incidental taking or killing of migratory birds. The Solicitor's Opinion is that the MBTA does not prohibit incidental take, such that "the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs."

Bald and Golden Eagle Protection Act of 1940 (USC, Title 16, Section 668, enacted by 54 Stat. 250)

The Bald and Golden Eagle Protection Act of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagles by prohibiting the taking, possession, and commerce of these species and establishes 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 interfering 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 1251 through 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 a project proponent for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain State certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCBs each administer 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 USACE that regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. USACE implementing regulations are found at 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 U.S. Environmental Protection Agency 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.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the ordinary high-water mark.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE 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" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE 1987).

Desert Renewable Energy Conservation Plan

The Desert Renewable Energy Conservation Plan (DRECP) is a landscape-level plan that streamlines renewable energy development while conserving unique and valuable desert ecosystems and providing outdoor recreation opportunities. The DRECP plan area encompasses 22.5 million acres in the desert regions and adjacent lands of seven California counties: Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino and San Diego. The DRECP is a collaborative effort between the California Energy Commission, CDFW, Bureau of Land Management (BLM), and USFWS (DRECP 2017b).

The BLM signed the Record of Decision approving its Land Use Plan Amendment on September 14, 2016, completing Phase 1 of the DRECP. The BLM Plan Amendment covers the 10 million acres of BLM managed lands in the DRECP plan area and supports the overall renewable energy and conservation goals of the DRECP. Phase 2 of the DRECP would apply to private lands and focus on better aligning local, State, and federal renewable energy development and conservation plans, policies, and goals. It includes building off of the Renewable Energy Conservation Planning Grants that were awarded by the California Energy Commission to counties in the plan area (DRECP 2017b). No State or local government has adopted the DRECP for application to private lands and the DRECP therefore does not apply to the project site.

State

California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) 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. There are no State agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take

authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project proponent would have to apply for an incidental take permit under Section 2081(b) to remain in compliance with the CESA. See discussion below regarding details for California Fish and Game Code Sections 2080 and 2081.

Regional Water Quality Control Boards

Under Section 401 of the CWA, the RWQCBs must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCBs also regulate waters of the State under the Porter-Cologne Act Water Quality Control Act (Porter Cologne Act). The RWQCBs require projects to avoid impacts to wetlands, if 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 RWQCBs typically require compensatory mitigation for impacts to wetlands and/or waters of the State. The RWQCBs also have jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the State and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the applicable RWQCB and comply with other requirements of Porter-Cologne Act. The project area is located within the jurisdiction of the Lahontan RWQCB.

On April 2, 2019, the State Water Resources Control Board (SWRCB) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures were approved by the Office of Administrative Law on August 28, 2019, and became effective on May 28, 2020.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the State fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA. The project site is under the jurisdiction of the South Lahontan RWQCB and its associated basin plan and is situated within the North Muroc Hydrologic Area. According to the basin plan, surface waters occurring within the North Muroc Hydrologic Area may possess the following beneficial uses: municipal and domestic supply (MUN), agricultural supply (AGR), ground water recharge (GWR), water contact recreation (REC-1), noncontact water recreation (REC-2), commercial and sportfishing (COMM), warm freshwater habitat (WARM), cold freshwater habitat (COLD), and wildlife habitat (WILD).

California Fish and Game Code

Sections 1600 through 1616. Under these sections of the California Fish and Game Code (CFGC), the 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 code, 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 or 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, which becomes part of the plans, specifications, and bid documents for the project.

Sections 2080 and 2081. Section 2080 of the California Fish and Game Code states that no person shall import into or export out of the state of California, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the California Fish and Game Commission determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter [Chapter 1.5 Endangered Species], or the Native Plant Protection Act, or the CDNPA. Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project proponent ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Sections 3503 3503.5, 3513, and 3800. Under these sections of the California Fish and Game Code, the project proponent is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey or their nests or eggs; the taking or possessing of any migratory nongame bird as designated in the MBTA unless authorized by rules or regulations approved by the Secretary of the Interior; the taking, possessing, or needlessly destroying of the nest or eggs of any bird; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800.

Sections 3511, 4700, 5050, and 5515. Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species unless authorized pursuant to the Natural Community Conservation Planning Act or through specific legislative action.

Sections 4000 through 4003. Under Section 4000 of the California Fish and Game Code, it is unlawful to conduct activities that would result in the taking, possessing, or destroying of any fur-bearing mammals, including desert kit foxes, without prior authorization from the CDFW.

CEQA Guidelines, Section 15380

Although threatened and endangered species are protected by specific federal and State statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or State list of protected species

may be considered rare or endangered 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 the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents such as general plans often identify these resources as well.

California Native Plant Protection Act (California Fish and Game Code Sections 1900 through 1913)

California's Native Plant Protection Act (California Fish and Game Code Sections 1900 through 1913) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of this act prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. The project proponent is required to conduct botanical 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.

California Desert Native Plant Protection Act (California Food and Agricultural Code Sections 800071 through 80075)

The California Desert Native Plant Protection Act (CDNPA) affords protection to certain native desert plant species, including all species of the agave family (*Agavacae*), all species of the genus *Prosopis*, all species of the genus *Cercidium*. It is applicable only within the boundaries of the Counties of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego. Within these counties, the CDNPA prohibits the harvest, transport, sale, or possession of specific native desert plants unless a valid permit or wood receipt, and required tags and seals are obtained. The sheriff or commissioner of the county where the collection will occur will provide the appropriate permits, tags, and seals for a fee. It restricts harvesting of the following plants, except for educational or scientific purposes under a permit issued by the commissioner of the county in which the native plants are growing:

- All species of the genus Burseraceae family (such as elephant tree [*Bursera microphylla*], saguaro cactus [*Carnegiea gigantean*], barrel cactus [*Ferocactus acanthodes*], and panamint dudleya [*Dudleya saxosa*])

The CDNPA also restricts harvesting of the following species, except under a permit issued by the commissioner of the sheriff of the county in which the native plants are growing:

- All species of the agave family (Agavaceae)
- All species of the genus *Prosopis*

- All species of the genus *Cercidium*
- All species of the cacti family Cactaceae, besides saguaro and barrel cactus, which are protected as described above
- All species of the ocotillo and candlewood family Fouquieriaceae

Catclaw (*Acacia greggii*), desert-holly (*Atriplex hymenelytra*), smoke tree (*Dalea spinose*), and desert ironwood (*Olneya tesota*)

Local

Kern County General Plan

The Kern County General Plan identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County during the decision-making process for any project that could affect biological resources.

The Land Use, Open Space, and Conservation Element of the Kern County General Plan 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.

Chapter 1. Land Use, Open Space and Conservation Element

1.10. General Provisions

1.10.5. Threatened and Endangered Species

Goals

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

Policy 27: 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 botanical 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 provisions of CEQA, the County, as lead agency, will solicit comments from the CDFW and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.

Policy 32: Riparian areas will be managed in accordance with 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 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.

Measure S: Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Chapter 5. Energy Element

5.2 Importance of Energy to Kern County

Policies

Policy 8: The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 9: The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

Kern County Zoning Ordinance

Chapter 19.81. Dark Skies Ordinance (Outdoor Lighting)

In November 2011, Kern County approved a Dark Skies Ordinance. The purpose of this ordinance is to maintain the existing character of Kern County by requiring a minimal approach to outdoor lighting, recognizing that excessive illumination can create a glow that may obscure the night sky, and that excessive illumination or glare may constitute a nuisance. The ordinance provides requirements for outdoor lighting within specified unincorporated areas of Kern County in order to accomplish the following objectives:

Objective 1: Encourage a safe, secure, and less light-oriented night-time environment for residents, businesses and visitors.

Objective 2: Promote a reduction in unnecessary light intensity and glare, and to reduce light spillover onto adjacent properties.

Objective 3: Protect the ability to view the night sky by restricting unnecessary upward projections of light.

Objective 4: Promote a reduction in the generation of greenhouse gases by reducing wasted electricity that can result from excessive or unwanted outdoor lighting.

Kern County Development Standards

The Kern County Development Standards have specific regulations pertaining to lighting standards including the requirement that lighting must be designed so that light is reflected away from surrounding land uses so as not to affect or interfere with vehicular traffic, pedestrians, or adjacent properties.

4.4.4 Impacts and Mitigation Measures

This section evaluates the impacts to biological resources that may occur during construction and operation of the proposed project. It describes the sensitive biological resources located on and adjacent to the project site that may be affected and identifies the thresholds used to determine whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

The proposed project's potential impacts to biological resources have been evaluated using a variety of resources, including the *Biological Evaluation – Aratina Solar* located in Appendix D-1 (EPC 2020) of this EIR, the *Jurisdictional Waters and Wetlands Delineation* located in Appendix D-2 (Rincon 2020) of this EIR, as well as a thorough literature and database review. Project impacts were assessed based upon the location of construction, operation and maintenance, and decommissioning activities and the siting of permanent project improvements. The potential for special-status species to occur on the project site is based on the results of database research, biological assessments, field surveys conducted on the project site, presence of suitable habitat, and the proximity of the project site to previously recorded occurrences that have been reported to the CDFW and CNPS. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect on biological resources.
A project could have a significant adverse 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 CDFW or the USFWS;

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS;

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; or,

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.

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in Appendix A of this EIR, that the proposed project would not result in significant impacts to some of these environmental issue areas and that no further analysis would be needed in the EIR; these issue areas are thus scoped out of this EIR. It was determined that the project would not:

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The project is considered to be consistent with the Land Use, Open Space, and Conservation Element of the Kern County General Plan. The project site is located within the Desert Renewable Energy Conservation Plan (DRECP) planning area, which means that the area is expected to support fewer sensitive status species than areas identified with conservation potential and is therefore more likely to be appropriate for renewable energy development. However, the DRECP at this time only applies to federal public lands managed by the Bureau of Land Management and is not an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). The proposed project would be located on private land and therefore is not subject to the DRECP. There are no other adopted conservation plans for protection of biological resources governing the project area. No impact would occur as the proposed project would not conflict with the provisions of an adopted habitat conservation plan. No further analysis in the EIR is warranted.

Project Impacts

Impact 4.4-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS.

Overview

The project has the potential to impact special-status plants and wildlife through the loss of habitat as well as direct and indirect impacts on wildlife, such as mortality of individuals or interference with reproductive success. Potential impacts to special-status plants and wildlife from construction, operation and maintenance, and decommissioning are discussed below.

Construction

Special-Status Plant Species

Potential permanent, direct impacts to special-status and other protected plants, where present, could occur in association with habitat loss from implementation of the proposed project by removal of existing vegetation and permanent development of the solar facility and associated gen-tie. In addition, grading associated with these activities could result in mortality of special-status plant individuals. Potential permanent, indirect impacts to special-status plant species, if present, may arise from population fragmentation and introduction of non-native weeds. Population fragmentation could affect pollinator activity and adversely affect gene flow. Introduction and establishment of invasive weeds within, or adjacent to, special-status plant populations can adversely affect native species by reducing growth and recruitment. Other than numbers of plants lost, the potential for permanent, direct impacts is expected to be identical between the solar facility and associated gen-tie, with the exception that only one of four non-CDNPA special-status plants is present within the gen-tie. A total of 132 desert cymopterus; 69 Barstow woolly sunflower; 131,679 Mojave spineflower; and 938 crowned muilla were found within the solar facility. By contrast, 4,000 Mojave spineflower were found in the gen-tie. Permanent, direct impacts would be avoided or reduced to less than significant through implementation of Mitigation Measures MM 4.4-1 through MM 4.4-8, and MM 4.4-10 through MM 4.4-13, which include a construction Worker Environmental Awareness Program (WEAP), general protective measures, requirements for preconstruction rare plant surveys, and development of a Habitat Mitigation Plan, if required by wildlife agencies, to ensure adequate knowledge, management and conservation of botanical resources, control weed infestations, and limit worker access to habitat outside designated work areas.

Loss of more than 10 percent of habitat occupied by on-site special-status plant species (i.e., desert cymopterus, Barstow woolly sunflower, Mojave spineflower, and crowned muilla), where present within the project area or potentially occurring within the project area, would be considered significant. However, this potentially significant impact can be mitigated to less than significant through the implementation of Mitigation Measure MM 4.4-12. All four of these special-status plant species are present within the solar facility, with no special-status plants present within the gen-tie.

Loss of plants protected under the CDNPA (i.e., silver cholla, diamond cholla, beavertail, and Joshua tree), where present within the project area or potentially occurring within the project area, would be considered significant if their removal was undertaken without a permit. However, this potentially significant impact can be mitigated to less than significant through implementation of Mitigation Measure MM 4.4-13. All four of these CDNPA plant species are present within the solar facility, with only Joshua tree present in the gen-tie of the CDNPA plants.

In addition, potential temporary, indirect significant impacts to special-status plant species located off-site could arise from runoff and sedimentation, erosion, fugitive dust, and unauthorized access by construction workers. Runoff, sedimentation, and erosion can adversely affect plant populations by damaging individuals or by altering site conditions sufficiently to favor other species that could competitively displace the special-status species. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Unauthorized access by construction workers and their vehicles could trample and destroy individuals outside of, but immediately adjacent to, the proposed construction areas. These impacts would be avoided or reduced to less than significant through implementation of the general project avoidance and minimization measures as proposed in Mitigation Measures MM 4.4-1, MM 4.4-4 through MM 4.4-8, MM 4.4-10, and MM 4.4-11.

Western Joshua Tree. Joshua trees were found scattered throughout the project area, in both the solar facility and gen-tie. The Joshua tree woodland rare alliance was not quantified during project surveys but was found to be present scattered throughout several additional vegetation communities including but not necessarily limited to creosote bush-white bursage scrub (*Larrea tridentata-Ambrosia dumosa*) shrubland alliance, allscale scrub (*Atriplex polycarpa*) shrubland alliance, white bursage scrub (*Ambrosia dumosa*) shrubland alliance, and spinescale (*Atriplex spinifera*) shrubland alliance.

Potential permanent, direct impacts to on-site Joshua trees primarily include the complete loss of this species and this sensitive natural community within the boundaries of the project area from removal of existing vegetation and permanent development of the site. Potential permanent, indirect impacts to western Joshua trees may arise from population fragmentation in regard to surrounding regional occurrences of this species and this habitat type. As proposed, the project would impact approximately 88 acres of western Joshua tree habitat; refer to **Table 4.4-6**, *Project Impacts on Western Joshua Tree*.

Table 4.4-6. Project Impacts on Western Joshua Tree

Area	Impact Area (in Acres)
Project Area	86.99
Kramer Gen-Tie	1.01
Project Impact Area Total	88.0
Source: Eremico Biological Services 2021: see Appendix D-3.	

Such impacts would be reduced to less than significant through implementation of Mitigation Measures MM 4.4-1 through MM 4.4-8, and MM 4.4-12. In addition, Mitigation Measure MM 4.4-13 would apply if western Joshua tree is no longer listed as a ‘candidate,’ ‘threatened,’ or ‘endangered’ species under the CESA at the time of issuance of a building or grading permit, whereas MM 4.4-14 would apply if western Joshua tree is still listed as a ‘candidate,’ ‘threatened,’ or ‘endangered’ species under the CESA at the time of issuance of a building or grading permit in areas that would involve the removal of western Joshua trees. Other than numbers of plants lost, the potential for impacts and associated mitigation between the solar facility and gen-tie would be identical.

Special-Status Wildlife

Mohave Ground Squirrel. Mohave ground squirrel occurs within the project area and potential direct impacts to Mohave ground squirrel include the potential for mortality of individuals during construction, operation, and decommissioning activities. Mohave ground squirrel are subject to similar direct impacts that could also occur to desert tortoise, burrowing owls, desert kit fox, and American badger. Direct impacts from construction activities include site grading, heavy equipment operation, and general vehicle traffic that could kill or injure Mohave ground squirrel as a result of collisions with construction equipment or entombment in burrows. Construction activities could also result in disturbance or harassment.

Indirect impacts to Mohave ground squirrel could include increased predator depredation resulting from increases in coyote, badger, domestic or feral dog, raven, and raptor population numbers increasing. Increases in predator populations can be due to various factors and conditions which may include but not be limited to the provision of new perching sites and temporarily ponding water from solar panel cleaning and in the proposed infiltration basins, as well as potential food items in unsecured trash containers. Such impacts would be considered significant.

The potential for direct and indirect impacts to Mohave ground squirrel within the solar facility and gen-tie is expected to be the same, with the same recommended mitigation measures. Implementation of Mitigation

Measures MM 4.4-1 through MM 4.4-11, MM 4.4-14 through MM 4.4-16, and MM 4.4-22, which avoid and minimize impacts to Mohave ground squirrel and other wildlife, includes acquisition of compensatory lands to mitigate for the loss of any suitable Mohave ground squirrel habitat that would reduce potential project-related impacts to this species to less than significant.

Desert Tortoise. Potential direct impacts to desert tortoise include the potential for mortality of individuals during construction, operation, and decommissioning activities. desert tortoise are subject to similar direct impacts that could also occur to Mohave ground squirrel, desert kit fox, American badger, and burrowing owl. Direct impacts from construction activities include site grading, heavy equipment operation, and general vehicle traffic that could kill or injure desert tortoise as a result of collisions with construction equipment or entombment in burrows. Construction activities could also result in disturbance or harassment. Although no live desert tortoise were detected during the April and May 2019 USFWS protocol survey, appropriate measures will be implemented to ensure no incidental take occurs during construction activities as described in Mitigation Measures MM 4.4-1 through MM 4.4-11, MM 4.4-15, and MM 4.4-22.

Indirect impacts to desert tortoise could include increased common raven depredation resulting from increases in raven population numbers due to the provision of new perching sites and temporarily ponding water from solar panel cleaning and in the proposed infiltration basins, as well as potential food items in unsecured trash containers. New project development can also increase the presence of other desert tortoise predators such as coyote, badger, and domestic or feral dogs. Such impacts would be considered significant.

Common ravens are a predator of desert tortoise and their population numbers in the Mojave Desert have been enhanced through human development, posing a threat to desert tortoise populations. The project operator may be required to implement Mitigation Measure MM 4.4-22, which includes project specific measures to manage raven populations during construction and operations of the proposed project. Impacts to desert tortoise and other wildlife resulting from potential increases in common raven populations in the project area as a result of the proposed project are addressed further in the common raven management discussion below.

All desert tortoise sign was found within the solar facility, with no tortoises or tortoise sign found within the gen-tie. No live tortoises were found anywhere within the project area. However, because this is a wide-ranging species that is known to occur in the project vicinity, the potential for impacts anywhere in the project area, including both the solar facility and the gen-tie, remains. With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-11, MM 4.4-15, and MM 4.4-22, potential impacts on desert tortoise would be reduced to less than significant.

Western Burrowing Owl. Although only two active and three inactive burrows were detected during the April and May 2019 CDFW protocol survey, this species could winter, breed, or forage within or adjacent to the project area. Vehicle traffic during construction, site operations and maintenance, and decommissioning activities could result in vehicle strikes and mortality of burrowing owls. Site grading could collapse or fill occupied burrows, potentially trapping and killing burrowing owls, as well as affecting reproductive success through nest destruction. The take of breeding and wintering habitat through the development of the solar arrays, associated facilities and access roads, transmission lines, and substations would also be considered a direct impact.

Indirect impacts could include degradation of breeding and wintering habitat off-site through increases in noise and light due to project construction and operations, potentially affecting breeding and wintering

burrowing owls. Project activities could result in reproductive failure should nests be located near to the project footprint as well as resulting in the potential loss of foraging habitat for this species.

Although burrowing owl burrows were only found within the solar facility, this species could occur within the gen-tie in the future if local mammals excavate burrows within the gen-tie areas. As such and because no live owls were observed, the potential for direct or indirect impacts to burrowing owls is expected to be the same between the solar facility and gen-tie. Potentially significant impacts on western burrowing owl would be reduced to less than significant levels through the implementation of Mitigation Measures MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-17, MM 4.4-18, and MM 4.4-22.

Desert Kit Fox. Desert kit fox active, inactive, and pupping dens were observed throughout the entire project area during the April and May 2019 wildlife survey. A total of 15 active and pupping dens were recorded, all within the solar facility, with inactive dens in both the solar facility and gen-tie. Since the potential for desert kit fox has a moderate to high occurrence throughout the project area, construction activities, including site grading, heavy equipment operation, and general vehicle traffic could kill or injure desert kit fox as a result of collisions with construction equipment or entombment in dens. Construction activities could also result in disturbance or harassment of individuals. Conversion of potential habitat to a solar facility would result in local reductions in foraging and dispersal habitat for desert kit fox. Potential impacts to desert kit fox and recommended mitigation are the same throughout the project area in both the solar facility and gen-tie. However, with implementation of Mitigation Measures MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, and MM 4.4-19, potential impacts on desert kit fox would be reduced to less than significant.

American Badger. Although one inactive burrow was detected during the April and May 2019 wildlife survey, American badger may forage on or disperse through the project area. Because their potential for occurrence on the project area is low to moderate, construction activities, including site grading, heavy equipment operation, and general vehicle traffic could kill or injure badgers as a result of collisions with construction equipment or entombment in dens. Construction activities could also result in disturbance or harassment of individuals. Conversion of potential habitat to a solar facility would result in local reductions in foraging and dispersal habitat for American badger. Potential impacts to American badger and recommended mitigation are the same throughout the project area in both the solar facility and gen-tie. However, with implementation of Mitigation Measures MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, and MM 4.4-19, potential impacts on American badger would be reduced to less than significant.

Golden Eagle and Other Raptors. Neither golden eagle nor prairie falcon were observed during the April and May 2019 wildlife survey. However, there is potential for these species to utilize the project area for foraging and perching. The SR 58 corridor could be a source for carrion for the golden eagle and the presence of Mohave ground squirrel, other diurnal and crepuscular small mammals (i.e., cottontails and ground squirrels), lizards and snakes, and small birds could be a foraging source for both the eagle and the falcon.

Access to power poles and other tall perching structures can provide these two species with an excellent view of the desert landscape for detecting prey as well as utilizing the perch to consume their prey. Shorter perch locations may include the many large stemmed Joshua trees on site and could be of foraging benefit for the red-tailed hawk, Cooper's hawk, northern harrier, and the American kestrel; all were observed during the April and May 2019 wildlife survey. Some raptors, such as red-tailed hawk, may nest in trees in nearby Boron or at rural residences nearby. The close proximity between nesting sites and foraging opportunities are important factors for raptors such as red-tailed hawk. The same conditions that factor into

the potential presence of golden eagle and prairie falcon also factor into the presence of the observed species.

Potential direct impacts to these raptor species include construction of gen-tie lines and collector transmission lines, which could provide additional perching structures that pose a high risk of electrocution and death for large birds. This potentially significant impact would be mitigated to less than significant levels through the implementation of Mitigation Measures MM 4.4-20 through MM 4.4-22.

Potential indirect impacts to raptors include the loss of foraging habitat and interference with reproductive success at nearby or potential on site nests due to noise and human activity associated with project construction. For instance, if red-tailed hawks were nesting within 500 feet or line of sight, project-related activities could potentially result in a nest failure. Potential impacts to raptors and recommended mitigation are the same for the solar facility and the gen-tie. Mitigation Measures MM 4.4-20 to MM 4.2-21 would reduce indirect impacts on avian species to less than significant.

Mountain Plover, Gray Vireo, and Other Migratory or Nesting Migratory Songbirds. A total of 28 avian species were detected during the April and May 2019 wildlife survey. These species are protected under the MBTA and various provisions of the California Fish and Game Code. Many of these species are likely to forage within or adjacent to the proposed project area; establish nesting territories (i.e., resident and migratory songbirds such as verdin, blue-gray gnatcatcher, black-throated sparrow, greater roadrunner, Costa's hummingbird); or migrate through during spring and fall migrations.

Project-related direct impacts on nesting birds could include mortality of individuals and destruction of nests and eggs. Indirect impacts could include interference with reproductive success and nest abandonment due to construction noise and increases in human activity. Artificial lighting could increase predation on individuals and eggs and disrupt reproductive behaviors. The conversion of open land to a solar facility would result in loss of some potential breeding and foraging habitat. Some birds, such as mourning dove and other ground nesting birds may continue to nest beneath the constructed arrays. The installation of transmission lines and buildings could provide new perches for predators, such as ravens and raptors, which could contribute to declines in local songbird populations. Finally, the installation of uncapped vertical, hollow poles, such as may be used to mount the solar panels and are used in chain link fencing, could result in entrapment and death of songbirds. These activities would be considered to result in significant impacts on nesting birds. However, with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-20, and MM 4.4-22, potential impacts to nesting birds would be reduced to less than significant.

Common Ravens. Common raven numbers have grown substantially in the past few decades in the west Mojave Desert. Between 1968 and 1988, the number of ravens in the Mojave Desert increased by over 1,500 percent and this increase is likely much higher in the western Mojave Desert. Ravens are not considered a special-status species; however, they are protected by the MBTA even though they are known predators of hatchling and juvenile desert tortoise, Mohave ground squirrel, the eggs and fledglings of burrowing owls, as well as many other songbird species, small mammal species, and reptile species. Ravens will compete with other birds such as raptors for prey and nesting sites. Raven numbers have become so great that they pose a serious threat to many desert species; the species' population growth is directly attributed to human development and the subsidies created by humans (i.e., trash and food waste at landfills, in open dumpsters and garbage cans, strip malls and fast food restaurants, highway rest stops, etc.) that support this adaptable species. Ravens were observed on a daily basis during the April and May 2019

wildlife survey at the eastern end of the project area due to the close proximity of a local landfill, the community of Boron and SR 58.

As indicated above, the project could provide new roosting, nesting, and perching sites for the common raven from the installation of new facilities in both the solar facility and the gen-tie (e.g., transmission towers, PV solar panels, fences, buildings, and gen-tie line). The proposed project could potentially contribute to maintaining artificially high numbers of common ravens, which threatens desert wildlife, including federal and state listed species. However, this significant impact would be reduced to less than significant levels with implementation of Mitigation Measure MM 4.4-22 which would require the project operator to prepare a Raven Management Plan in consultation with the USFWS and CDFW. Contribution to the Regional Common Raven Management Fund would also reduce project impacts from common raven on desert tortoise, Mohave ground squirrel, and other desert wildlife to less than significant.

Operations and Maintenance

Direct impacts to special-status species are unlikely to result from project operation and maintenance activities because construction of the project would remove habitat for the special-status species on the project site, although wildlife movement through or around the project site (i.e., desert tortoise fencing) would still allow limited movement. However, maintenance activities on the project site could impact the special-status plant species if avoidance measures are not implemented. Project operation could also result in direct or indirect impacts to wildlife in proximity to vehicle movements, vegetation maintenance, and nighttime lighting. However, the potential indirect impact from nighttime lighting during operation and maintenance would be minimized through compliance with development standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation measures of the Kern County General Plan. All project lighting would comply with the Kern County Dark Skies Ordinance and would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties as stipulated in Mitigation Measures MM 4.1-4 to 4.1-6. This would help to reduce potential impacts on wildlife moving through the area. Implementation of Mitigation Measures MM 4.4-21 and MM 4.4-22 would further reduce potential direct and indirect impacts to wildlife during project operations and maintenance to less than significant.

Swainson's Hawk and Other Raptor Species. Potential indirect impacts to foraging raptors from the operations and maintenance phase of the project may occur through "stranding" if the species lands within the site fencing. In addition, 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." The installation of PV solar panels has the potential to cause impacts to Swainson's hawk and other raptor species associated with collisions due to the "fake lake effect". The "fake lake effect" refers to the hypothesis that PV solar panels and power tower heliostats are reminiscent of a large body of water or open sky and may attract waterfowl or wading birds. It is thought the phenomenon could attract birds to solar project sites, thereby exposing the birds to greater risk of impacts such as potential collision with project infrastructure, the possibility of being stranded within site fencing once they land, or other forms of distress. 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 (DOE 2015; see Appendix D-5). 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.

The causes of avian injuries and fatalities at commercial-scale solar projects continue to be evaluated by the USFWS, CDFW, and others. Even with monitoring data from other PV projects in California, there remains a great deal of uncertainty regarding the extent to which birds might be impacted by the proposed project because: (1) the mortality data from the other projects has been collected over a relatively short period of time and is still being evaluated; (2) in most cases, the cause of death is not clear; and (3) mortality information from one project location is not necessarily indicative of the mortality that might be found at another project location. Therefore, the "fake lake effect" does not have a significant direct or indirect impact on migratory birds including foraging raptors.

Although prey sources such as rodents and small birds are likely to still inhabit the area around solar panels on the project site, the solar panels may provide shielding and making them difficult to detect by raptors flying overhead. Raptors may be able to use the solar panels, perimeter fencing and utility structures surrounding the facilities as perch sites for hunting. It is not expected that the Swainson's hawk would use the project site for foraging due to the absence of agricultural fields, which is this species' preferred type of foraging habitat in the region. Therefore, while availability of potential foraging habitat would be reduced due to the presence of solar panels and associated facilities, this reduction would not be significant due to the low potential for Swainson's hawk to occur onsite. In addition, solar PV panels consist of non-reflective glass that minimizes the "fake lake-effect."

Mitigation Measures

Implement Mitigation Measures MM 4.1-4 to 4.1-6 (see Section 4.1, *Aesthetics*), regarding compliance with the Kern County Dark Skies Ordinance.

MM 4.4-1 Prior to the issuance of grading or building permits, the project operator shall retain a Lead Biologist who meets the qualifications of an Authorized Biologist as defined by the United States Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species. The project Lead Biologist shall be on-site during all fencing and ground disturbance activities throughout the construction phase. The project Lead Biologist shall have the right to halt all activities that are in violation of the special-status species protection measures described herein. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. The project Lead Biologist shall have in her/his possession a copy of all the compliance measures while work is being conducted on-site.

MM 4.4-2 Prior to the issuance of grading or building permits, and for the duration of construction activities, all new construction workers at the project site shall attend a Worker Environmental Awareness Program, developed and presented by the project Lead Biologist. As part of the Worker Environmental Awareness Program training, the project Lead Biologist shall perform the following training-related tasks:

a. Provide the training materials for Worker Environmental Awareness Program training. These materials shall include the measures and mitigation requirements for protected plant and wildlife species (e.g., avoidance and buffer requirements, nighttime construction limitations); and applicable fire protection measures. Worker

Environmental Awareness Program training shall also include driver training to avoid and minimize collision risks with protected species, and reporting protocols in the event that any dead or injured wildlife are discovered.

b. Send a copy of all Worker Environmental Awareness Program training materials to the Kern County Planning and Natural Resources Department.

c. Maintain a list on-site of all employees who have undergone Worker Environmental Awareness Program training. A copy of this list shall be provided to the Kern County Planning and Natural Resources Department as necessary.

MM 4.4-3 The Worker Environmental Awareness Program shall be presented by the Lead Biologist and shall include information on the life history of each federal and state-listed species, as well as other special-status wildlife, natural communities, and plant species that may be encountered during construction activities, their legal protections, the definition of "take" under the federal and State Endangered Species Acts, measures the project operator is implementing to protect special-status species, reporting requirements, specific measures that each worker shall employ to avoid take of special-status wildlife species, and penalties for violation of the acts. Training shall be documented as follows:

a. An acknowledgement form signed by each worker indicating that environmental training has been completed.

b. A sticker that shall be placed on hard hats indicating that the worker has completed the environmental training. Construction workers shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker.

c. A copy of the training transcript/training video and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgements forms shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.4-4 During construction and decommissioning the anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Construction-related activities outside of the impact zone shall be avoided. The construction crews and contractor(s) shall be held responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits.

MM 4.4-5 New and existing roads that are planned for either construction or widening shall not extend beyond the planned impact area. All vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, a biological resources survey shall be conducted by the Lead Biologist or by biological monitor(s) under the Lead Biologist's supervision to determine if listed or special-status species would be impacted. Impacts shall be avoided to the maximum extent practicable or shall be fully mitigated for. Construction shall not begin until the route is cleared for biological resources. The route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction and use.

MM 4.4-6 Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas shall be marked to define the limits where stockpiling can occur. Standard best management practices shall be employed to prevent loss of habitat due to erosion caused by project-related impacts (i.e., grading or clearing for new roads). All detected erosion shall be remedied within two days of discovery.

MM 4.4-7 All ground disturbance construction and decommissioning activities shall be monitored by the qualified Lead Biologist or by biological monitors under the Lead Biologist's supervision to ensure compliance with avoidance and minimization measures.

MM 4.4-8 The project operator and/or contractor shall implement the following during project decommissioning:

a. All applicable construction phase general protection measures shall be implemented during decommissioning.

b. A 25-mile-per-hour speed limit on paved or stabilized unpaved roads shall be applied for travel during decommissioning activities. Travel shall be confined to existing roads and previously disturbed areas.

c. If any special-status wildlife is detected in the work area during decommissioning activities, no work shall be conducted until the individual moves on its own outside of the work area.

d. Work outside areas with desert tortoise exclusion fencing shall only occur during daylight hours.

MM 4.4-9 During construction and decommissioning the project operator and/or contractor shall implement the following general avoidance and protective measures:

a. Prior to issuance of grading or building permits but after consulting with the California Department of Fish and Wildlife and, obtaining a project Section 2081 permit for incidental take, if required, the entire solar facility project site shall be fenced with a permanent desert tortoise exclusion fence to keep any desert tortoise that may be using habitat adjacent to the facility from entering during construction, operations and maintenance, and dismantling and restoration (decommissioning) phases. The fencing type shall follow current fence specifications established by the United States Fish and Wildlife Service. Desert tortoise-proof gates shall be established at all photovoltaic solar facility entry points. Workers installing the exclusion fencing shall have undergone the worker training program mandated in Mitigation Measure MM 4.4-2 and a biological monitor under the authority of the project Lead Biologist shall be present during exclusion fencing installation.

b. The fencing shall be inspected monthly and immediately after all major rainfall events. Any damage to the fencing shall be repaired immediately or no later than 2 days following the observation.

c. Following the construction of desert tortoise exclusion fencing, around the solar facility perimeter as described above, clearance surveys shall be conducted by the Lead Biologist to ensure that no desert tortoises or other listed wildlife species are trapped

within the fenced area. The Lead Biologist may be assisted by biological monitors under the supervision of the Lead Biologist. Clearance surveys shall adhere to the current United States Fish and Wildlife Service clearance survey protocols described in the Desert Tortoise Field Manual, including a minimum of two clearance passes to be completed after desert tortoise-proof fencing is installed, which shall coincide with heightened desert tortoise activity from late March through May and September through October.

d. If a desert tortoise is found on the site during project construction, operations, or decommissioning, active construction or operations shall cease in the vicinity of the animal and the desert tortoise shall be passively restricted to the area encompassing its observed position on the construction site and its point of entry shall be determined if possible. The Lead Biologist shall install a temporary tortoise-proof fence around this area. Concurrent with this effort, United States Fish and Wildlife Service and California Department of Fish and Wildlife shall be consulted regarding any additional avoidance, minimization, or mitigation measures that may be necessary. Once the desert tortoise is observed leaving the site, work in the area can resume. A report shall be prepared by the Lead Biologist to document the activities of the desert tortoise within the site; all fence construction, modification, and repair efforts; and movements of the desert tortoise once again outside the permanent tortoise-proof fence. This report shall be submitted to wildlife and resource agency representatives and the Kern County Planning and Natural Resources Department.

e. Outside permanently fenced desert tortoise exclusion areas, the project operator shall limit the areas of disturbance in desert tortoise habitat. Parking areas; new roads; pulling sites; and staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas.

f. The Lead Biologist or biological monitor shall monitor any ground-disturbance activities that occur outside the desert tortoise exclusion fencing. Work outside areas with desert tortoise exclusion fencing shall only occur during daylight hours.

MM 4.4-10 During construction the project operator and/or contractor shall implement the following general avoidance and protective measures:

a. The Lead Biologist or biological monitor shall monitor all ground-disturbance activities. Work shall only occur during daylight hours as practicable. Specialized testing activities and/or continuous operations (i.e. well drilling) may be conducted at night when necessary. Prior to conducting vegetation removal or grading activities inside the fenced area, a Lead Biologist or biological monitor under the supervision of a Lead Biologist shall survey the area immediately prior to conducting these activities to ensure that no listed or special-status animals or plants are present. The project Lead Biologist shall have the right to halt all activities that are in violation of the desert tortoise or other special species protection measures. Work shall proceed only after hazards to desert tortoise or other special species are removed and the species is no longer at risk. The project biologist shall have in her/his possession a copy of all the compliance measures while work is being conducted on-site.

b. At the end of each work day, the Lead Biologist shall ensure that all trenches, bores, and other excavations outside the permanently fenced area have been inspected for the presence of desert tortoise and backfilled, if no tortoise is present. If backfilling is not feasible, these excavations shall be modified to ensure that they cannot potentially entrap desert tortoises (e.g., equipped with desert tortoise escape ramps, covered to prevent desert tortoise access, enclosed with a desert tortoise exclusion fence). All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods and with a diameter of four inches or greater shall be thoroughly inspected for listed and special-status wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a special-status animal is discovered inside a pipe that section of pipe shall not be moved until the animal has moved off on its own. If the animal does not move in a timely manner, then the appropriate resource agency shall be consulted.

c. Any construction pipe, culvert, or similar structure stored within desert tortoise habitat (i.e., outside areas with desert tortoise exclusion fencing) shall be inspected for desert tortoise before the material is moved, buried, or installed.

d. Water used for dust abatement shall be minimized, as allowed by Kern County Engineering, Surveying, and Permit Services Department, or managed in such a manner as to prevent the formation of puddles that could attract common ravens, predators, and other wildlife species to or near the site.

e. No vehicle or equipment parked outside the fenced areas shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of desert tortoise. If present, the desert tortoise shall be left to move on its own.

f. Vehicular traffic to and from the project site shall use existing routes of travel. Cross country vehicle and equipment use outside designated work areas shall be prohibited. Vehicle speeds within the project site shall not exceed 25 miles per hour on roads within desert tortoise habitat.

g. All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Lead Biologist shall be informed of any hazardous spills immediately and hazardous spills shall be cleaned up as soon as practical and the contaminated soil shall be properly disposed of at a licensed facility.

h. A long-term trash abatement program shall be established for construction, operations, and decommissioning. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

i. Workers shall be prohibited from bringing pets and firearms to the project and from feeding wildlife.

j. Intentional killing or collection of either plant or wildlife species, including listed species, in the project site and surrounding areas shall be prohibited. The Lead Biologist, wildlife and resource agency representatives and Kern County Planning and

Natural Resources Department shall be notified of any such occurrences within 24 hours.

k. Ongoing monitoring shall be conducted by either the Lead Biologist or by biological monitors under the Lead Biologist's supervision. The biological monitors shall have experience in monitoring for special-status wildlife.

l. During construction, daily monitoring reports shall be prepared by the monitoring biologists. The Lead Biologist shall prepare a summary monitoring report for the wildlife and resource agencies and Kern County Planning and Natural Resources Department on a monthly basis, documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report shall also provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/pre-activity surveys, monitoring activities, and any observed special-status species, including injuries and fatalities.

MM 4.4-11 The introduction of exotic plant species shall be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources shall include measures such as implementing Trackclean or other method of vehicle cleaning for vehicles coming and going from the site. Earthmoving equipment shall be cleaned prior to transport to the project site. Weed-free rice straw or other certified weed-free straw shall be used for erosion control. Weed populations introduced into the site during construction shall be eliminated by chemical and/or mechanical means approved by California Department of Fish and Wildlife and the United States Fish and Wildlife Service.

MM 4.4-12 In the event ground disturbance does not commence within two (2) years of the last rare plant surveys, the project operator and/or contractor shall conduct preconstruction special-status plant survey(s) during the appropriate blooming period in accordance with the guidelines established by California Department of Fish and Wildlife (2009). Copies of these preconstruction surveys shall be provided to the appropriate wildlife agency and to the Kern County Planning and Natural Resources Department.

If any special-status plant species is found during the preconstruction surveys, the project operator and/or contractor shall delay ground disturbance activities and contact California Department of Fish and Wildlife for consultation. If required, in consultation with California Department of Fish and Wildlife, a Habitat Mitigation Plan shall be prepared that includes, at a minimum, the following:

a. Wherever feasible, if special-status plant species are observed within the proposed project footprint, the proposed project shall be designed by the Lead Biologist, to reduce impacts to the species through the establishment of preservation areas and buffers. If avoidance or minimization measures are implemented on-site, a Habitat Mitigation Plan shall be developed to ensure adequate management and conservation of botanical resources on-site over the long term. A copy of the Habitat Mitigation Plan shall be submitted to the Kern County Planning and Natural Resources Department.

b. If the proposed project would eliminate more than 10 percent of a local special-status plant population, the Habitat Mitigation Plan would also include the following:

   1. A figure illustrating the area of the population to be preserved, and the area of the population to be removed;

   2. Identification of on-site or off-site preservation, restoration, or enhancement location(s);

   3. Methods for preservation, restoration, enhancement, and/or population translocation;

   4. A replacement ratio and success standard of 1:1 for occupied habitat lost unless a lower mitigation ratio and/or alternative mitigation is agreed to in coordination with California Department of Fish and Wildlife;

   5. A five-year monitoring program to ensure mitigation success;

   6. Adaptive management and remedial measures in the event that performance standards are not achieved; and

   7. Financial assurances and a mechanism for conservation of any mitigation lands required in perpetuity.

c. Prior to the commencement of ground disturbance activities, a final set of focused botanical surveys for special-status plant species, including species protected by the California Desert Native Plants Act shall be conducted. The surveys shall be conducted within potentially suitable habitat within the sites and along the utility rights-of-way that would be directly affected, permanently or temporarily, by the proposed project. Copies of all surveys and communications with the appropriate agencies shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.4-13 Prior to the issuance of grading or building permits, the project operator shall:

a. Provide evidence to the Kern County Planning and Natural Resources Department that consultation with the Kern County Agricultural Commissioner has taken place regarding removal of plants protected under the California Desert Native Plants Act;

b. If the Agricultural Commissioner determines that a permit is not required, the project operator shall provide a letter describing the consultation process and Commissioner's determinations, indicating that such authorization is not required. The letter shall also identify the Commissioner's points of contact and contact information;

c. If required by the Agricultural Commissioner, the project operator shall provide evidence to the Kern County Planning and Natural Resources Department that a California Desert Native Plants Act removal permit has been obtained.

MM 4.4-14 The following measures shall be implemented to reduce direct impacts to Sensitive Natural Communities. To the extent feasible, the following avoidance and minimization measures shall be implemented:

a. Where feasible, the project shall be designed to avoid disturbance of Atriplex spinifera shrubland alliance and Joshua tree woodland identified within the project site.

b. Where it is not feasible to avoid direct impacts the Atriplex spinifera shrubland alliance and Joshua tree woodland identified within the project site, the project operator shall implement the following measures:

c. Compensatory mitigation for impacts to Sensitive Natural Communities shall occur either on-site or off-site and would occur at a ratio no less than 1:1 for each Sensitive Natural Community impacted. A Habitat Mitigation and Monitoring Plan shall be prepared that outlines the compensatory mitigation in coordination with the California Department of Fish and Wildlife.

d. If on-site mitigation is proposed, the Habitat Mitigation and Monitoring Plan shall identify those portions of the site that contain suitable characteristics for restoration or enhancement of sensitive habitat. Determination of mitigation adequacy shall be based on comparison of the restored or enhanced habitat with similar, undisturbed habitat in the vicinity of the development site. If mitigation is implemented off-site, compensatory lands shall contain similar or more well-developed habitat and preferably be located in the vicinity of the site or watershed. Off-site land shall be preserved through a conservation easement and the Plan shall identify an approach for funding assurance for the long-term management of the compensatory land.

e. Where direct impacts to Joshua trees are unavoidable, if Joshua tree is listed as a 'candidate,' 'threatened,' or 'endangered' species under the California Endangered Species Act at the time of issuance of a building or grading permit in areas that would involve the removal of western Joshua trees, the project applicant may pursue one of the following mitigation options:

f. The project operator shall provide evidence to the Kern County Planning and Natural Resources Department demonstrating that impacts to western Joshua tree have been mitigated in accordance with Section 2084 of the California Fish and Game Code.

g. Prior to initiating ground- or vegetation-disturbing activities that would result in take of western Joshua tree on the project site, the project operator shall mitigate for permanent impacts to western Joshua tree, should an Incidental Take Permit be required from California Department of Fish and Wildlife, through an approved mitigation bank, in-lieu fee program, or other California Department of Fish and Wildlife-approved process. Compensatory mitigation for permanent impacts to western Joshua tree shall be determined and acquired in consultation with the wildlife or resource agency. Verification of compliance shall be submitted to the Kern County Planning and Natural Resources Department prior to project construction in areas that would involve removal of Joshua trees. As-built development plans shall also be submitted to the California Department of Fish and Wildlife within 90 days of completion of construction and ground-disturbing activities.

MM 4.4-15 The project operator and /or contractor shall implement the following prior to the issuance of grading or building permits:

a. Following the construction of exclusion fencing around the solar facility perimeters, clearance surveys shall be conducted by the Lead Biologist to ensure that no desert tortoises, Mohave ground squirrel, or other wildlife are trapped within the fenced area.

The Lead Biologist may be assisted by biological monitors under the supervision of the Lead Biologist. Clearance surveys shall adhere to the current United States Fish and Wildlife Service clearance survey protocols described in the Desert Tortoise Field Manual, including a minimum of two clearance passes to be completed after desert tortoise-proof fencing is installed, which shall coincide with heightened desert tortoise activity from late March through May and September through October.

b. If a desert tortoise or Mohave ground squirrel is found on the site during project construction, operations, or decommissioning, activity shall cease in the vicinity of the animal. The Lead Biologist shall contact the United States Fish and Wildlife Service and California Department of Fish and Wildlife shall be consulted regarding any additional avoidance, minimization, or mitigation measures that may be necessary. Work shall not resume at the site until both the United States Fish and Wildlife Service and California Department of Fish and Wildlife respond, and all recommended measures are taken. A report shall be prepared by the Lead Biologist to document the activities of the desert tortoise or Mohave ground squirrel within the site; all fence construction, modification, and repair efforts; and movements of the animal once again outside the permanent tortoise-proof fence. This report shall be submitted to wildlife and resource agency representatives and the Kern County Planning and Natural Resources Department.

c. Outside permanently fenced desert tortoise exclusion areas, the project operator shall limit the areas of disturbance in desert tortoise and Mohave ground squirrel habitat. Parking areas, new roads, pulling sites, and locations for staging, storage, and excavation shall be confined to the smallest areas possible. These areas shall be flagged, and disturbance activities, vehicles, and equipment shall be confined to these flagged areas.

MM 4.4-16 The measures listed below shall be implemented prior to and during construction, operations, and decommissioning at the project sites.

a. The project operator shall mitigate for permanent impacts to suitable desert tortoise and Mohave ground squirrel habitat, should an incidental take permit be required from California Department of Fish and Wildlife, through an approved mitigation bank, or in-lieu fee program. Compensatory mitigation acreage for permanent impacts to western burrowing owl nesting, occupied, and satellite burrows and/or western burrowing owl habitat shall be determined and acquired in consultation with the wildlife or resource agency. Compensatory mitigation lands purchased may provide habitat for all three species, as well as rare plants and State Waters (only if impacted by the project). Verification of compliance shall be submitted to the Kern County Planning and Natural Resources Department.

b. Prepare a Habitat Mitigation and Monitoring Plan (if required, should an incidental take permit be required for the project) that outlines all project compensatory mitigation for desert tortoise, western burrowing owl, and Mohave ground squirrel, in coordination with the California Department of Fish and Wildlife and the Regional Water Quality Control Board.

c. Compensatory lands shall be of similar or better quality than habitat lost, and preferably shall be located in the vicinity of the site.

d. Compensatory lands shall be permanently preserved through a conservation easement.

e. The plan shall identify conservation actions to ensure that the compensatory lands are managed to ensure the continued existence of the species.

f. The plan shall identify an approach for funding assurance for the long-term management of the conserved land.

MM 4.4-17 The following measures shall be implemented during project construction, operations/maintenance, and decommissioning activities with respect to western burrowing owls.

a. A project Lead Biologist shall be on-site during all construction activities in potential burrowing owl habitat. A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows no less than 14 days prior to construction and/or prior to desert tortoise exclusion fencing installation. The survey methodology shall be consistent with the methods outlined in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012), and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls (and may be combined with other pre-construction surveys). As burrows are searched, biologists shall also look for signs of American badger and desert kit fox. Copies of the survey results shall be submitted to California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department.

b. If no burrowing owls are detected, no further mitigation is necessary. If burrowing owls are detected, no ground-disturbing activities, such as road construction or installation of solar arrays or ancillary facilities, shall be permitted within the distances specified in Table 2 of the Staff Report from an active burrow during the nesting and fledging seasons (April 1 to August 15 and August 16 to October 15, respectively), unless otherwise authorized by California Department of Fish and Wildlife. The specified buffer distance ranges from 656 feet to 1,640 feet, according to the time of year and the level of disturbance. Buffers shall be established in accordance with the table provided in Mitigation Measure MM 4.4-17c), below, and occupied burrows shall not be disturbed during the nesting season unless a qualified biologist approved by California Department of Fish and Wildlife, verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season (April 1 to October 15).

c. During the nonbreeding (winter) season (October 16 to March 31), consistent with the table below (Western Burrowing Owl Burrow Buffers), all ground-disturbing work shall maintain a distance ranging from 164 feet to 1,640 feet from any active burrows

depending on the level of disturbance. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be displaced from winter burrows according to recommendations made in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012).

Western Burrowing Owl Burrow Buffers

Location	Time of Year	Level of Disturbance (in feet)		
		Low	Medium	High
Nesting Sites	April 1-Aug 15	656	1640	1640
Nesting Sites	Aug 16 - Oct 15	656	656	1640
Any occupied burrow	Oct 16 - Mar 31	164	328	1640
Source: California Department of Fish and Game 2012				

d. Burrowing owls should not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by the Lead Biologist and approved by the applicable local California Department of Fish and Wildlife office and submitted to the Kern County Planning and Natural Resources Department. The plan shall include, at a minimum:

   1. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;

   2. Type of scope to be used and appropriate timing of scoping to avoid impacts;

   3. Occupancy factors to look for and what shall guide determination of vacancy and excavation timing (one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can't escape i.e., look for sign immediately inside the door).

   4. How the burrow(s) shall be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow);

   5. Removal of other potential owl burrow surrogates or refugia on-site; and,

   6. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency.

e. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take;

f. How the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.

g. Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows to ensure take is avoided. Conduct daily monitoring for one week to confirm young of the year have fledged if the exclusion shall occur immediately after the end of the breeding season.

h. Excluded burrowing owls are documented using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight).

i. In accordance with the Burrowing Owl Exclusion Plan, a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or heavy material shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow. Forty-eight hours after the installation of the one-way doors, the doors can be removed, and ground-disturbing activities can proceed. Alternatively, burrows can be filled to prevent reoccupation.

j. During construction and decommissioning activities, monthly and final compliance reports shall be provided to California Department of Fish and Wildlife, the Kern County Planning and Natural Resources Department, and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project.

MM 4.4-18 Should burrowing owls be found on-site:

a. Compensatory mitigation for lost breeding and/or wintering habitat shall be implemented off-site in accordance with the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012) and in consultation with California Department of Fish and Wildlife. At a minimum, the following recommendations shall be implemented:

1. Temporarily disturbed habitat shall be restored, if feasible, to pre-project conditions, including de-compacting soil and revegetating.

2. Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis and shall include:

3. Permanent conservation of similar vegetation communities (grassland, scrublands, desert, urban, and agriculture) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals.

4. Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a California Department of Fish and Wildlife-approved burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits.

5. Develop and implement a mitigation land management plan in accordance with the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012) guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls.

6. Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.

7. Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to California Department of Fish and Wildlife-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed.

8. Mitigation lands should be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support burrowing owls present.

9. Consult with the California Department of Fish and Wildlife when determining off-site mitigation acreages.

MM 4.4-19 Prior to the issuance of grading or building permit the following shall be implemented:

a. Preconstruction surveys shall be conducted by a qualified biologist for the presence of desert kit fox and American badger dens prior to installation of desert tortoise exclusion fencing. Copies of the completed surveys shall be submitted to Kern County Planning and Natural Resources Department.

b. The survey shall be conducted in areas of suitable habitat for American badger and desert kit fox, which includes fallow agricultural land and scrub habitats. Surveys shall not be conducted for all areas of suitable habitat at one time; they shall be phased so that surveys occur within two weeks prior to disturbance of that portion of the site. If no potential American badger or desert kit fox dens are present, no further mitigation is required.

c. If potential dens are observed, the following measures are required to avoid potential adverse effects to American badger and desert kit fox:

d. If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers or foxes from reuse during construction.

e. Passive relocation shall be prohibited during the pupping season, which is February 15 to June 1 for both species. If the qualified biologist determines that potential dens outside the breeding season may be active, the biologist shall notify the California Department of Fish and Wildlife. Entrances to the dens shall be blocked with soil, sticks, and debris for three to five days to discourage use of these dens prior to project disturbance. The den entrances shall be blocked to an incrementally greater degree over the three- to five-day period. After the qualified biologist determines that badgers and foxes have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction. The collapsing of active desert kit fox dens shall not occur without prior consultation with the CDFW. A biologist shall remain on-call throughout construction in the event that badger or desert kit fox are present on the site.

f. Construction activities shall not occur within 50 feet of active badger dens. The project operator shall contact California Department of Fish and Wildlife immediately if natal badger dens are detected to determine suitable buffers and other measures to avoid take.

g. Construction activities shall not occur within 100 feet of active kit fox dens. The project operator shall contact California Department of Fish and Wildlife immediately if pupping kit fox dens are detected to determine suitable buffers and other measures to avoid take.

MM 4.4-20 Prior to the issuance of a grading or building permit and prior to decommissioning preconstruction avian nesting surveys shall be implemented as follows:

a. Not more than 14 days prior to site clearing and/or ground disturbance, a qualified biologist shall conduct a preconstruction avian nesting survey. Copies of the completed surveys shall be submitted to Kern County Planning and Natural Resources Department.

b. Surveys shall not be conducted for an entire project site at one time; they shall be phased so that surveys occur shortly before a portion of the site is disturbed. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. The survey shall cover all reasonably potential nesting locations on and within 300 feet of the project site—this includes ground nesting species.

c. If construction is scheduled to occur during the non-nesting season (August 2 to January 31), no preconstruction surveys for birds or additional measures are required.

d. If construction begins in the non-breeding season and proceeds continuously into the breeding season, no surveys are required. However, if there is a break of 14 days or more in construction activities during the breeding season, a new nesting bird survey shall be conducted before construction begins again.

e. If active nests are found a 250-foot, no-disturbance buffer (or as otherwise determined in consultation with California Department of Fish and Wildlife) shall be created around the active nests. If the nest(s) are found in an area where ground disturbance is scheduled to occur, the project operator shall avoid the area either by delaying ground disturbance in the area until a qualified wildlife biologist has determined that the birds have fledged or by relocating the project component(s) to avoid the area.

f. All vertical tubes used in project construction, such as solar mounts and chain link fencing poles shall be temporarily or permanently capped at the time they are installed to avoid the entrapment and death of special-status birds.

MM 4.4-21 Prior to issuance of a grading or building permit, the project operator shall provide evidence that the following measures shall be implemented with respect to the construction and installation of power lines:

a. Construct all power transmission lines to the 2006 Avian Power Line Interaction Committee Guidelines specifications to protect birds from electrocution and collision. Appropriate notes regarding these specifications shall be included on any grading permit, building permit or final map.

b. Submit written documentation to the Kern County Planning and Natural Resources Department verifying that all power lines are constructed to Avian Power Line

Interaction Committee Guidelines. The project operator shall conform to the latest practices (as outlined in the 2006 Avian Power Line Interaction Committee Guidelines document) to protect birds from electrocution and collision.

c. Install power collection and transmission facilities utilizing Avian Power Line Interaction Committee standards for collision reducing techniques as outlined in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee 2006).

MM 4.4-22 The project operator shall develop a site-specific Common Raven Management Plan in accordance with United States Fish and Wildlife Service guidelines and shall implement management measures for ravens in the project area. These measures may include but are not limited to designing structures to eliminate perches, waste management, road kill management, management of ponded water during construction and operations, and nest removal on structures within the photovoltaic solar facility site and along the transmission line.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6 (Section 4.1, *Aesthetics*) and MM 4.4-1 through MM 4.4-22, impacts would be less than significant with mitigation incorporated.

Impact 4.4-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS.

Solar Facility

According to the *Jurisdictional Waters and Wetlands Delineation* prepared by Rincon (Rincon 2019; Appendix D-2) for the project, no riparian habitat occurs within the five ephemeral drainages on Sites 2, 4, and 5. Therefore, the project would have no impact on riparian habitat. Mitigation Measure MM 4.10-2 requires the applicant to devise and submit a site-specific SWPPP to minimize the discharge of wastewater during construction. The SWPPP would include steps for implementation of best management practices (BMPs) aimed at sediment control and erosion control, and could include soil stabilization, silt fencing, straw bale and temporary catch basins. These BMPs would be implemented during construction of the proposed project as a condition of required permits, therefore minimizing soil erosion in jurisdictional waters to the extent feasible.

Of the seven vegetation communities present on the project site, the following vegetation communities are designated as sensitive natural communities by CDFW: *Atriplex spinifera* shrubland alliance (spinescale scrub), successional spinescale scrub, and *Yucca brevifolia* woodland alliance (Joshua tree woodland). Project implementation would result in the direct removal of these sensitive natural communities, which would be considered a potentially significant impact without mitigation; however, impacts would be reduced to less than significant with implementation of Mitigation Measure MM 4.4-14.

Gen-Tie

No riparian habitat or sensitive natural communities were mapped within the gen-tie corridor and there would be no impacts to either riparian areas or sensitive natural communities.

Mitigation Measures

Implement Mitigation Measure MM 4.4-14.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.4-14, impacts would be less than significant with mitigation incorporated.

Impact 4.4-3: The project would 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.

Solar Facility

Potential USACE Jurisdiction. Due to the ephemeral nature of the waters within the Lahontan Region, features found on the project site are not considered "waters of the United States" and therefore are not subject to regulation under the federal Clean Water Act. Although ephemeral drainages were identified and delineated in the project site, all surface water drains to Rogers Dry Lake and no surface connection exists to downstream navigable or interstate waters. Therefore, the USACE is not expected to assert jurisdiction over the features. The project would have no impact on federally protected waters or wetlands as defined by Section 404 of the Clean Water Act.

Potential RWQCB Jurisdiction. Based on the *Jurisdictional Waters and Wetlands Delineation* prepared by Rincon (Rincon 2019) for the project, the project site does not contain wetland or non-wetland waters of the State subject to the jurisdiction of the RWQCB pursuant to the CWA. However, ephemeral features displaying an OHWM are expected to be jurisdictional waters of the State, pursuant to the Porter-Cologne Water Quality Control Act. Potential RWQCB waters of the State are located on Sites 2, 4, and 5 totaling approximately 13.99 acres (14,611 linear feet) across the project site. Potential indirect impacts to these features could include sedimentation as a result of grading activities and surface runoff and introduction of pollutants (e.g., oil, hydraulic fluid) to the drainages during construction and operation.

Mitigation Measure MM 4.4-23 requires that a final Jurisdictional Delineation report be provided to the RWQCB and the County prior to the issuance of any grading or building permit. In addition, Mitigation Measure MM 4.4-24 requires that a Report of Waste Discharge be filed with the RWQCB to obtain Waste Discharge Requirements for the project. Based on consultation with the RWQCB, if permits are required for the project, appropriate permits shall be obtained prior to the disturbance of jurisdictional resources. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance along with copies of the permits obtained from RWQCB shall be provide to the County. Compliance with these regulatory standards would reduce impacts to less than significant.

Potential CDFW Jurisdiction. Based on the *Jurisdictional Waters and Wetlands Delineation* prepared by Rincon (Rincon 2019) for the project, drainages were delineated within Sites 2, 4, and 5 that show evidence

of recent sediment deposition or OHWM and bed, bank, and channel characteristics and therefore are likely subject to CDFW jurisdiction. Approximately 48.21 acres were delineated using standard CDFW practices. The horizontal extent of CDFW jurisdiction is approximately 14,661 linear feet.

Potential indirect impacts to waters of the State could include sedimentation as a result of grading activities and surface runoff and introduction of pollutants (e.g., oil, hydraulic fluid) to the drainages during construction and operation. As described in Section 4.9, *Hazards and Hazardous Materials* (see Mitigation Measure MM 4.9-1), the project operator would prepare a hazardous materials business plan that identifies all hazardous materials on site, and describes methods to be used to avoid spills and minimize impacts in the event of a spill. Additionally, Section 4.10, *Hydrology and Water Quality*, the project operator is required to submit a Stormwater Pollution Prevention Plan (see Mitigation Measure MM 4.10-1) for the project that specifies best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving off-site and into receiving waters. The requirements of the Stormwater Pollution Prevention Plan shall be incorporated into design specifications and construction contracts. In addition, the project operator must prepare a drainage plan that is designed to minimize runoff and surface water pollution and would include engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows (see Mitigation Measure MM 4.10-2). Mitigation Measure MM 4.4-23 requires that a final Jurisdictional Delineation report be provided to the CDFW and the County prior to the issuance of any grading or building permit. In addition, Mitigation Measure MM 4.4-24 requires consultation with the CDFW on the need for a streamed alteration agreement. Based on consultation with the CDFW, if permits are required for the project, appropriate permits shall be obtained prior to the disturbance of jurisdictional resources. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance along with copies of the permits obtained from CDFW shall be provide to the County. Project implementation would result in the direct loss of RWQCB and CDFW waters of the State, which would be considered a potentially significant impact without mitigation; however, impacts would be reduced to less than significant with implementation of Mitigation Measures MM 4.4-23 and MM 4.4-24. These measures, as well as implementation of Mitigation Measure MM 4.4-11 would serve to reduce impacts of the project to waters of the State to less than significant levels.

Gen-Tie

No potentially jurisdictional features are present within the gen-tie and thus there would be no impacts to state or federally protected wetlands in the gen-tie.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*), MM 4.10-1 and 4.10-2 (see Section 4.10, *Hydrology and Water Quality*), and MM 4.4-11.

MM 4.4-23 Prior to issuance of any grading or building permit, the project proponent/operator shall submit a final Jurisdictional Delineation report. A copy of this report shall also be provided to the Lahontan Regional Water Quality Control Board, California Department of Fish and Wildlife, and the County. The report shall include information as shown below as a plan if necessary and shall outline compliance to the following:

a. Delineation of all jurisdictional features at the project site. Potential jurisdictional features (ephemeral drainages) within the project boundary identified in the

jurisdictional delineation report that are not anticipated to be directly impacted by project related activities shall be avoided. This may be shown in plan form.

b. Any material/spoils generated from project activities shall be located away from jurisdictional areas or special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

c. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and generally at least 50 feet from the top of bank.

d. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed. For all spills, the project foreman or designated environmental representative will be notified.

MM 4.4-24 Prior to ground disturbance activities that would impact aquatic features, the project proponent/operator shall be subject to provisions as identified below:

a. The project proponent/operator shall file a complete Report of Waste Discharge with the Lahontan Regional Water Quality Control Board to obtain Waste Discharge Requirements and shall also consult with California Department of Fish and Wildlife on the need for a streambed alteration agreement. Copies of reports shall be submitted to the County.

b. Based on consultation with Lahontan Regional Water Quality Control Board and California Department of Fish and Wildlife, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources.

c. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or California Department of Fish and Wildlife, which shall be provided to the County.

d. Copies of any coordination, permits, etc., with RWQCB and California Department of Fish and Wildlife shall be provided to the County.

MM 4.4-25 The following measures shall be implemented within the project area to ensure that direct or indirect effects to jurisdictional waters are minimized:

a. Any laydown areas and/or material and spoils from project activities shall be located away from jurisdictional areas or sensitive habitat and protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

b. Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakages from contaminating the ground and generally at least 50 feet from the top of bank.

c. Any spillage of material shall be stopped if it can be done safely. The contaminated area shall be cleaned and any contaminated materials properly dispose of. For all spills the project foreman or designated environmental representative shall be notified.

d. All work within the drainages shall be conducted to avoid periods of flowing water. Construction within drainages shall be timed to occur during the dry season (generally April 15 – October 15) and shall avoid periods in the summer when convective thunderstorms are predicted.

e. If required, compensatory mitigation for Arizona-style crossings, within waters subject to the jurisdiction of California Department of Fish and Wildlife or the Lahontan Regional Water Quality Control Board, shall occur either on-site or off-site at a ratio no less than 1:1. As outlined in Mitigation Measure MM 4.4-12, if required, a Habitat Mitigation and Monitoring Plan shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and California Department of Fish and Wildlife.

f. If mitigation is required and on-site mitigation is proposed, the Habitat Mitigation and Monitoring Plan shall identify those portions of the site that contain suitable characteristics (e.g., hydrology) for restoration or enhancement of desert wash scale broom scrub habitat. Determination of mitigation adequacy shall be based on comparison of the restored or enhanced habitat with similar, undisturbed habitat in the site vicinity (such as up or downstream of the site). If mitigation is implemented off-site, mitigation lands shall be comprised of similar or more well-developed desert wash and preferably be located in the vicinity of the site or watershed. Off-site land shall be preserved through a conservation easement and the Plan shall identify an approach for funding assurance for the long-term management of the conserved land.

g. Copies of correspondences and determinations by the Lahontan Regional Water Quality Control Board and California Department of Fish and Wildlife shall be submitted to the Kern County Planning and Natural Resources Department. It is noted that the final mitigation ratio required by the Lahontan Regional Water Quality Control Board and California Department of Fish and Wildlife for acquisition of regulatory permits may differ from that proposed in this environmental impact report.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), MM 4.10-1 and MM 4.10-2 (Section 4.10, *Hydrology and Water Quality*), MM 4.4-11, and MM 4.4-23 through MM 4.4-25, impacts would be less than significant.

Impact 4.4-4: The project would 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 native wildlife nursery sites.

Solar Facility

The project site is not identified as a major terrestrial wildlife movement corridor. No wildlife nursery sites have been identified on or in the vicinity of the project site. The project may provide foraging rounds for special-status and otherwise protected raptors, including golden eagles, prairie falcons, and other birds. Project-related direct impacts on nesting migratory birds and raptors during construction could include crushing or vehicle collisions with nesting birds and/or destruction of nests and eggs through vegetation

clearing and grading with heavy machinery. Indirect impacts could include interference with reproductive success and nest abandonment brought on by increased human presence and noise levels during construction within the breeding season. Additional indirect impacts to migratory birds and raptors from construction of the project could result from the conversion of open land to a solar facility, which would result in the loss of potential breeding habitat. However, with the implementation of Mitigation Measures MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-20, and MM 4.4-22, impacts to migratory birds and raptors would be less than significant.

Lighting from the project site could potentially affect local movement of nocturnal wildlife by deterring them from illuminated areas around the project site. However, all lighting installed as a part of the proposed project would comply with the Kern County Dark Skies Ordinance and would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties as discussed in Mitigation Measures MM 4.1-4 and MM 4.1-6. This would reduce the temporary impacts to wildlife movement through the area. Therefore, with implementation of Mitigation Measures MM 4.1-4 and M 4.1-6, the proposed project would not adversely impact wildlife movement and impacts would be less than significant.

Gen-Tie

The gen-tie infrastructure is expected to encompass a relatively small footprint and would not impede wildlife movement. The gen-tie infrastructure would be constructed within and proximate to the existing Holgate Substation and connecting transmission corridor. Potential temporary, indirect impacts to the vegetation communities surrounding the disturbed area are not expected due to limited ground disturbance and lack of vegetation within the disturbed and developed transmission corridor and Holgate Substation. Indirect impacts to wildlife movement are not expected due to the already disturbed and fragmented nature of the landscape and the marginal habitat value of the overall site for most endemic species. Therefore, impacts associated with the gen-tie on wildlife movement would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.1-4 through MM 4.1-6 (see Section 4.1, *Aesthetics*), MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-20, and MM 4.4-22.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-4 and 4.1-6, MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-20, and MM 4.4-22, impacts would be less than significant.

Impact 4.4-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Solar Facility and Gen-Tie

With the mitigation measures identified earlier to offset impacts to sensitive wildlife, plants, natural communities and aquatic resources, the proposed project is considered consistent with the pertinent policies regarding protection of biological resources specified in the Land Use, Open Space, and Conservation Elements of the Kern County General Plan. Additionally, the project site is located within the DRECP planning area, which means that the area is expected to support fewer sensitive status species than areas

identified with conservation potential and is therefore more likely to be appropriate for renewable energy development. However, the DRECP at this time only applies to federal public lands managed by the BLM and is not an adopted habitat conservation plan or natural community conservation plan. The proposed project would be developed on private land and, therefore, is not subject to the DRECP. The project would not result in significant impacts involving conflicts with County policies and permit programs intended to protect biological resources. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts for a project would be significant if the incremental effects of the individual project are considerable when combined with the effects of past projects, other current projects, and probable future projects. As described above, the project impacts would be less than significant with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-25.

As large-scale energy projects and urbanization pressures increase within Kern County, impacts to biological resources within the region are expanding on a cumulative level. As described in Chapter 3, *Project Description*, of this EIR, approximately 23 projects, including other utility-scale energy production facilities, are presently underway or proposed within Kern County. The geographic scope for analysis of cumulative impacts on biological resources is Antelope Valley. In general, bioregions are defined through physical and environmental features, including watershed boundaries and soil and terrain characteristics. Areas to the north and west of the Tehachapi Mountains, and to the south of the San Gabriel Mountains, are within a different bioregion and are separated from the project site by the natural geography that these ranges present. SR 14, at the eastern end of the Western Antelope Valley, also acts as a barrier to wildlife movement.

As described above, there are a number of special-status species that currently utilize the project site and surrounding vicinity. Implementation of the project, in addition to the other projects underway or proposed within Kern County, have the potential to impact transient wildlife species, including burrowing owls, other raptors, migratory birds, Mojave ground squirrel, American badgers, desert tortoise, and desert kit foxes. The project site contains habitat that support plants, insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species, most of which are expected to utilize the project site on a transient basis, if at all.

The project would contribute to cumulative impacts to special-status plant species, including desert cymopterus (a CRPR 1B.2 species), Barstow woolly sunflower (a CRPR 1B.2 species), Mojave spineflower (a CRPR 4.2 species), and crowned muilla (a CRPR 4.2 species); however, after implementation of Mitigation Measures MM 4.4-1 through MM 4.4-8 and MM 4.4-10 through MM 4.4-13, the project's contribution of impacts to special-status plant species would be less than significant. In addition, the project would contribute to cumulative impacts to western Joshua tree; however, such impacts would be reduced

to less than significant through implementation of Mitigation Measures MM 4.4-1 through MM 4.4-8 and MM 4.4-12. In addition, Mitigation Measure MM 4.4-13 would apply if western Joshua tree is no longer listed as a 'candidate,' 'threatened,' or 'endangered' species under the CESA at the time of issuance of a building or grading permit, whereas MM 4.4-14 would apply if western Joshua tree is still listed as a 'candidate,' 'threatened,' or 'endangered' species under the CESA at the time of issuance of a building or grading permit in areas that would involve the removal of western Joshua trees.

Given the number of present, and reasonably foreseeable future development projects in the Antelope Valley, the proposed project, when combined with these projects, would contribute to an incremental cumulative loss of habitat for special-status species. Implementation of the mitigation measures identified in this section would reduce impacts to habitat to less than significant for the proposed project and other projects with similar impacts. However, the proposed project, when combined with other related development projects proposed throughout the County, would cumulatively impact habitat for special-status species. Therefore, cumulative impacts would be significant and unavoidable.

In addition, common raven numbers have grown substantially in the past few decades in the western Mojave Desert. Ravens are predators of the desert tortoise and burrowing owl, and compete with, as well as prey on, many special-status raptors and birds. Raven numbers are such that they pose a serious threat to many desert species. Additionally, the common raven population growth is directly attributed to human development and the subsidies it creates that support this adaptable species. Although the proposed project would implement measures to minimize the creation of human subsidies of food, trash, and water, and roost, nest, and perching sites for common ravens (e.g., monitoring water used to wash solar panels to ensure that puddles do not form, trash containment, etc.), the project would still provide new roosting, nesting, and perching sites for the common raven from the installation of new facilities (e.g., solar panels, fences, and buildings). When considered within the cumulative context of related projects as described above, the project's contribution to maintaining artificially high common raven populations when combined with other related projects, which threatens other desert wildlife including special-status species, is potentially significant. However, the contribution of the project, with Mitigation Measure MM 4.4-22 incorporated, would not be cumulatively considerable.

The proposed project would have no impact on federally protected waters or wetlands as defined by Section 404 of the Clean Water Act and therefore, would not contribute to a significant cumulative impact in this respect. However, as with other cumulative development, the project could contribute to a potential indirect impact to waters of the State as a result of sedimentation caused by grading activities and surface runoff, or the introduction of pollutants (e.g., oil, hydraulic fluid) to on-site drainages during construction and operation. *Similar to other cumulative projects,* the project operator would be required to prepare a hazardous materials business plan that identifies all hazardous materials on-site and describes methods to be used to avoid spills and minimize impacts in the event of a spill (Mitigation Measure MM 4.9-1). Additionally, the project would implement Mitigation Measure MM 4.4-23 which requires that a final Jurisdictional Delineation report be provided to the RWQCB and the County prior to the issuance of any grading or building permit. The project would also implement Mitigation Measure 4.4-24 which requires that a Report of Waste Discharge be filed with the RWQCB to obtain Waste Discharge Requirements and that consultation with the CDFW on the need for a streambed alternation agreement prior to the issuance of any grading of building permit. Based on consultation with the RWQCB, if permits are required, appropriate permits would be obtained prior to the disturbance of any jurisdictional resources. Similarly, all project operators would be required to prepare and submit a Stormwater Pollution Prevention Plan (see Mitigation Measure MM 4.10-1) to identify best management practices to prevent construction pollutants

from contacting stormwater and degrading existing conditions. In addition, the project, along with other cumulative projects as appropriate, would be required to prepare a drainage plan designed to minimize runoff and surface water pollution and include engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows (see Mitigation Measure MM 4.10-2). Although project implementation would result in the direct loss of RWQCB and CDFW waters of the State, impacts would be reduced to less than significant with implementation of Mitigation Measures MM 4.10-1 and 4.10-2, MM 4.4-11, and MM 4.4-23 to MM 4.4-24. The project is therefore not anticipated to contribute to a significant cumulative impact in this regard.

When considered in combination with other existing and reasonably foreseeable projects in the surrounding flat, open portions of Antelope Valley from SR-14 to the Tehachapi foothills, the proposed project has the potential to contribute to interference with local wildlife movement. However, wildlife movement within the project site and surrounding area is likely diffuse, and flat, undeveloped lands would remain available to facilitate wildlife movement within the valley. Further, direct and indirect impacts on nesting migratory birds and raptors during construction of cumulative projects may include crushing or vehicle collisions with nesting birds, destruction of nests and eggs through vegetation clearing and grading with heavy machinery, and/or removal of potential breeding habitat from the conversion of open land to developed land. With the implementation of Mitigation Measures MM 4.4-1 through MM-4.4-8, MM 4.4-10, MM 4.4-11, MM 4.4-20, and MM 4.4-22, project impacts to migratory birds and raptors in this regard would be reduced to less than significant and would not be cumulatively considerable.

Further, similar to other area projects, the proposed project would implement mitigation to minimize the potential for light and glare effects that may interfere with area wildlife movement. Lighting could potentially affect local movement of nocturnal wildlife by deterring them from illuminated areas around a project site. However, all lighting installed as a part of the proposed project, similar to other cumulative projects, would comply with the Kern County Dark Skies Ordinance and would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties, as discussed in Mitigation Measure MM 4.1-4 to reduce potential impacts to wildlife movement through the area. Additionally, Mitigation Measures MM 4.1-5 to MM 4.1-6 would be implemented to reduce the potential for glare effects to adversely affect wildlife passing through the area. With implementation of Mitigation Measures MM 4.1-4 to MM 4.1-6, the proposed project would not contribute to a significant cumulative impact on wildlife movement, and impacts would not be cumulatively considerable.

Impacts associated with construction of the gen-tie lines are expected to encompass a relatively small development footprint and would therefore result in minimal ground disturbance. Gen-tie infrastructure would not create barriers to wildlife movement and would be within disturbed and developed surrounding property. Because of the temporary nature of the construction and decommissioning phases and the small gen-tie development footprint, impacts to wildlife and the vegetation communities and habitats surrounding the gen-tie lines would be minimal and would be reduced to less than significant with implementation of Mitigation Measures MM 4.4-1 to MM 4.4-25, as applicable.

Overall, the gen-tie line would not contribute to significant impact to biological resources on a cumulative level due to the minimal ground disturbance, similarity of improvements to the existing transmission infrastructure in the region, the short construction/decommissioning timeframe, and the limited vehicle and equipment use required for construction, operation, or decommissioning of the gen-tie line. Additionally, no impacts are expected to occur to adjacent areas during the operational phase of the gen-tie line.

As described above, five ephemeral drainages occur within the project area and would be impacted by the project. Although features found on the project site are not considered "waters of the United States" and therefore are not subject to regulation under the federal Clean Water Act, these features are expected to be jurisdictional waters of the State pursuant to the Porter-Cologne Water Quality Control Act and Section 1600 of the California Fish and Game Code. However, with incorporation of Mitigation Measures MM 4.4-23 and MM 4.4-25, the contribution of project impacts on such resources would not be cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.1-4 to 4.1-6 (see Section 4.1, *Aesthetics*), MM 4.4-1 through MM 4.4-25, MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*), and MM 4.10-1 through MM 4.10-2 (see Section 4.10, *Hydrology and Water Quality*).

Level of Significance after Mitigation

Despite implementation of the above mitigation, cumulative impacts would be significant and unavoidable due to the cumulative loss of habitat to special status and transient wildlife species, including desert tortoise, Mohave ground squirrel, migratory birds, American badger, and desert kit fox.

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Section 4.5
Cultural Resources

4.5.1 Introduction

This section provides the prehistoric, ethnographic, and historical contextual background information for cultural resources in the project area. This section also analyzes the project's potential impacts to cultural resources and identifies mitigation measures that would reduce any potential impacts to cultural resources to below a level of significance. The analysis in this section is supported by the *Cultural Resources Assessment Report* prepared for the project by Rincon Consultants, Inc. (Rincon 2020; see Appendix E) and peer reviewed by Michael Baker International. The *Cultural Resources Assessment Report* includes a cultural resources records search, a Sacred Lands File search and Native American contacts program, and a pedestrian survey of the project site. These studies were conducted in compliance with California Public Resources Code (PRC) Section 5024.1 and CEQA to identify archaeological, historic built architectural, and other cultural resources in the project area. Due to the confidential nature of the location of cultural resources, information regarding locations of cultural resources has been removed from these reports and is not included in the appendix.

Since the preparation of the *Cultural Resources Assessment Report*, the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from 2,672 acres to 2,317 acres. The 15 percent reduction in project footprint associated with the proposed project would result in a 15 percent reduction of land disturbed during construction. The reduced development footprint reduces the project electrical generation capacity from 600 megawatts (MW) to 530 MW. Therefore, the following discussion that is based on the previous approximately 2,317-acre footprint represents the worst-case potential impacts related to cultural resources, in particular, those resources that may be currently unknown.

Methods used to identify archaeological, historic, and built architectural resources in the project area were implemented in compliance with the California Environmental Quality Act (CEQA) and are described in more detail below and in Appendix E of this EIR.

For the purposes of CEQA, "cultural resources" generally refer to prehistoric and historical archaeological sites and the built environment. Cultural resources also include areas that are of cultural significance to, or affiliated with, California Native American tribes. Project impacts to tribal cultural resources are evaluated in Section 4.15, *Tribal Cultural Resources*, of this EIR.

Cultural Resource Terminology

For the purposes of CEQA, "cultural resources" generally refer to prehistoric and historical archaeological sites, isolates, and the built environment. Cultural resources can also include areas determined to be important to Native Americans. Below are definitions of key cultural resources terms used in this section.

Alluvium: a fine-grained fertile soil consisting of mud, silt, and sand deposited by flowing water on flood plains, in riverbeds, and in estuaries.

Archaeological Site: A site is defined as the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological remains usually take the form of artifacts (e.g., fragments of tools, vestiges of utilitarian, or nonutilitarian objects), features (e.g., remnants of walls, cooking hearths, or midden deposits), and ecological evidence (e.g., pollen remaining from plants that were in the area when the activities occurred). Prehistoric archaeological sites generally represent the material remains of Native American groups and their activities dating to the period before European contact. In some cases, prehistoric sites may contain evidence of trade contact with Europeans. Ethnohistoric archaeological sites are defined as Native American settlements occupied after the arrival of European settlers in California. Historic archaeological sites reflect activities during the Historic period.

Artifact: An object that has been made, modified, or used by a human being.

Cultural Complex: A complex is a specific archaeological manifestation that represents a general mode of life, characterized archaeologically by specific aspects of culture (e.g., technology, artifact types, economic systems, trade, burial practices).

Cultural Resource: Cultural resources are expressions of human culture and history in the physical environment, and may include archaeological sites, buildings, structures, objects, districts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains, but also may include areas where significant human events occurred, even though evidence of the events no longer remains. Cultural resources also include places that are considered to be of traditional cultural or religious importance to social or cultural groups.

Ethnographic: Relating to the study of human cultures. "Ethnographic resources" represent the heritage resource of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures.

Historic Period: The period that begins with the arrival of the first nonnative population and thus varies by area. In 1772, Commander Don Pedro Fages was the first European to enter Kern County, initiating the historic period in the project study area.

Historical Resource: This term is used for the purposes of CEQA and is defined in the CEQA Guidelines (Section 15064.5) as: (1) a resource listed in, or determined to be eligible for listing in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Holocene: Of, denoting, or formed in the second and most recent epoch of the Quaternary period, which began 10,000 years ago at the end of the Pleistocene.

Isolate: An isolated artifact or small group of artifacts that appear to reflect a single event or activity. Because isolates may lack identifiable context and may not have the potential to add important information about a region, culture, or person, they are generally not considered under CEQA to be historical or unique archaeological resources (PRC Section 21083.2 and CEQA Guidelines Section 15064.5).

Lithic: Of or pertaining to stone. Specifically, in archaeology lithic artifacts are chipped or flaked stone tools, and the stone debris resulting from their manufacture.

Native American Tribe: A Native American tribe located in California that is on the contact list maintained Native American Heritage Commission (NAHC). This definition does not distinguish between federally recognized and non-federally recognized tribal groups, and is therefore more inclusive than the federal definition of "Indian tribe" (PRC Section 21073). Refer also to Section 4.15, *Tribal Cultural Resources*, of this EIR.

Pleistocene (Ice Age): An epoch in the Quaternary period of geologic history lasting from 1.8 million to 10,000 years ago. The Pleistocene was an epoch of multiple glaciation, during which continental glaciers covered nearly one fifth of the earth's land.

Prehistoric period: The era prior to 1772. The later part of the prehistoric period is also referred to as the protohistoric period in some areas, which marks a transitional period during which native populations began to be influenced by European presence resulting in gradual changes to their ways of life.

Quaternary Age: The most recent of the three periods of the Cenozoic Era in the geologic time scale of the ICS. It follows the Tertiary Period, spanning 2.588 ± 0.005 million years ago to the present. The Quaternary includes two geologic epochs: the Pleistocene and the Holocene Epochs.

Stratigraphy: The natural and cultural layers of soil that make up an archaeological deposit, and the order in which they were deposited relative to other layers.

Tribal Cultural Resource: These are defined in Assembly Bill (AB) 52 as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources (PRC Section 21074 (a)(1)). Refer to Section 4.15, *Tribal Cultural Resources*, of this EIR.

Unique Archaeological Resource: This term is used for the purposes of CEQA and is defined in PRC Section 21083.2(g) as an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it either contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information; has a special and particular quality such as being the oldest of its type or the best available example of its type; or, is directly associated with a scientifically recognized important prehistoric or historic event or person.

4.5.2 Environmental Setting

The project area lies within the Antelope Valley region of the Mojave Desert province. The Mojave Desert province is a broad interior region of isolated mountain ranges separated by expanses of desert plains that is effectively wedged to the west between the Sierra Nevada Range (by the Garlock fault) and the Transverse Range (by the San Andreas fault). The western Mojave Desert acts as a sediment catch from three geomorphic provinces: Basin and Range, Sierra Nevada, and Transverse Ranges. By the early Miocene or late Oligocene an erosional surface rising eastward from the Garlock-San Andreas convergence (at the western end of the Mojave Desert) had developed, and depression of the region began. Depression resulted in the Mojave Desert province becoming an internal drainage area, with deposits of Miocene,

Pliocene and Pleistocene sediments accumulating in local basins. Miocene sedimentary units deposited during this time contain basalt, volcanic mud flows, and air-fall tuff. Repeated glacial advance and retreat during the Pleistocene created numerous lakes which provided conditions for the preservation of fossils. The area around the project area comprises a thick cover of Holocene to Pleistocene aged alluvium, composed of materials eroded from the surrounding mountains and accumulated during these periods of glacial advance and retreat.

Prehistoric Setting

The prehistory of the Mojave Desert spans 12,000 years and is usually characterized by four cultural temporal periods: Pleistocene, Early Holocene, Middle Holocene, and Late Holocene. Within these periods, prehistory of the southern California deserts is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation that represents a general mode of life, characterized archaeologically by specific aspects of culture (technology, artifact types, economic systems, trade, burial practices, etc.). The four cultural temporal periods of the Mojave Desert are described below.

Pleistocene Period (12,000 to 10,000 cal BP)

The climate of the Pleistocene Period in the Mojave Desert is generally characterized as cool and wet. During this time, the Mojave Desert featured several pluvial lakes. The presence of these lakes generally indicates an environment in which plentiful food and water resources were available for early human habitation, especially compared to the harsher desert environment now present. Claims of pre-Clovis Complex (i.e. before 11,500 BP) archaeological sites in the Mojave Desert remain controversial and are not accepted by most professional archaeologists. Nonetheless, it is possible that such occupation occurred and sites with reliable early dates may yet be found, as has happened elsewhere in the Americas.

The Clovis Complex is the earliest and only Paleo-Indian cultural complex widely accepted in the Mojave Desert. Dating to approximately 11,500 BP, this complex is defined predominantly by large lanceolate-shaped bifaces with fluting, prepared to thin and flatten the base of the artifact for hafting ("Lanceolate" generally means 'shaped like the head of a lance' (i.e., a narrow, oval shape that tapers to a point at each end)). Other tools associated with the Clovis Complex include large side scrapers, blades derived from prepared cores, and a mixture of expedient flaked tools. Paleo-Indian populations associated with fluted point technology consisted of small, mobile groups who hunted and gathered near permanent sources of water such as pluvial lakes. The tools associated with these populations are found most commonly in the drainage basins of the pluvial lakes.

Fluted points have been interpreted traditionally as tools used for hunting Pleistocene megafauna due to their clear association with megafaunal remains in the Great Plains and Southwest, but most fluted points found in California have lacked corroborating Pleistocene radiocarbon dates. However, one exception was found during excavations at China Lake in the early 1970s, where fluted points associated with burned remains of extinct megafauna were uncovered, thereby indicating that that Paleo-Indians exploited many available resources at the sites at China Lake, not just megafaunas.

Evidence of terminal Pleistocene and early Holocene habitation in the Mojave Desert has remained sparse until recently. Evidence of late Pleistocene occupation was identified on the southern slopes of the Tehachapi Mountains near Cottonwood Creek in the form of a basal fragment of a fluted Clovis projectile

point, while evidence of occupation near Pleistocene China Lake and Fort Irwin yielding radiocarbon dates from 9,500-8,000 cal BP has also been uncovered.

Early Holocene (10,000 to 8,000 cal BP)

Warmer temperatures, reduced precipitation, and the eventual drying up of the Pleistocene pluvial lakes mark the onset of the Early Holocene. These changes are believed to have caused an irregular distribution of resources available to the Early Holocene inhabitants. The shallow lakes and marshes of the Mojave Desert during this period were biologically productive, but surrounded by desert vegetation typical of later periods, initially dominated by white bursage and later, by creosote bush. The Lake Mojave Complex is the only clear complex in the region during this time and reflects an increasingly diversified subsistence strategy that was necessary for successful adaptation to climatic changes.

The Lake Mojave Complex is identified primarily by heavy, stemmed projectile points attributable to the Great Basin Stemmed series, such as Lake Mojave and Silver Lake. Other Lake Mojave Complex tools include bifaces, steep-edged unifaces, crescents, the occasional cobble-core tool, and, infrequently, ground stone implements. Settlement organization components include extensive residential accumulations, workshops, and small camps containing a handful of formed tools.

While earlier research presumed a dependence on lacustrine subsistence strategies, recent studies have found Lake Mojave Complex sites in other contexts. The Lake Mojave assemblages included tools that are "consistent with long-term curation and transport"—an assertion that is supported by the presence of exotic lithic materials and marine shell beads in Lake Mojave Complex assemblages, which suggests that these people were highly mobile and possibly traded with groups over long distances.

The middle Holocene climate was generally more arid than periods before and after, but experienced multiple oscillations between wetter and drier conditions throughout the middle Holocene. The desiccation of the lakes and marshes of the Pleistocene and early Holocene required the region's inhabitants to rely on streams and springs for water, resulting in lower occupational densities. Average temperatures and aridity increased, peaking between 8,000 and 6,000 cal BP. Settlement patterns adapted, including a shift to upland settings where sources of water still existed and changes in tool assemblage content and diversity marking the emergence of the Pinto Complex.

The Pinto Complex reflects shifts in subsistence patterns and adaptation to the shrinking of the Pleistocene lakes, including a greater emphasis on the exploitation of plants, with the continued pursuit of artiodactyls and smaller game. The broad distribution of this complex implies a high degree of residential mobility. The hallmarks of the Pinto Complex tool assemblage include concave base and bifurcate base projectile points with strong basal ears and more gradual shoulders. Other diagnostic artifacts of this complex include domed and keeled scrapers, large and small leaf-shaped bifaces, core/cobble tools, large metates and milling slabs, and shaped and unshaped handstones.

Near the end of the middle Holocene the climate became increasingly hotter and more arid. Very few sites date to this period, falling between 5,000 and 4,000 cal BP. This suggests that populations were very low. It is possible that some areas were abandoned during this hot period.

Late Holocene (4,000 cal BP to European Contact)

The climate of the late Holocene was similar to current conditions: cooler and more moist than the middle Holocene, but not as cool and moist as the early Holocene. The climate remained highly variable with

periods that included the Mojave lakes refilling to levels of earlier high stands, contrasted with at least two major droughts, circa 1124 BP to 904 BP, and circa 807 BP to 660 BP. A cooler and wetter period occurred between 550 BP and 100 cal BP. These climatic changes at the onset of the late Holocene once again resulted in modified subsistence strategies and correlating tool kits of three progressive cultural complexes: the Gypsum Complex, the Rose Spring Complex, and the Late Prehistoric Complex (or period).

Dart-point size projectile points including notched or eared (Elko), concave base (Humboldt), and small-stemmed (Gypsum) types characterized the projectile points of the Gypsum Complex. In addition to these diagnostic points, Gypsum Complex sites included leaf-shaped points, rectangular-based knives, flake scrapers, drills, and occasionally, large scraper planes, choppers, and hammerstones. Manos and milling stones were common, and the mortar and pestle were also introduced during this period. Other artifacts found at Gypsum Complex sites include split-twig animal figurines, Olivella shell beads, and Haliotis spp. beads and ornaments, which are indicative of trade with people from the southern California coast and southern Great Basin. The inhabitants of the Mojave Desert exported high-quality locally available CCS tool stone such as obsidian, chalcedony, and chert in exchange for exotic materials.

By 1750 cal BP, a slightly cooler climate appears to have provided for increased population, based on a higher frequency of archaeological sites. The Rose Spring Complex was present from approximately 1815 BP to 915 cal BP, with regional temporal variations known as the Saratoga Springs, Haiwee, or Armargosa periods. The smaller Rose Spring projectile points replaced the dart-size points of previous complexes and heralded the introduction of the bow and arrow. The bow and arrow provided its user a way to rapidly fire multiple projectiles during hunting or warfare and from a position of relative security compared to the spear. This technological innovation appears to correspond with the onset of the Numic expansion westward to the coast, which some researchers believe started from southeastern California. Bedrock milling features supplement portable milling stones in villages and ancillary sites within the California deserts.

The Late Prehistoric period (circa 900–250 cal BP) corresponds to the introduction of ceramic artifacts in the Mojave Desert region as well as replacement of Rose Spring projectile points with even smaller Desert Side-notched points and Cottonwood series points. Use of mortar and pestle became more widespread during this period and evidence of food storage facilities becomes increasingly common in the archaeological record. In the central Mojave Desert, the Mojave River became a primary focus of occupation, and trade networks increased along the Mojave River and over the San Gabriel Mountains.

Archeological evidence left by highly mobile hunter-gatherers in the Mojave Desert during the Late Prehistoric period is typified by sparse scatters of flaked stone, ground stone, and ceramic artifacts and features such as hearths, rock rings, and trails.

Ethnographic Setting

The project area is within a transitional zone that was occupied by multiple cultural groups including the Serrano, Kitanemuk, and Tataviam. All of these groups are better associated with portions of the surrounding mountains—Serrano to the northeast, Kitanemuk to the northwest, Tataviam to the southwest—but all of them likely visited the Antelope Valley floor as part of their resource exploitation strategies. Ethnographic boundaries in the Mojave Desert are loosely defined, owing to the highly mobile nature of desert settlement and resource extraction strategies, as well as the variety of interpretations presented by previous researchers. The following sections provide brief overviews of the three groups likely to have ethnographically utilized the project area.

Serrano

The Serrano occupied an area in and around the San Bernardino Mountains between approximately 450 and 3,350 meters (1,500-11,000 feet) above mean sea level. Their territory extended west of the Cajon Pass, east past Twentynine Palms, north of Victorville, and south to Yucaipa Valley. Year-round habitation tended to be located on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources.

Most Serrano lived in small villages located near water sources. The subsistence economy of the Serrano was one of hunting and collecting plant goods, with occasional fishing. They hunted large and small animals, including mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Plant staples consisted of seeds; acorn nuts of the black oak; piñon nuts; bulbs and tubers; and shoots, blooms, and roots of various plants, including yucca, berries, barrel cacti, and mesquite. The Serrano used fire as a management tool to increase yields of specific plants, particularly chía.

Trade and exchange were important aspects of the Serrano economy. Those living in the lower-elevation, desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources. In addition to inter-village trade, ritualized communal food procurement events, such as rabbit and deer hunts and piñon, acorn, and mesquite nut-gathering events, integrated the economy and helped distribute resources that were available in different ecozones.

Contact between Serrano and Europeans was relatively minimal prior to the early 1800s. As early as 1790, however, Serrano began to be drawn into mission life. More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on that mission. Most of the remaining western Serrano were moved to an asistencia built near Redlands in 1819.

A smallpox epidemic in the 1860s killed many indigenous southern Californians, including many Serrano. Oral history accounts of a massacre in the 1860s at Twentynine Palms may have been part of a larger American military campaign that lasted 32 days. Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later became a reservation. Other survivors followed the Serrano leader, Santos Manuel, down from the mountains and toward the valley floors and eventually settled what later became the San Manuel Band of Mission Indians Reservation, formally established in 1891.

Kitanemuk

The Kitanemuk are one of the least-understood ethnographic groups in California, despite being considered by researchers as the primary aboriginal inhabitants of Antelope Valley. Kitanemuk territory extended from the Tehachapi Mountains at the northwestern edge of the Antelope Valley southeast to beyond Rosamond Lake, although their populations were most dense in the mountains at the southern end of the San Joaquin Valley. The Kitanemuk were primarily mountain dwellers who lived in semi-permanent village sites that functioned as year-round base camps; during the late winter and early spring, expeditions ventured onto the desert floor in pursuit of available seasonal resources.

The Kitanemuk appear to have enjoyed particularly strong trade ties with coastal and inland Chumash groups. Modern-day descendants of the Kitanemuk live at the Tule River Reservation, Porterville, and Tejon Ranch.

Tatavium

Tataviam territory included the upper Santa Clara River from Piru Creek eastward, extending over the Sawmill Mountains to the southwest edge of the Antelope Valley. Their territory was bounded on the west and north by various Chumash groups; on the south by the Tongva (Gabrielino and Fernandeño, though some Tataviam were also identified as Fernandeño because of their association with Mission San Fernando); and to the east by the Kitanemuk and Serrano.

Researchers hypothesize that the Tataviam relied on yucca as a food source more than their neighbors because of the predominance of large south-facing slopes within their territory. Additional food resources included acorns, sage seeds, berries, small mammals, and deer. Settlement size ranged from 10 to 200 persons, with small settlements often ancillary to large villages. Archaeological evidence from Bower's Cave – located between Newhall and Piru – combined with ethnographic evidence suggest their ritual organization was similar to both the Chumash and Gabrielino, whose lifestyles were distinct from one another. By 1810, the Tataviam were almost completely "missionized" through baptism at Mission San Fernando.

Historic Setting

Post-European contact history for the state of California is divided generally into three periods: the Spanish Period (1769 to 1822), the Mexican Period (1822 to 1848), and the American Period (1848 to present). The following provides a general discussion of the history of California following European contact.

The Spanish Period (1769 to 1822)

In 1542, Juan Rodriguez Cabrillo led the first European expedition to observe what is now called Southern California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta (upper) California coast and made limited inland expeditions, but they did not establish permanent settlements.

Gaspar de Portolá and Franciscan Father Junípero Serra established the first Spanish settlement in Alta California at Mission San Diego de Alcalá in 1769. This was the first of 21 missions erected by the Spanish between 1769 and 1823.

During this period, Spain also deeded ranchos to prominent citizens and soldiers, though very few in comparison to the following Mexican Period. To manage and expand herds of cattle on these large ranchos, colonists enlisted the labor of the surrounding Native American population. The missions were responsible for administrating the local people as well as converting the population to Christianity. Inevitably, this increased local population density and contact with diseases brought by Europeans greatly reduced the Native American population.

The first known Spanish explorers to enter the Mojave Desert were a group of soldiers led by Pedro Fages in 1772. In 1776, Friar Francisco Garcés, traveled through the area coming from the Colorado River. Friar Garcés traveled as far as the Pacific coast along an ancient trade route, known as the Mojave Trail, and he named the Mojave River Arroyo de los Mártires (Stream of the Martyrs). The river was later named Rio de las Animas (River of Souls) by Fr. Joaquín Pasqual Nuez, who accompanied the 1819 expedition of Lt. Gabriel Moraga.

The Mexican Period (1822 to 1848)

The Mexican period commenced when news of the success of the Mexican Revolution (1810-1821) against the Spanish crown reached California in 1822. This period saw extensive interior land grant development as well as exploration west of the Sierra Nevada Mountains by American fur trappers. The California missions declined in power and were ultimately secularized in 1834. The hallmark of the Mexican period was large ranchos deeded to prominent Mexican citizens, frequently soldiers, by the governor. These ranchos became important economic and social centers. However, no ranchos were claimed in the arid Mojave Desert. Rancho San Bernardino, situated in the southwestern corner of San Bernardino County, was the closest land grant to the current project site, located approximately 160 kilometers (100 miles) to the west. During the Mexican period, trappers and explorers from the eastern United States repeatedly journeyed westward. Jedidiah Strong Smith, one of these early American adventurers, traveled through the Mojave Desert in 1826 and 1827 and nicknamed the Mojave River the "Inconstant River" because of its frequent disappearance beneath the ground surface.

The American Period (1848 to present)

The American Period officially began with the signing of the Treaty of Guadalupe Hidalgo in 1848, in which the United States agreed to pay Mexico $15 million for the conquered territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. In 1850, California was admitted to the Union as the 31st state.

The discovery of gold in northern California in 1848 led to the California Gold Rush and subsequent farming and city/town development in the northern/central portions of California. Southern California remained dominated by cattle ranches in the early American Period, though droughts and increasing population resulted in ranching being increasingly supplanted by farming and more urban professions through the late nineteenth century. By 1853, the population of California exceeded 300,000. Thousands of settlers and immigrants continued to immigrate into the state, particularly after the completion of the transcontinental railroad in 1869.

During the Gold Rush, thousands of people traveled the Mojave River Trail from points east, attempting to reach the fabled goldfields of California. Captain John C. Fremont called the Mojave River Trail the Old Spanish Trail until he met a group of Native Americans northeast of Victorville who told Fremont they had lived along the Mojave River and the mountains to the north and traded with other indigenous peoples in the region along the Mojave River Trail.

Existing Cultural Resources

To evaluate the project's potential impacts on significant cultural resources, a cultural resources assessment of the project area was prepared which included a cultural resources records search and a pedestrian survey. The methodology of the cultural resources assessment is described in detail in Appendix E of this EIR.

A summary of the records search and pedestrian survey findings are summarized below by each project site (Sites 1 through 5).

Records Search

A records search of the project area, including a 0.5-mile radius buffer, was conducted by staff at the Southern San Joaquin Valley Information Center (SSJVIC) of California Historic Resource Inventory System (CHRIS) on February 14, 2019. The search was conducted to identify any previously recorded cultural resources and previously conducted cultural resources studies in the project vicinity. The following lists and databases were also reviewed:

- National Register of Historic Places (NRHP)
- California Register of Historical Resources
- Archaeological Determinations Eligibility List
- California Inventory of Historic Resources

In addition to the CHRIS records search, the cultural resources assessment report included a review of historical maps, aerials, and literature to determine past land use activities within the project area that could indicate the likelihood of encountering cultural resources. A detailed description of the results of this additional review is provided in Appendix E.

Pedestrian Survey

Between February 25 and March 16, 2019, Rincon archaeologists conducted an archaeological inventory of the project area by walking parallel transects spaced at approximately 15 meters. The purpose of the archaeological inventory was to inspect all exposed ground surface for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were visually inspected.

The goals of the inventory were to identify cultural resources and collect sufficient data regarding the quality and quantity of the resources relating to specific site types and appropriate research domains. The collection of this data generally facilitates making preliminary recommendations regarding a site's eligibility for the CRHR and NRHP and to determine if further archaeological studies (e.g., subsurface testing) may be required at specific sites. Appendix E provides the survey results for each individual project site (refer to Volumes II through VI).

Site Analysis

The following summarizes the previously recorded resources at each project site (Sites 1 through 5), as well as any newly recorded resources that were identified during the pedestrian field survey.

Each resource was evaluated for CRHR eligibility. A cultural resource is considered historically significant and eligible for the CRHR if it:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.

3. It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

4. It has yielded, or may be likely to yield, information important in history or prehistory.

Site 1

Previously Recorded Resources

The CHRIS records search identified four previously recorded cultural resources at Site 1. Each resource is summarized in **Table 4.5-1**, *Previously Recorded Resources at Site 1*. A full description of each previously recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-1**, none of the previously recorded resources at Site 1 are considered eligible for listing in the CRHR.

Table 4.5-1. Previously Recorded Resources at Site 1

Resource Number	Resource Type	Resource Description	NRHP/CRHR Status	CRHR Eligibility
P-15-006596	Historic site	Historic refuse deposit comprising cans, glass fragments, earthenware fragments, milled lumber, and concrete fragments	Not previously evaluated	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-007160	Historic site	Historic period refuse deposit comprising sanitary cans and glass jar fragments	Not previously evaluated	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-017320	Historic structure	Linear, unnamed dirt road associated with a Pacific Gas and Electric gas line	Previously recommended ineligible	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-017321	Historic structure	Paved portion of Boron Avenue	Previously recommended ineligible	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.				

Newly Recorded Resources

The pedestrian survey identified and recorded 11 new resources, including one prehistoric site and ten historic sites. Each resource is summarized in **Table 4.5-2**, *Newly Recorded Resources at Site 1*. A full description of each newly recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-2**, none of the newly recorded resources found at Site 1 are considered eligible for listing in the CRHR.

Table 4.5-2. Newly Recorded Resources at Site 1

Resource Number	Description	CRHR Eligibility
S-011	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-011H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-012H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-013H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-017H	Historic-period road	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-020H	Historic-period road	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-022H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-023H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-024H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-025H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-026H	Historic-period refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.		

Site 2

Previously Recorded Resources

The CHRIS records search identified four previously recorded cultural resources at Site 2. Each resource is summarized in **Table 4.5-3**, *Previously Recorded Resources at Site 2*. A full description of each previously recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-3**, none of the previously recorded resources at Site 2 are considered eligible for listing in the CRHR.

Table 4.5-3. Previously Recorded Resources at Site 2

Resource Number	Resource Type	Resource Description	NRHP/CRHR Status	CRHR Eligibility
P-15-008723	Prehistoric isolate	Isolated pink chalcedony flake	Not previously evaluated	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-008724	Prehistoric isolate	Isolated pink chalcedony flake	Not previously evaluated	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-017319	Historic structure	Historic 0.50-mile-long historic road segment of Jessie Street and associated historic era refuse scatter	Previously recommended ineligible for NRHP	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-017320	Historic site	Linear, unnamed dirt road associated with a Pacific Gas and Electric gas line	Previously recommended ineligible	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; Appendix E.				

Newly Recorded Resources

The pedestrian survey identified and recorded seven isolated artifacts, five prehistoric sites, and four historic sites. Each resource is summarized in **Table 4.5-4**, *Newly Recorded Resources at Site 2*. A full description of each newly recorded resource is provided Appendix E of this EIR. As shown in **Table 4.5-4**, none of the newly recorded resources found at Site 2 are considered eligible for listing in the CRHR.

Table 4.5-4. Newly Recorded Resources at Site 2

Resource Number	Description	CRHR Eligibility
Aratina Iso-020	Obsidian pressure flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina Iso-021	Chalcedony interior flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina Iso-022	Basalt interior flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina Iso-024	Cryptocrystalline silica (CCS) flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina Iso-025	CSS interior flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina Iso-026	Two CCS flakes	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina Iso-027	CSS cortical flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-014H	Road	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-016H	Refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-017H	Road	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-019H	Refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-012	Lithic Scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-013	Lithic Scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-014	Lithic Scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-015	Lithic Scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Aratina S-016	Lithic Scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.		

Site 3

Previously Recorded Resources

The CHRIS records search identified two previously recorded cultural resources at Site 3. Each resource is summarized in **Table 4.5-5**, *Previously Recorded Resources at Site 3*. A full description of each previously recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-5**, none of the previously recorded resources at Site 3 are considered eligible for listing in the CRHR.

Table 4.5-5. Previously Recorded Resources at Site 3

Resource Number	Resource Type	Resource Description	NRHP/CRHR Status	CRHR Eligibility
P-15-012426	Historic site	Historic-aged refuse scatter	Previously recommended ineligible for NRHP	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
P-15-017319	Historic structure	Historic 0.5-mile-long road segment of Jessie Street and associated historic era refuse scatter	Previously recommended ineligible for NRHP	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.				

Newly Recorded Resources

The pedestrian survey identified and recorded five isolated artifacts and two historic sites. Each resource is summarized in **Table 4.5-6**, *Newly Recorded Resources at Site 3*. A full description of each newly recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-6**, none of the newly recorded resources found at Site 3 are considered eligible for listing in the CRHR.

Table 4.5-6. Newly Recorded Resources at Site 3

Resource Number	Description	CRHR Eligibility
S-018H	Historic clay plant ruins	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-021H	Historic refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-023	Two prehistoric flakes	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-28	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-29	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-30	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-31	Prehistoric slate pendant	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.		

Site 4

Previously Recorded Resources

The CHRIS records search identified one previously recorded cultural resource at Site 4. This resource is summarized in **Table 4.5-7**, *Previously Recorded Resources at Site 4*. A full description of the previously recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-7**, the previously recorded resource at Site 4 is not considered eligible for listing in the CRHR.

Table 4.5-7. Previously Recorded Resources at Site 4

Resource Number	Resource Type	Resource Description	NRHP/CRHR Status	CRHR Eligibility
P-15-017318	Historic road	Unnamed, improved, well-travelled dirt road that runs within the Pacific Gas and Electric right-of-way and terminates at Twenty Mule Team Road	Previously presumed ineligible	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.				

Newly Recorded Resources

The pedestrian survey identified and recorded five isolated artifacts, three prehistoric sites, one historic site, and one multi-component site. Each resource is summarized in **Table 4.5-8**, *Newly Recorded Resources at Site 4*. A full description of each newly recorded resource is provided in Appendix E of this EIR.

Table 4.5-8. Newly Recorded Resources at Site 4

Resource Number	Description	CRHR Eligibility
S-008	Prehistoric lithic scatter	**Potentially Eligible.** The resource does not meet Criteria 1-3 for listing in the CRHR. However, the site is located adjacent to a seasonal drainage that may have buried portions of the site under alluvium. Though the surface of the site was fully recorded during the current survey and the data potential of the surface exhausted, it is possible that a subsurface component of the site exists. Thus, the site has the potential to retain significant data potential (Criterion 4).
S-009	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-010	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-004H	Historic recuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-001M	Multi-component lithic and refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-012	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-013	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-014	Historic diesel engine	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-015	Prehistoric projectile point	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-032	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.		

As shown in **Table 4.5-8**, one prehistoric site (S-008) is considered potentially eligible for listing in the CRHR. S-008 is a moderate density lithic scatter containing approximately 113 flakes of various material types including three varieties of cryptocrystalline silica (CCS; chert, jasper, and chalcedony), quartz, and basalt. A majority of the flakes (approximately 100) are basalt. Many of the flakes represent early reduction; however, there are also 13 biface thinning flakes. The site measures approximately 150 meters from north to south by 200 meters from east to west, and is located on a flat, sandy alluvial plain. No features were identified associated with the site.

Although S-008 contains no features or soil discoloration indicative of a subsurface deposit, the site is located adjacent to a seasonal drainage that may have buried portions of the site under alluvium. Though the surface of the site was fully recorded during the current survey and the data potential of the surface exhausted, it is possible that a subsurface component of the site exists. Thus, S-008 has the potential to retain significant data potential and is considered potentially eligible for listing in the CRHR under Criterion 4.

As shown in **Table 4.5-8**, none of the other newly recorded resources found at Site 4 are considered eligible for listing in the CRHR.

Site 5

Previously Recorded Resources

The CHRIS records search identified no previously recorded cultural resources at Site 5.

Newly Recorded Resources

The pedestrian survey identified and recorded three isolated artifacts, three prehistoric sites, and one historic site. Each resource is summarized in **Table 4.5-9**, *Newly Recorded Resources at Site 5*. A full description of each newly recorded resource is provided in Appendix E of this EIR. As shown in **Table 4.5-9**, none of the newly recorded resources found at Site 5 are considered eligible for listing in the CRHR.

Table 4.5-9. Newly Recorded Resources at Site 5

Resource Number	Description	CRHR Eligibility
S-001	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-002	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-003	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-001H	Historic refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-001	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-002	Prehistoric flake	**Ineligible.** The resource does not meet Criterion 1-4 for listing in the CRHR.
Iso-003	Prehistoric flake	**Ineligible.** The resource does not meet Criterion 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.		

Gen-Tie Route Alternatives

Previously Recorded Resources

The CHRIS records search identified two previously recorded cultural resources within the gen-tie route to the Southern California Edison (SCE) Holgate Substation. Each resource is summarized in **Table 4.5-10**, *Previously Recorded Resources within Gen-Tie Route to Holgate Substation*.

Table 4.5-10. Previously Recorded Resources within Gen-Tie Route to Holgate Substation

Resource Number	Resource Type	Resource Description	NRHP/CRHR Status	CRHR Eligibility
P-15-000560	Historic railroad	Old railroad bed and associated historic era refused deposits on Edwards Air Force Base	Previously given an NRHP status code of 3B: Appears eligible for listing on the NRHP both individually and as a contributor to a NRHP eligible district through survey evaluation	Assumed Eligible
P-15-017304	Historic highway	Historic period Twenty Mule Team Road and State Route 58	Twenty Mule Team Road is a California Point of Historical Interest	Assumed Eligible
Source: Rincon 2020; see Appendix E.				

As shown in **Table 4.5-10**, both of the previously recorded resources within the gen-tie route alternatives are considered eligible for listing in the CRHR. Below is a description of both resources:

P-15-000560

Resource P-15-000560 is a historic period railroad first recorded in 1977 and last updated in 2013. The segment within the gen-tie alternatives area was given an NRHP status code of 3B: Appears eligible for listing on the NRHP both individually and as a contributor to a NRHP eligible district through survey

evaluation. The railroad is actively used and would not be directly or indirectly impacted by the proposed project. Thus, for the purposes of this study, P-15-000560 is assumed eligible for listing in the CRHR.

P-15-017304

Resource P-15-017304 consists of the historic period Twenty Mule Team Road and State Route 58 recorded in 2013. This resource was not evaluated when it was recorded in 2013; however, Twenty Mule Team Road is a California Point of Historical Interest. Thus, for the purposes of this study, P-15-017304 is assumed eligible for listing in the CRHR.

Newly Recorded Resources

The pedestrian survey identified and recorded four isolated artifacts, four prehistoric sites, and four historic sites. Each resource is summarized in **Table 4.5-11**, *Newly Recorded Resources within Gen-Tie Route to Holgate Substation*. A full description of each newly recorded resource is provided in Appendix E of this EIR.

Table 4.5-11. Newly Recorded Resources within Gen-Tie Route to Holgate Substation

Resource Number	Description	CRHR Eligibility
S-004	Prehistoric lithic scatter and thermal feature	**Potentially eligible.** The resource does not meet Criteria 1-3 for listing in the CRHR. However, Site S-004 has the potential to retain significant data potential (Criterion 4) to contribute to local research themes pertaining to prehistory.
S-005	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-006	Prehistoric lithic scatter and thermal feature	**Potentially eligible.** The resource does not meet Criteria 1-3 for listing in the CRHR. However, Site S-006 has the potential to retain significant data potential (Criterion 4) to contribute to local research themes pertaining to prehistory.
S-009	Prehistoric lithic scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-002H	Historic refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-003H	Historic refuse scatter	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-005H	Historic building	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
S-027H	Historic building	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-004	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-005	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-006	Prehistoric flake	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Iso-033	Historic survey marker	**Ineligible.** The resource does not meet Criteria 1-4 for listing in the CRHR.
Source: Rincon 2020; see Appendix E.		

4.5.3 Regulatory Setting

Federal

Section 106 of the National Historic Preservation Act (NHPA)

The NHPA of 1966, as amended (16 USC 470f), and its implementing regulation- Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979- legislates the protection of archaeological resources. Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to

comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the NRHP. Under the NHPA, a resource is considered significant if it meets the NRHP listing criteria in 36 Code of Federal Regulations [CFR] 60.4.

National Register of Historic Places

The NRHP was established by the NHPA of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2). The NRHP recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria established by the U.S. Department of the Interior:

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for NRHP listing (U.S. Department of the Interior 1995). In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior 1995). The NRHP recognizes seven qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

State

California Register of Historical Resources

The CRHR is "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in, or formally determined eligible for listing in, the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical

Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under PRC 5024.1, Title 14 CCR, Section 4852(c), a cultural resource must retain integrity to be considered eligible for the CRHR. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association.

Typically, an archaeological site in California is recommended eligible for listing in the CRHR based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions.

California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

1. It is the first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California);
2. It is associated with an individual or group having a profound influence on the history of California; or
3. It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California Points of Historical Interest (PHI) are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic,

scientific or technical, religious, experimental, or other value. PHI designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a PHI, a resource must meet at least one of the following criteria:

1. It is the first, last, only, or most significant of its type within the local geographic region (city or county);
2. It is associated with an individual or group having a profound influence on the history of the local area; or
3. It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The CEQA Guidelines (Title 14 CCR Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the CEQA Guidelines apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (CEQA Guidelines Section 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an

archaeological artifact, object, or site, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064.5(c)(4)).

Native American Heritage Commission

PRC Section 5097.91 established the Native American Heritage Commission (NAHC), the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public related to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency."

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Section 8010–8030, the California Native American Graves Protection and Repatriation Act (Cal NAGPRA) is consistent with the federal NAGPRA. Intended to "provide a seamless and consistent state policy to ensure that all California Indian human remains and cultural items be treated with dignity and respect," Cal NAGPRA also encourages and provides a

mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The Cal NAGPRA also provides a process for non-federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

California Health and Safety Code, Sections 7050 and 7052

California Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code, Section 622.5

California Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

Public Resources Code, Section 5097.5

PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for cultural resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Measure O: On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.5.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to cultural resources have been evaluated using a variety of resources. The analysis in this section is supported by the *Cultural Resources Assessment Report* located in Appendix E of this EIR. The *Cultural Resources Assessment Report* includes a cultural resources records search, a Sacred Lands File Search and Native American contacts program, and a pedestrian survey. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in *CEQA Guidelines* Appendix G, to determine if a project could potentially have a significant adverse effect on cultural resources.

A project would have a significant adverse effect on cultural resources if it would:

a. Cause a substantial adverse change in the significance of a historical resource, as defined in *CEQA Guidelines* Section 15064.4;

b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to *CEQA Guidelines* Section 15064.4; or

c. Disturb any human remains, including those interred outside of dedicated cemeteries.

All of the above impact thresholds are addressed in the project impacts section below. Impacts to tribal cultural resources have been addressed in Section 4.15, *Tribal Cultural Resources*, of this EIR.

According to CEQA Guidelines Section 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. The guidelines further state that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its historical

significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of PRC Sections 5020.1(k) and 5024.1(g).

Impacts on cultural resources could result from ground-disturbing activities and/or damage, destruction, or alteration of historic structures. Ground-disturbing activities include project-related excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried archaeological resources including prehistoric and historic remains or human burials.

Project Impacts

Impact 4.5-1: The project would cause a substantial adverse change in the significance of a historic resource, as defined in CEQA Guidelines Section 15064.5.

Known Resources

As described above, a cultural resources assessment was prepared for the project area, which included a cultural resources records search and a pedestrian survey (refer to Appendix E). A summary of the records search and pedestrian survey findings are summarized by each project site (Sites 1 through 5) under Section 4.5.2, *Environmental Setting*, above.

According to the *Cultural Resources Assessment Report* (Rincon 2020), two cultural resources (P-15-000560, and P-15-017304) are recommended for listing and three cultural resources (S-004, S-006, and S-008) located on the project site are identified as potentially eligible for listing in the CRHR and are thus being treated as significant historical resources for the purpose of this project. The following five resources are considered historical resources as defined in CEQA Guidelines Section 15064.5:

Site 4

S-008. Site S-008 is a moderate density lithic scatter containing approximately 113 flakes of various material types including three varieties of cryptocrystalline silica (CCS; chert, jasper, and chalcedony), quartz, and basalt. Though the surface of the site was fully recorded during the current survey and the data potential of the surface exhausted, it is possible that a subsurface component of the site exists. Thus, S-008 has the potential to retain significant data potential and is considered potentially eligible for listing in the CRHR under Criterion 4.

Implementation of the proposed project has the potential to impact Site S-008 during construction, operation, or decommissioning activities. Per CEQA Guidelines Section 15126.4(b)(3), project redesign and preservation in place is recommended as the preferred means to avoid impacts to historical resources. To ensure avoidance of Site S-008, Mitigation Measures MM 4.5-1 through 4.5-3 would be implemented.

Mitigation Measure MM 4.5-1 requires a qualified archaeological monitor and Native American monitor to be retained by the project proponent/operator to monitor all ground-disturbing activities associated with the construction of the proposed project. Mitigation Measure MM 4.5-2 requires a Construction Worker Environmental and Cultural Awareness Training Program to be implemented and provided to all new construction workers within one week of employment at the project site, laydown area and/or transmission routes to ensure all workers are aware of proper notification and handling requirements of cultural resources on-site. Mitigation Measure MM 4.5-3 outlines specific avoidance procedures to reduce potential impacts

to S-008. The project shall be redesigned to avoid S-008 and the area within 100 feet of the resource would be designated as an Environmentally Sensitive Area to ensure avoidance of the resource.

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-3, impacts to Site S-008 would be reduced to less than significant.

Gen-Tie Route to the Holgate Substation

P-15-000560. Resource P-15-000560 is a historic period railroad first recorded in 1977 and last updated in 2013. The segment within the gen-tie alternatives area was given an NRHP status code of 3B: Appears eligible for listing on the NRHP both individually and as a contributor to a NRHP eligible district through survey evaluation. For the purposes of this study, P-15-000560 is assumed eligible for listing in the CRHR. The railroad is actively used and would not be directly or indirectly impacted by the proposed project. Therefore, no impact on Resource P-15-000560 would occur with implementation of the proposed project.

P-15-017304. Resource P-15-017304 consists of the historic period Twenty Mule Team Road and State Route 58 recorded in 2013. This resource was not evaluated when it was recorded in 2013; however, Twenty Mule Team Road is a California Point of Historical Interest. For the purposes of this study, P-15-017304 is assumed eligible for listing in the CRHR. Twenty Mule Team Road is actively used and would not be directly or indirectly impacted by the current project. Therefore, no impact on Resource P-15-017304 would occur with implementation of the proposed project.

S-004. Site S-004 consists of a sparse prehistoric lithic scatter of 20 flakes of various material types including chalcedony, quartz, obsidian, and basalt. Despite the paucity of surface artifacts, the presence of a thermal feature and associated groundstone indicates that the site may have been used for food processing and is potentially the result of continued use over time. Thermal features also present a high likelihood of datable materials such as charcoal, suggesting that the site may provide information about resource procurement, subsistence strategies, and the ability to place those activities within the timeline of prehistoric use of the region. Though the surface of the site was fully recorded during the current survey and the data potential of the surface exhausted, it is possible that a subsurface component of the site exists. Thus, Site S-004 has the potential to retain significant data potential (Criterion 4) to contribute to local research themes pertaining to prehistory. Based on the surface constituents, Site S-004 appears eligible for the CRHR. Refer to Section 4.15, *Tribal Cultural Resources*, for additional information.

Implementation of the proposed project has the potential to impact Site S-004 during construction, operation, or decommissioning activities. Per CEQA Guidelines Section 15126.4(b)(3), project redesign and preservation in place is recommended as the preferred means to avoid impacts to historical resources. To ensure avoidance of Site S-004, Mitigation Measures MM 4.5-1, MM 4.5-2, and MM 4.5-4 would be implemented. Mitigation Measure MM 4.5-1 requires a qualified archaeological monitor and Native American monitor to be retained by the project proponent/operator to monitor all ground-disturbing activities associated with the construction of the proposed project. Mitigation Measure MM 4.5-2 requires a Construction Worker Environmental and Cultural Awareness Training Program to be implemented and provided to all new construction workers within one week of employment at the project site, laydown area and/or transmission routes to ensure all workers are aware of proper notification and handling requirements of cultural resources on-site. Mitigation Measure MM 4.5-4 outlines specific procedures to avoid potential impacts to S-004. The project shall be redesigned to avoid S-004 and the area within 100 feet of the resource would be designated as an Environmentally Sensitive Area to ensure avoidance. With implementation of

Mitigation Measures MM 4.5-1, 4.5-2, and 4.5-4, impacts to Site S-004 would be reduced to less than significant.

S-006. Site S-006 consists of a prehistoric lithic scatter of 18 chert, jasper, and basalt flakes. There is also one meta-volcanic core/tool, one granitic metate fragment, one quartzite mano fragment, and four thermal features made up of concentrations of fire affected scoria. Similar to Site S-004, Site S-006 site has the potential to retain significant data potential (Criterion 4) to contribute to local research themes pertaining to prehistory. Based on the surface constituents, Site S-006 appears eligible for the CRHR.

Implementation of the proposed project has the potential to impact Site S-006 during construction, operation, or decommissioning activities. Per CEQA Guidelines Section 15126.4(b)(3), project redesign and preservation in place is recommended as the preferred means to avoid impacts to historical resources. To ensure avoidance of Site S-006, Mitigation Measures MM 4.5-1, MM 4.5-2, MM 4.5-5, and MM 4.5-6 would be implemented. Mitigation Measure MM 4.5-1 requires a qualified archaeological monitor and Native American monitor to be retained by the project proponent/operator to monitor all ground-disturbing activities associated with the construction of the proposed project. Mitigation Measure MM 4.5-2 requires a Construction Worker Environmental and Cultural Awareness Training Program to be implemented and provided to all new construction workers within one week of employment at the project site, laydown area and/or transmission routes to ensure all workers are aware of proper notification and handling requirements of cultural resources on-site. Mitigation Measure MM 4.5-5 outlines specific procedures to avoid potential impacts to S-004. The project shall be redesigned to avoid S-004 and the area within 100 feet of the resource would be designated as an Environmentally Sensitive Area to ensure avoidance. With implementation of Mitigation Measures MM 4.5-1, 4.5-2, and 4.5-5, impacts to Site S-006 would be reduced to less than significant.

Unknown Resources

Given the number of resources identified within the project sites (Sites 1 through 5) and gen-tie route alternatives, there is a potential to unearth previously unknown cultural resources. In the event that unknown archaeological resources are discovered during project construction, significant impacts could occur. Mitigation Measure MM 4.5-6 outlines specific procedures to follow in the event archaeological materials are encountered during the course of grading or construction. Therefore, with implementation of Mitigation Measures MM 4.5-1, MM 4.5-2, and MM 4.5-6, potential impacts to previously unrecorded archaeological resources would be reduced to less than significant.

Mitigation Measures

MM 4.5-1 Prior to issuance of building or grading permits for each of the project Sites 1 through 5 and the Holgate gen-tie route, the project proponent/operator shall:

a. Retain a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards as published in Title 36, Code of Federal Regulations, part 61 (36 CFR Part 61) to carry out all mitigation measures related to archaeological and historical resources.

b. The services of a qualified archaeological monitor and Native American monitor shall be retained by the project proponent/operator to monitor all ground-disturbing activities associated with the construction of the proposed project. The Native

American monitor shall be selected from a list of Native American contacts with traditional ties to the project area, provided by the Native American Heritage Commission and/or consultation with Native American tribal groups who may have interest in the project area. The archaeological monitor shall work under the supervision of the qualified archaeologist.

c. The qualified archaeologist, archaeological monitor, and Native American monitor shall be provided all project documentation related to cultural resources prior to commencement of ground disturbance activities. Project documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the qualified archaeologist, archaeological monitor and Native American monitor.

MM 4.5-2 Prior to the issuance of grading or building permits for each of the project Sites 1 through 5 and the Holgate gen-tie route, and for the duration of construction activities, a Construction Worker Environmental and Cultural Awareness Training Program shall be provided to all new construction workers within one week of employment at the project site, laydown area and/or transmission routes. The training shall be prepared and conducted by the qualified archaeologist and may include participation of the Native American monitor. The training may be in video format. The qualified archaeologist shall be available to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended but must resume when construction activities resume. The training shall include, but not be limited to:

a. A discussion of applicable cultural resources statues, regulations and related enforcement provisions;

b. An overview of the prehistoric and historic environmental setting and context, as well as current cultural information regarding local tribal groups, provided by the Native American Monitor or tribal leader;

c. A summary of the effects of the proposed project on cultural resources;

d. Samples or visuals of artifacts that might be found in the project area;

e. A discussion of what such artifacts may look like when partially or totally buried and then freshly exposed;

f. A discussion of what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction;

g. Instruction that in the event cultural resources are unearthed during ground-disturbing activities, the qualified archaeologist, the archaeological monitor and/or Native American monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the site until the qualified archaeologist has evaluated the find, determined whether the find is culturally sensitive, and designs an appropriate short-term and long term treatment plan. The qualified archaeologist, in consultation with the Planning and Natural Resources Department and Native American Monitor

shall establish an appropriate protocols and procedures for minimizing impacts during construction and future impacts during project operation and maintenance;

h. An informational guide that identifies the reporting procedures in the event of a discovery;

i. Other information as deemed necessary by the qualified archaeologist or Native American Monitor;

j. An acknowledgement form signed by each working indicating that environmental/ cultural training has been completed.

k. A sticker that shall be placed on hard hats indicating that the worker has completed the environmental/ cultural training. Construction workers shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker;

l. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.5-3 Prior to issuance of grading permits for Project Site 4 and the Holgate Substation gen-tie route containing California Register of Historic Resources-eligible resources Site S-008, and in coordination with the qualified archaeologist, a 100-foot buffer shall be established to avoid Site S-008. The area within 100 feet of Site S-008 shall be designated Environmentally Sensitive Area and marked with exclusion markers to ensure avoidance. Protective fencing shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts.

In addition, a long-term cultural resources management plan shall be developed for this resource during project construction, in order to minimize future impacts during project operation and maintenance. A copy of the cultural resources management plan shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.5-4 Prior to issuance of grading permits for the Holgate Substation gen-tie route containing California Register of Historic Resources-eligible resource Site S-004, and in coordination with the qualified archaeologist, a 100-foot buffer shall be established to avoid Site S-004. The area within 100 feet of Site S-004 shall be designated Environmentally Sensitive Area and marked with exclusion markers to ensure avoidance. Protective fencing shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts.

In addition, a long-term cultural resources management plan shall be developed for this resource during project construction, in order to minimize future impacts during project operation and maintenance. A copy of the cultural resources management plan shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.5-5 Prior to issuance of grading permits for the Holgate Substation gen-tie route containing California Register of Historic Resources-eligible resource Site S-006, and in coordination with the qualified archaeologist, a 100-foot buffer shall be established to avoid Site S-006. The area within 100 feet of Site S-006 shall be designated Environmentally Sensitive Area and marked with exclusion markers to ensure avoidance. Protective fencing shall not identify the protected area as a cultural resource area in order to discourage unauthorized disturbance or collection of artifacts.

In addition, a long-term cultural resources management plan shall be developed for this resource during project construction, in order to minimize future impacts during project operation and maintenance. A copy of the cultural resources management plan shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.5-6 In the event archaeological materials are encountered during the course of grading or construction for any project components, the project contractor shall cease all work within 100 feet of the find. The area of the discovery shall be marked off by temporary fencing that encloses a 100-foot radius from the location of discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area and all entrances to the area shall be avoided until the discovery is assessed by a qualified archaeologist meeting Secretary of the Interior standards. Work on the other portions of the project outside of the buffered area may continue during the assessment period. Additionally, the Native American monitor shall be contacted regarding any pre-contact and/or post-contact finds and shall be provided information after the qualified archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

The qualified archaeologist in consultation with the Native American monitor shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources.

Consistent with California Environmental Quality Act Guidelines Section 15126.4(b)(3)(C), if significant pre-contact and/or post-contact cultural resources, as defined by the California Environmental Quality Act, are discovered and avoidance cannot be ensured, the qualified archaeologist shall develop a Monitoring and Treatment Plan, the draft of which shall be provided to the appropriate Native American representatives for review and comment. The qualified archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

Archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The qualified archaeologist, in consultation with a designated Native American monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6, impacts would be less than significant.

Impact 4.5-2: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.

As discussed above under Impact 4.5-1, 5 cultural resources located on the project site are recommended for listing in the CRHR; however, it was determined that two sites (P-15-000560 and P-15-017304) would not be directly or indirectly impacted by the proposed, and therefore, no impact would occur. Three of the archaeological sites (S-004, S-006, and S-008) are potentially eligible for listing in the CRHR and, as such, are considered significant historical resources under CEQA, as discussed above. The remaining archaeological sites and isolates are not eligible for listing in the California Register and also are not considered unique archaeological resources. As indicated above, in the absence of mitigation, impacts to S-004, S-006, and S-008 would constitute a significant impact on the environment. The remaining archaeological sites and isolates are not eligible for listing in the California Register and also are not considered unique archaeological resources. As discussed under Impact 4.5-1, there also is a potential for the project to impact previously unknown, buried archaeological deposits. However, with implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6, which require cultural resources sensitivity training for construction workers; avoidance of archaeological sites S-004, S-006, and S-008; archaeological and Native American monitoring during construction; and appropriate treatment of unearthed archaeological resources during construction, potential impacts would be reduced to less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-6.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6, impacts would be less than significant.

Impact 4.5-3: The project would disturb human remains, including those interred outside of formal cemeteries.

There is no indication, either from the archival research results or the archaeological survey, that any particular location in the project area has been used for human burial purposes in the recent or distant past. However, given the sensitivity for buried archaeological resources, the project could inadvertently uncover or damage human remains, which would be a significant impact. Implementation of Mitigation Measure MM 4.5-7 would ensure that any human remains encountered are appropriately addressed, thus reducing impacts to less than significant.

Mitigation Measures

MM 4.5-7 If human remains are uncovered during project construction, the project contractor shall immediately halt work and an Environmentally Sensitive Area physical

demarcation/barrier shall be constructed. The Kern County Planning and Natural Resources Department shall also be notified of the discovery. The County and the project proponent shall then immediately contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the California Environmental Quality Act Guidelines. If the County Coroner determines that the remains are Native American, the project operator shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). Per Public Resources Code Section 5097.98, the project operator shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (Public Resources Code Section 5097.98), with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et seq.) directing identification of the next-of-kin will apply.

The Most Likely Descendant, identified by the Native American Heritage Commission, shall be allowed, under California Public Resources Code §5097.98(a), to: 1) inspect the site of the discovery; and 2) make determinations as to how the human remains and funerary objects shall be treated and disposed of with appropriate dignity. The Most Likely Descendant, County, and project proponent shall agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes. The Most Likely Descendant shall complete its inspection and make recommendations within 48 hours of the site visit, as required by California Public Resources Code §5097.98.

Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code §5097.98 (a) and (b). The Most Likely Descendant in consultation with the project proponent, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All parties shall be aware that the Most Likely Descendant may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The project proponent shall accommodate on-site reburial in a location mutually agreed upon by the parties.

It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The County Coroner, project proponent, and County shall be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code §6254(r).

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.5-7, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

An analysis of cumulative impacts takes into consideration the entirety of impacts that the projects, zone changes, and general plan amendments discussed in Chapter 3, *Project Description,* of this EIR, would have on cultural resources. The geographic area of analysis of cumulative impacts for cultural resources includes the Antelope Valley, which includes the western edge of the Mojave Desert, where the proposed project is located. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. This geographic scope of analysis is appropriate because the archaeological and historical resources within this area are expected to be similar to those that occur on the project site because of their proximity, and because the similar environments, landforms, and hydrology would result in similar land use—and thus, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity. This is a large enough area to encompass any effects of the project on cultural and paleontological resources that may combine with similar effects caused by other past, current, and reasonably foreseeable future projects, and provides a reasonable context wherein cumulative actions could affect cultural and paleontological resources. Multiple projects, including solar energy production facilities, are proposed throughout the western Antelope Valley. Cumulative impacts to cultural resources in the western Antelope Valley could occur if other related projects, in conjunction with the proposed project, had or would have impacts on cultural resources that, when considered together, would be significant.

Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant cultural resources impact due to the potential loss of historical and archaeological resources unique to the region. However, specific federal, State, and local laws are designed to protect such resources. These laws have led to the discovery, recordation, preservation, and curation of artifacts and historic structures.

As described above, mitigation measures are included in this EIR to reduce potentially significant project impacts to cultural resources during construction of the proposed project. Mitigation measures include avoidance or preparation of a long-term management plan for significant resources; monitoring of ground-disturbing activities by a qualified archaeologist and Native American monitor; and employee environmental/cultural training. Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6 would reduce impacts to cultural resources to less than significant. With regard to human remains, although project construction has the potential to disturb human remains, the implementation of Mitigation Measure MM 4.5-7 would ensure the appropriate protocol is followed with regard to identifying and handling remains.

Similarly, with conformance to applicable federal, state, and local regulations, combined with the evaluation of resource significance and implementation of mitigation measures in compliance with applicable legislation, it is anticipated that other cumulative development projects would be adequately addressed and impacts on historical and cultural resources and/or human remains would be reduced to the extent feasible. Therefore, individual project-level impacts associated with cultural resources at other proposed project sites would be less than significant with incorporation of mitigation measures similar to MM 4.5-1 through MM 4.5-7 to be imposed for the proposed project. Further, the proposed project and cumulative projects would be subject to conformance with applicable federal, State, and local requirements for the protection of such resources. Therefore, the proposed project's contribution to a significant cumulative impact on cultural resources is considered less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-7.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-7, cumulative impacts would be less than significant.

Section 4.6
Energy

4.6.1 Introduction

This section of the EIR analyzes the energy implications of the project, focusing on the following energy resources: electricity, natural gas, and transportation-related energy (petroleum-based fuels). This section includes a summary of the project's anticipated energy needs and conservation measures.

Information in this section is based primarily on the *Aratina Solar Farm – Energy Consumption Technical Memorandum* prepared by HDR (HDR 2021) located in Appendix F of this EIR. The information found herein, as well as other aspects of the project's environmental-related energy impacts, are discussed in greater detail elsewhere in this EIR, including in Chapter 3, *Project Description*, Section 4.3, *Air Quality*, and Section 4.8, *Greenhouse Gas Emissions*, of this EIR.

Since the preparation of the initial *Aratina Solar Farm – Energy Consumption Technical Memorandum*, the project footprint has been reduced by approximately 15 percent from approximately 2,672 acres to approximately 2,317 acres, with a corresponding reduction in the energy production capacity from 600 megawatts (MW) to 530 MW. The 15-percent reduction in project footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction, and a potentially commensurate reduction of fuel consumption during construction and operations. Therefore, the following discussion that is based on the previous, larger footprint represents the worst-case potential impacts related to energy.

This section provides the content and analysis required by Public Resources Code, Section 21100(b)(3), and described in Appendix F to the *CEQA Guidelines* (AEP 2018). Public Resources Code Section 21100(b) and Section 15126.4 of the *CEQA Guidelines* require that an EIR identify mitigation measures to minimize a project's significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. Appendix F states that the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the Project Description, Environmental Setting and Impact Analysis portions of technical sections, as well as through mitigation measures and alternatives.

In late 2018, the California Natural Resources Agency finalized updates to the 2018 *CEQA Guidelines* (California Natural Resources Agency 2018). Appendix G was amended to now include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and conflicts with state or local energy efficiency plans (California Natural Resources Agency 2018).

4.6.2 Environmental Setting

Electricity

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources—including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources—into energy. The delivery of electricity involves a number of system components for distribution and use. The electricity generated is distributed through a network of transmission and distribution lines, commonly called a power grid.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts, or MW, which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

Electrical services in the project area are provided by Southern California Edison (SCE). SCE obtains its energy supplies from power plants and natural gas fields in Northern California, as well as from energy purchased outside its service area and delivered through high-voltage transmission lines and pipelines. Power is generated from various sources, including fossil fuel, hydroelectric, nuclear, wind, and geothermal plants, and is fed into the electrical grid system serving Southern California.

SCE updates all load forecasts for gas and electricity services every year. Load growth forecasts for this area are currently determined using load growth projection tools that use a number of sources of data, including past peak loading, population, development characteristics, and temperature history information. **Table 4.6-1,** *Electric Power Mix Delivered to Retail Customers in 2019*, shows the electric power mix that was delivered to retail customers for SCE compared to the statewide power mix for 2019, the most recent year in which data is available.

Table 4.6-1. Electric Power Mix Delivered to Retail Customers in 2019

Energy Resource	SCE Power Mix	2018 CA Power Mix (for comparison)
Eligible Renewable[a]	35.1%	31.7%
Biomass & bio-waste	0.6%	2.4%
Geothermal	5.9%	4.8%
Small hydroelectric	1.0%	2.0%
Solar	16.0%	12.3%
Wind	11.3%	10.2%
Coal	0%	3%
Large Hydroelectric	7.9%	14.6%
Natural Gas	16.1%	34.2%
Nuclear	8.2%	9%
Other	0.1%	0.2%
Unspecified sources of power[b]	32.6%	7.3%
Total	**100%**	**100%**
Percentage of Retail Sales Covered by Retired Unbundled RECs[c]	**2.9%**	**--**

Table 4.6-1, continued

Source: Southern California Edison, *2019 Power Content Label*, https://www.sce.com/sites/default/files/inline-files/SCE_2019PowerContentLabel.pdf, October 2020.

Notes:

a - The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.

b - Unspecified sources of power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

c - Renewable energy credits (RECs) are tracking instruments issued for renewable generation. Unbundled RECs represent renewable generation that was not delivered to serve retail sales. Unbundles RECs are not reflected in power mix or GHG emissions intensities above.

Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs and delivered through high-pressure transmission pipelines. Natural gas provides almost one-third of the state's total energy requirements. Natural gas is measured in terms of cubic feet (cf). Southern California Gas Company is the natural gas provider in Kern County; however, there is not a known natural gas service for the project site.

Transportation

Transportation dominates California's energy consumption profile. Overall, the transportation section accounts for two-fifths of state end-use energy consumption (U.S. Energy Information Administration 2020). In 2018, California consumed 15.6 billion gallons of gasoline and 3.7 billion gallons of diesel fuel (California Department of Tax and Fee Administration 2019a and 2019b). Petroleum-based fuels currently account for 89 percent of California's ground transportation fuel use (CEC 2020). However, the state is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and greenhouse gas (GHG) from the transportation sector, and reduce vehicle miles traveled (CEC 2020). The CEC predicts that the demand for gasoline will continue to decline over the next 10 years, and there will be an increase in the use of alternative fuels (CEC 2020). According to California Air Resources Board's (CARB's) EMFAC2017 Web Database, Kern County's on-road transportation sources consumed approximately 454 million gallons of gasoline and 308 million gallons of diesel fuel in 2018 (CARB 2019).

4.6.3 Regulatory Setting

Federal

Corporate Average Fuel Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and United States Environmental Protection Agency (USEPA) jointly

administer the CAFE standards (NHTSA 2019). The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA and NHTSA 2016).

Energy Independence and Security Act of 2007

Signed into law in December 2007, the Energy Independence and Security Act was passed to increase the production of clean renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the energy performance of the federal government; and increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The act included the first increase in fuel economy standards for passenger cars since 1975, and also included a new energy grant program for use by local governments in implementing energy-efficiency initiatives, as well as a variety of green building incentives and programs.

State

Senate Bill 1389

Senate Bill (SB) 1389 (Public Resources Code Sections 25300–25323; SB 1389) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code Section 25301[a]). The 2016 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California, including energy efficiency, strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California's energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, update on electricity infrastructure in Southern California, update on trends in California's sources of crude oil, update on California's nuclear plants, and other energy issues.

California's Renewables Portfolio Standard

First established in 2002 under SB 1078, California's Renewables Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent by 2020 and 50 percent by 2030 (CPUC 2019).

In 2018, SB 100 further increased California's RPS and required retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and that the California Air Resources Board (CARB) should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. The California Public Utilities Commission (CPUC) and the CEC jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility's renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy. Refer to Section 4.8, *Greenhouse Gas Emissions*, of this EIR for additional details regarding this regulation.

California Assembly Bill 1493 (AB 1493, Pavley)

In response to the transportation sector accounting for more than half of California's GHG emissions, Assembly Bill (AB) 1493 (commonly referred to as CARB's Pavley regulations), enacted in 2002, requires CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009–2016 and Phase II established standards for model years 2017–2025 (CARB 2017).

California Health and Safety Code (HSC), Division 25.5/California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32 (codified in the California HSC, Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. Under HSC Division 25.5, CARB has the primary responsibility for reducing the state's GHG emissions; however, AB 32 also tasked the CEC and the CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector.

In 2016, SB 32 and its companion bill AB 197 amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and include provisions to ensure that the benefits of state climate policies reach into disadvantaged communities. Refer to Section 4.8, *Greenhouse Gas Emissions*, of this EIR for additional details regarding these regulations.

Low-Carbon Fuel Standard

The Low-Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with 0.25 percent in 2011 and culminating in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low-carbon fuel products, or buy LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

California Air Resources Board

CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the Zero-Emissions Vehicle (ZEV) regulations to require manufactures to produce an increasing number of pure ZEVs (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEVs) between 2018 and 2025.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles

In addition to limiting exhaust from idling trucks, in 2008 CARB approved the Truck and Bus regulation to reduce nitrogen oxides (NO_X), particulates less than 10 microns in diameter (PM_{10}), and particulates less than less than 2.5 microns in diameter ($PM_{2.5}$) emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. The phasing of this regulation has full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower, such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

California Environmental Quality Act

In accordance with CEQA and Appendix F, Energy Conservation, of the 2018 *CEQA Guidelines*, and to assure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the *CEQA Guidelines* provides a list of energy-related topics to be analyzed in the EIR. In addition, while not described or required as significance thresholds for determining the significance of impacts related to energy, Appendix F provides the following topics for consideration in the discussion of energy use in an EIR, to the extent the topics are applicable or relevant to the project:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;
- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; and
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In late 2018, the California Natural Resources Agency finalized updates to the 2018 *CEQA Guidelines* (California Natural Resources Agency 2018). Appendix G was amended to now include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and conflicts with state or local energy efficiency plans (California Natural Resources Agency 2018). Appendix F did not describe or require significance thresholds for determining the significance of impacts related to energy. According to the updated Appendix G Checklist, Issue VI. Energy, a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Energy Element of the Kern County General Plan (Kern County 2009) applicable to energy, as related to the project, are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

4.6.4 Impacts and Mitigation Measures

Methodology

This analysis addresses the project's potential energy usage, including electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is assessed. Specific analysis methodologies are discussed below. The assessment presented herein is based in part on the project's carbon dioxide (CO_2) emissions contained in the *Aratina Solar Project Air Quality and Greenhouse Gas Study* prepared by Rincon (Rincon 2021) located in Appendix C-1 of this EIR.

Construction

Electricity

Electricity is not expected to be consumed in large quantity during project construction, as construction equipment and vehicles are typically diesel- or gas-powered, not electric. Electricity for construction would be provided by SCE and a hookup would be installed on the project site (and this hookup would also provide electricity onsite for the operational phase of the project); however, electricity usage from such connection is anticipated to be minimal (i.e. mostly for security lighting). Therefore, electricity associated with construction- or decommissioning-related activities was not calculated.

Natural Gas

Natural gas is not expected to be consumed in large quantity during project construction (i.e., no natural gas-powered equipment or vehicles). Therefore, natural gas associated with construction activities was not calculated.

Diesel and Gasoline

Regarding transportation-related fuel consumption during construction, it is assumed that only diesel fuel would be used in off-road construction equipment and for haul trucks used during delivery of solar panels

to the project site. On-road vehicles for construction workers are assumed to be solely powered by gasoline. The diesel and gasoline fuel consumptions were calculated using the CO_2 emissions contained in the *Aratina Solar Project Air Quality and Greenhouse Gas Study* located in Appendix C-1 of this EIR and EPA's default emission rates of 19.4 pounds of CO_2 per gallon of gasoline and 22.2 pounds of CO_2 per gallon of diesel.

Operation

Electricity

Electricity is not expected to be consumed in large quantity during project operations. Electricity for operation would be provided by SCE at the same hookup installed during construction on the project site; however, electricity usage from such connection is anticipated to be minimal (i.e. mostly for lighting and air conditioning).

Natural Gas

Natural gas is not expected to be consumed in large quantity during project operation (i.e., no natural gas-powered equipment or vehicles). Therefore, natural gas associated with construction activities was not calculated.

Diesel and Gasoline

Operational energy usage includes worker trips for facility maintenance including the occasional washing of solar panels. The diesel and gasoline fuel consumptions were calculated using the CO_2 emissions contained in the *Aratina Solar Project Air Quality and Greenhouse Gas Study* located in Appendix C-1 of this EIR and EPA's default emission rates of 19.4 pounds of CO_2 per gallon of gasoline and 22.2 pounds of CO_2 per gallon of diesel.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify, per Appendix G of the *CEQA Guidelines,* a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Project Impacts

Impact 4.6-1: The project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during construction or operation.

Construction and Decommissioning

Electricity

Electricity is not expected to be consumed in large quantities during construction- or decommissioning-related activities, as construction equipment and vehicles are not electric powered (the majority of construction equipment is either diesel- or gas-powered). Therefore, electricity associated with construction- or decommissioning-related activities was not calculated. Based on these considerations, the project would have a less than significant impact on electricity consumption.

Natural Gas

Natural gas is not expected to be consumed during construction-, decommissioning-, or operation-related activities by construction equipment (i.e., no natural gas-powered equipment or vehicles). Therefore, the proposed project would have no significant impact on natural gas consumption.

Gasoline and Diesel

Construction of the project would result in fuel consumption from the use of construction tools and equipment, haul truck trips, and vehicle trips generated from construction workers traveling to and from the site. Project construction is expected to consume a total of approximately 529,081 gallons of diesel fuel from construction equipment and vendor, hauling, and water truck trips, and approximately 458,462 gallons of gasoline from construction worker vehicle trips. Construction activities and corresponding fuel energy consumption would be temporary and localized, as the use of diesel fuel and heavy-duty equipment would not be a typical condition of the project. As shown on **Table 4.6-2**, *Fuel Consumption During Construction*, the gasoline consumed during construction represents approximately 0.12 percent of all gasoline sold within Kern County in 2018 (396 millions of gallons) (CEC 2019). Further, as shown on **Table 4.6-2**, the diesel consumed during project construction would represent approximately 0.49 percent of all diesel sold in Kern County in 2018 (108 millions of gallons) (CEC 2019).

Table 4.6-2. Fuel Consumption During Construction

Fuel Consumption During Project Construction (gallons)	2018 Kern County Fuel Sales (gallons)[1]	Project Fuel Consumption (%)
Gasoline		
458,462	396,000,000	0.12
Diesel		
529,081	108,000,000	0.49

Source: HDR 2021; see Appendix F.

Notes:

1 - California Energy Commission, 2010-2018 California Retail Fuel Outlet Annual Reporting Results and Analysis, https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html, 2019, accessed April 2020.

Energy consumption associated with decommissioning activities are anticipated to be similar to construction activities. The consumption of fuels during construction and decommissioning would be irreversible. Although construction and decommissioning activities would be temporary, the project could result in a wasteful, inefficient, or unnecessary consumption of energy resources if available control measures are not implemented. The project does not propose any energy control measures during construction. As a result, this impact would be potentially significant. Implementation of Mitigation Measure MM 4.3-1, as provided in Section 4.3, *Air Quality*, of this EIR, would require the use of energy-efficient and alternatively-fueled equipment during project construction. Implementation of Mitigation Measure MM 4.3-1 would also ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. Compliance with Title 13 would also help to reduce unnecessary fuel consumption during project construction. With implementation of this mitigation, the project would not result in the wasteful, inefficient, or unnecessary consumption of transportation fuels and impacts would be reduced to less than significant.

Operation

Electricity

Electricity required during operation (e.g., to operate lights and air conditioners) would be greatly offset by the electricity produced by the solar facility. As discussed in the *Aratina Solar Project Air Quality and Greenhouse Gas Study* (Rincon 2021), construction and operation of renewable energy facilities would offset GHG emissions by replacing energy generated by fossil-fueled power plants. The project would generate approximately 1,480 GWh of solar-generated electricity each year, totaling approximately 44,400 GWh over a 30-year life span that would be added to the power grid and be used in place of electricity generated by fossil-fuel sources. Based on these considerations, the project would have a less than significant impact on electricity consumption.

Natural Gas

Natural gas is not expected to be consumed during operation-related activities by construction equipment (i.e., no natural gas-powered equipment or vehicles). Therefore, the proposed project would have a less than significant impact on natural gas consumption.

Diesel and Gasoline

During operation, it is estimated that the operational and maintenance activities would consume approximately 17,102 gallons of gasoline and 8,237 gallons of diesel annually. The gasoline consumed during operation represents less than 0.01 percent (0.0043 percent) of all gasoline sold within Kern County in 2018 (396 millions of gallons) (CEC 2019). Further, the diesel consumed during project construction would also represent less than 0.01 percent (0.0076 percent) of all diesel sold in Kern County in 2018 (108 millions of gallons) (CEC 2019). Therefore, the proposed project would have less than significant impact on diesel and gasoline consumption.

Potential Changes in Electricity Usage

No major changes in electricity usage are anticipated throughout the construction and operation of the proposed project. The project would generate 1,480 GWh of solar-generated electricity each year, totaling

approximately 44,413 GWh over a 30-year life span. This production is anticipated to remain relatively constant throughout the operation of the proposed production. Additionally, the electricity required to construct and operate the project would be negligible compared to the amount of electricity generated by the project. Activities involved with the decommissioning of the solar facility would be similar to those involved with construction but would be expected to result in lower fuel demand, as technology improves, and equipment becomes more fuel efficient.

Mitigation Measures

Implement Mitigation Measure MM 4.3-1 as provided in Section 4.3, *Air Quality*, of this EIR.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM-4.3-1, impacts would be less than significant.

Impact 4.6-2: The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Construction

Construction equipment would comply with federal, state, and regional requirements where applicable. With respect to truck fleet operators, the USEPA and NHTSA have adopted fuel efficiency standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and will result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. The USEPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type. The energy modeling for trucks does not take into account specific fuel reductions from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of five minutes at a location and the phase-in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption from more fuel efficient engines. Although these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy. Therefore, this impact would be less than significant.

Operations

The Scoping Plan addresses the 2030 target established by SB 32 and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. One of the key programs that the Scoping Plan builds on includes increasing the use of renewable energy in the state. In order to meet the SB 32 GHG emissions reduction mandate of 40 percent below 1990 levels by 2030, the Scoping Plan relies on achievement of the 50 percent RPS by 2030. SB 100 further increase California's RPS and required retail sellers and local publicly owned electric utilities to procure eligible

renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. The project and other similar projects are essential to achieving the RPS. Further, as discussed previously, the project is reasonably expected to displace region-wide and statewide emissions of GHGs over the expected life of the project. The reduction in GHG emissions are a direct result of increasing the share of renewable energy available to investor owned utilities required to meet RPS. The project directly aligns with the goals of RPS by generating 1,480 GWh of solar-generated electricity each year, totally approximately 44,413 GWh over a 30-year life span.

The Office of the California Attorney General has listed examples of types of mitigation measures that local agencies may consider to offset or reduce global climate change impacts from a project. The Attorney General assures that the presented lists are examples and not intended to be exhaustive, but instead provide measures and polices that could be undertaken. Specifically, the project complies with the Attorney General's Recommended Measures:

- Install solar, wind, and geothermal power systems and solar hot water heaters.
- Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use (State of California Department of Justice, Attorney General's Office 2010).

As the project would generate up to 600 MW of renewable energy, including up to 600 MW of energy storage, the project would be consistent with the Office of the California Attorney General's recommended measures to reduce GHG emissions. Therefore, the project would be compliant with the Attorney General's Recommend Measures regarding renewable energy. Because the project is below regional regulatory thresholds and could result in a reduction of GHG emissions, no mitigation measures are required. Additionally, as shown on **Table 4.11-2** in the Land Use section**,** *Consistency Analysis with Kern County General Plan*, development of the project would be consistent with the goal and related policies in the Energy Element of the Kern County General Plan to encourage safe and orderly commercial solar development, like the project.

Overall, because the main objectives of the project are to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goal of 1990 level GHG emissions by 2030, the project would be compliant with the applicable recommended actions of the CARB Climate Change Scoping Plan, as well as applicable federal, state, and local policies. Specifically, the project would assist the state and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the 2030 RPS. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts occur when the incremental effects of a project are significant when combined with similar impacts from other past, present, or reasonably foreseeable projects in a similar geographic area. As shown in **Table 3-3**, *Cumulative Project List*, there are 26 projects in the project area including several utility-scale solar and wind energy production facilities.

Cumulative projects in the project area, listed in **Table 3-3**, largely consist of utility-scale solar power generation facilities. The nature of these projects is such that, like the project, they would be consistent with the strategies of the CARB Climate Change Scoping Plan. To meet the AB 32 GHG emissions reduction mandate, the Climate Change Scoping Plan relies on achievement of the RPS target of 33 percent of California's energy coming from renewable sources by 2020. In order to meet the SB 32 GHG emissions reduction mandate, the 2017 Scoping Plan relies on achievement of the RPS target of 60 percent of California's energy coming from renewable sources by 2030 and 100 percent renewable sources by 2045. The project and other similar projects are essential to achieving the RPS.

The main contribution of energy consumption from the project would be from construction equipment usage, haul truck trips, and employee trips during the construction phase and water truck trips, maintenance trips, and employee trips during project operation of the project. The project's fuel consumption would, therefore, contribute to the increase in fuel consumption in the transportation sector. Construction energy consumption would be finite and temporary and would cease at the end of construction activities.

Although the project would result in a contribution to cumulative energy consumption in California, construction of the project would implement Mitigation Measure MM 4.3-1, as provided in Section 4.3, *Air Quality*, of this EIR, would require the use of energy-efficient and alternatively-fueled equipment during project construction. In addition, operation of the project could offset emissions from the electricity generation sector. The project would generate approximately 1,480 GWh of solar-generated electricity each year that would be added to the power grid and be used in place of electricity generated by fossil-fuel sources. Based on the project's projected annual electricity generation and the GHG emissions generated due to fossil-fuel combustion to generate the same level of electricity, the project has the potential to displace 318,611 $MTCO_2e$ per year. As stated above, a majority of the related projects are solar or wind farms that would have similar energy use that would be offset by renewable energy generation and would have minimal operational trips to and from the sites. Overall, the project would not contribute to cumulative energy consumption in California because operation of the project would provide electric power with negligible operational energy consumption over the long term when compared to traditional fossil-fueled generation technologies. Thus, the project would not have a cumulatively considerable impact on energy consumption, would not conflict with any renewable energy plans, and cumulative impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.3-1, as provided in Section 4.3, *Air Quality*, of this EIR.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.3-1, cumulative impacts would be less than significant.

Section 4.7
Geology and Soils

4.7.1 Introduction

This section describes the affected environment and regulatory setting for evaluating and mitigating hazards and development constraints involving geology and soils. It also describes the potential for impacts due to geology and soils constraints that could result from implementation of the proposed project, and mitigation measures that would reduce these impacts, if applicable. This section also provides an analysis of potential impacts to paleontological resources as a result of the project. Information in this section is based primarily on the *CEQA Level Geotechnical Study* prepared by Stantec (Stantec 2019) and the *Paleontological Resources Assessment* prepared by Rincon (Rincon 2019) located in Appendix G and Appendix H of this EIR, respectively.

Since the preparation of the initial *CEQA Level Geotechnical Study* and the *Paleontological Resources Assessment*, the project footprint has been reduced by approximately 15 percent from approximately 2,672 acres to approximately 2,317 acres. The 15-percent reduction in project footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction, thereby reducing disturbance of areas where potentially unstable geologic conditions or soils or unknown sensitive paleontological resources may be present. Therefore, the following discussion that is based on the previous, larger footprint represents the worst-case potential impacts related to geology and soils, as well as paleontological resources.

4.7.2 Environmental Setting

Regional Geological Setting

The proposed project is located in the northwestern portion of the Mojave Desert geomorphic province which is characterized by block-faulted mountain ranges and intervening valleys. The Mojave Desert is characterized by broad alluvial fans that have formed along the transition of the ranges and valleys. The western part of the Mojave Desert is bounded by two major active faults, the Garlock Fault to the north and the San Andreas Fault to the south, as shown on **Figure 4.7-1**, *Regional Fault Map*.

Kern County is located in one of the more seismically active areas of California and may at any time be subject to moderate to severe ground shaking. This hazard exists because elastic strains accumulate deep within the earth, resulting in movement along a fracture zone that releases these large amounts of energy. Seismicity is the geographic and historical distribution of earthquakes, including their frequency, intensity, and distribution. Seismic hazards include surface rupture, ground shaking, liquefaction, landslides, subsidence, and expansive soils.

Local Geological Setting

Regional Faults

The surface topography within the region is controlled by two sets of faults, a prominent northwest to southeast trending set (San Andreas Fault) and a secondary east to west trending set (Garlock Fault) (refer to **Figure 4.7-1**, *Regional Fault Map*).

San Andreas Fault

The San Andreas Fault is a right-lateral, strike-slip fault that extends more than 700 miles from the Gulf of California to Cape Mendocino in Northern California. The segment of the San Andreas Fault within Kern County is relatively short compared to its 700-mile length. However, it is important because this segment breaks from the system's predominantly 350-degree trending direction between the San Luis Obispo County and Los Angeles County line. This is an active fault capable of damaging the project area. Areas along this fault have been designated by the State of California as Alquist-Priolo Special Studies Zones. Several historical earthquakes on the San Andreas Fault Zone have produced significant seismic shaking within the vicinity of the proposed project.

Garlock Fault

The Garlock Fault extends eastward from its point of intersection with the San Andreas Fault, near Lebec, for a distance of nearly 150 miles. The fault is located nearly 35 miles southeast of downtown Bakersfield. The Garlock Fault Zone is one of the most obvious geologic features in Southern California, clearly marking the northern boundary of the area known as the Mojave Block, as well as the southern ends of the Sierra Nevada Mountain Range and the valleys of the westernmost Basin and Range Province. While no earthquake has produced surface rupture on the Garlock Fault in historic times, there have been a few sizable quakes recorded along the Garlock Fault Zone. The most recent was a magnitude 5.7 event near the town of Mojave on July 11, 1992. It was believed to have been triggered by the Landers earthquake just two weeks earlier. At least one section of the fault has shown movement in recent years. This is an active fault capable of damaging the area.

Other Faults

The estimated distance of the project site to the nearest expected surface expression of major active faults is presented in **Table 4.7-1**, *Faults in Proximity to the Project Site*. The nearest active fault is the Helendale – South Lockhart fault, located approximately 9.2 miles northeast of the project site. The Kramer Hills Fault Zone extends into the southwest portion of Site 3.

Table 4.7-1. Faults in Proximity to the Project Site

Fault	Distance (miles) [1]	Maximum Moment Magnitude
Helendale – South Lockhart	9.2	7.4
Kenwood – Lockhart – Old Woman Springs	9.9	7.5
Gravel Hills – Harper Lake	22.2	7.1
Garlock	26.8	7.6
South Sierra Nevada	28.5	7.5
Blackwater	31.0	7.1
South San Andreas	38.1	8.2
Source: Stantec 2019; see Appendix G. Notes: [1] Measured from approximate center of site.		

Geologic Hazards

Fault Rupture

Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features and occurs when movement on a fault breaks through to the surface. Fault ruptures almost always follow preexisting faults that are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by shaking. Fault creep is the slow, continuous aseismic fault deformation of the earth's crust. Fault rupture is considered to be most likely to occur along the traces of identified active faults.

The project site is not located within a currently mapped Alquist-Priolo Special Studies Fault Zone. As noted above, the nearest active major fault is the Helendale – South Lockhart fault, located approximately 9.2 miles northeast of the project site (refer to **Figure 4.7-1**, *Regional Fault Map*). The Kramer Hills Fault, a Late Quaternary Age fault, extends into the southwest portion of Site 3 (as shown on **Figure 4.7-2**, *Project Area Fault Map*). The most recent earthquake within the Kramer Hills Fault zone was in 2017 and registered a magnitude 3.5 with an approximate depth of 0.4 miles. The Kramer Hills Fault is not recognized by the USGS as a significant fault in the 2008 and 2014 National Hazard Maps database. As such, the potential for surface fault rupture is considered low to moderate.

Ground Shaking

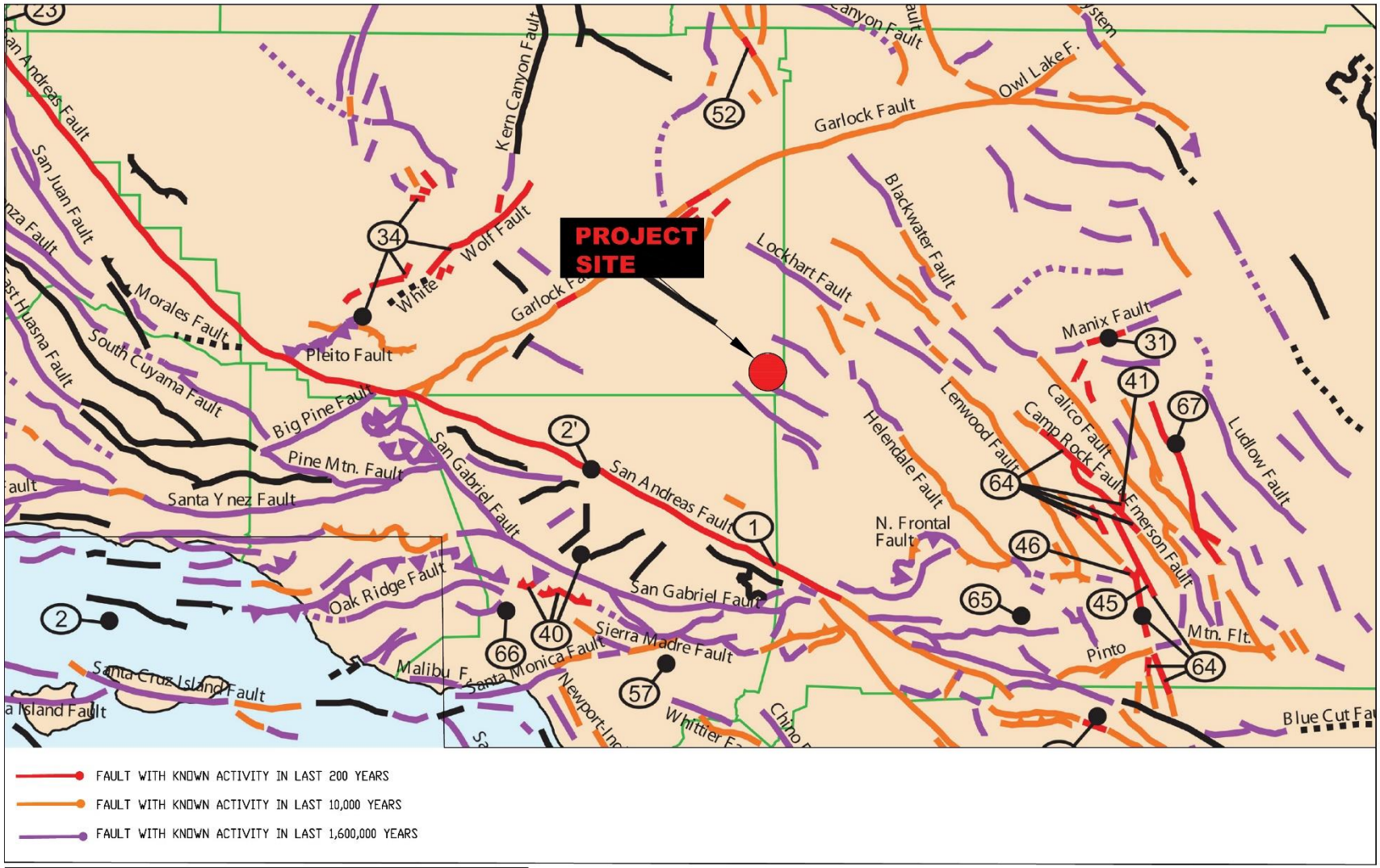
Strong ground shaking from an earthquake can result in damage associated with landslides, ground lurching, structural damage, and liquefaction. The Southern California region is characterized by, and has a history of, fault stress and associated seismic activity. Earthquakes are classified by their magnitude, a measure of the amount of energy released during an event. During a seismic event, the project site may be subjected to high levels of ground shaking due to proximity to active faults in the area. The largest fault in the area is the San Andreas Fault, which is considered active. Strong ground shaking can be expected at the site during moderate to severe earthquakes in the general region. However, this phenomenon is common to most areas in Southern California.

Liquefaction

Liquefaction of saturated sandy soils is generally caused by the sudden decrease in soil shear strength due to vibration. During seismic shaking, typically caused by an earthquake, the soil mass is distorted, and inter-particle stresses are transferred from the soil particles to the pore water. As pore pressure increases the bearing capacity decreases and the soil may behave temporarily as a viscous fluid (liquefaction) and, consequently, loses its capacity to support the structures founded thereon.

Engineering research of soil liquefaction potential indicates that generally three basic factors must exist concurrently in order for liquefaction to occur, namely:

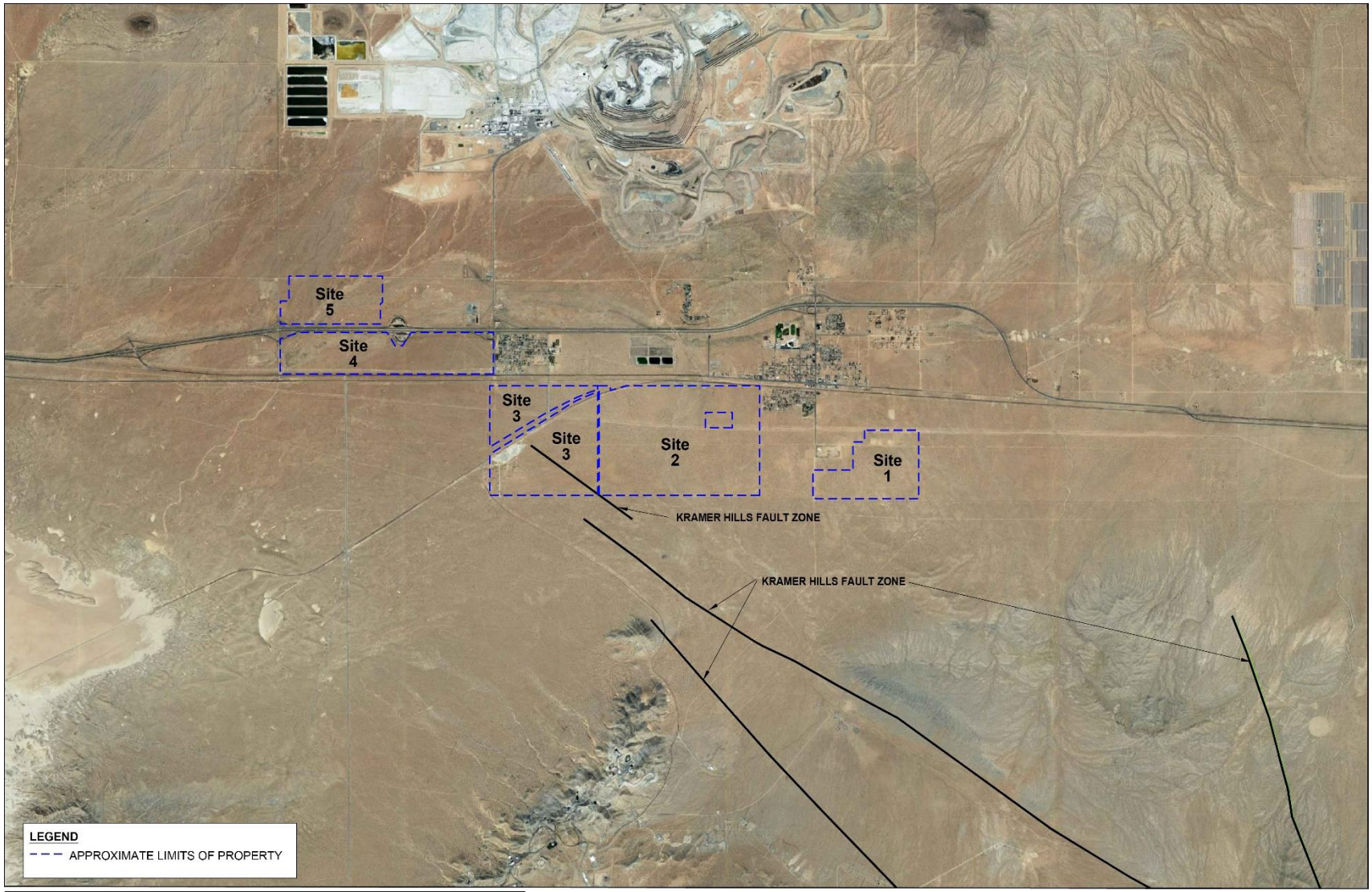
- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions.
- A relatively loose sandy soil fabric exhibiting a potential for volume reduction.
- A relative shallow groundwater table (within approximately 50 feet below ground surface [bgs]) or completely saturated soil conditions that will allow positive pore pressure generation.



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 4.7-1. REGIONAL FAULT MAP



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 4.7-2. PROJECT AREA FAULT MAP

The project site is not located within a current, mapped California Liquefaction Hazard Zone. Groundwater in the site vicinity is expected to be approximately 168 feet bgs. Based on the near surface soil conditions and depth to groundwater, the potential for liquefaction related ground failure at the project site, including liquefaction, is low.

Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or "free" face such as an open body of water, channel, or excavation. This movement is generally due to failure along a weak plane and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally toward the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free.

Due to the low potential for liquefaction, the depth of groundwater, and the fact that the project site is not located near free faces or bodies of water, the potential for lateral spreading is considered low.

Subsidence

Groundwater levels in the Antelope Valley have declined more than 270 feet since the 1970s in some parts of the groundwater basin, especially near the City of Lancaster. These groundwater level declines have caused the aquifer system to compact, resulting in land subsidence. Land subsidence within the Antelope Valley has been most recently evaluated by the United States Geologic Survey (USGS) through the use of Interferometric Synthetic Aperture Radar between 1992 and 2009. Based on these recent studies, the project site is not within an area that has sustained measurable subsidence due to groundwater draw down. Due to the depth of groundwater and the fact that the site is not located in a mapped subsidence area, the potential for subsidence is considered low.

Expansive Soils

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). The near-surface soils encountered during the recent geotechnical investigation are mostly sandy soils whose expansion potential is considered low (Appendix G of this EIR).

Landslides

The topography of the project area is relatively flat with slopes ranging from 0.78 percent to 4.7 percent. The elevation of the project area ranges from 2,350 feet above mean sea level (MSL) at the northwest corner of the project site to 2,540 feet above MSL at the southeast corner. Permanent slopes steeper than 5:1 (horizontal to vertical) or higher than 5 feet are not anticipated for the project. Therefore, the potential for landslides on the project site is considered low.

Soil Types and Erosion

Soil erosion occurs when surface materials are worn away from the earth's surface due to land disturbance and/or natural factors such as wind and precipitation. The potential for soil erosion is determined by characteristics including texture and content, surface roughness, vegetation cover, and slope grade and length. Wind erosion typically occurs when fine-grained non-cohesive soils are exposed to high velocity winds, while water erosion tends to occur when loose soils on moderate to steep slopes are exposed to high-

intensity storm events. Soil is naturally removed from the surface of the earth by water or wind action at about the same rate it is produced. However, human activities such as agriculture and development can accelerate natural soil erosion rates.

Soil conditions for the proposed project site were evaluated using the soil surveys prepared by the USDA Natural Resources Conservation Service. The USDA provides a classification of soil types according to several parameters (most commonly their properties) and in several levels: Order, Suborder, Great Group, Subgroup, Family, and Series. The classification system evaluates soils on the following properties: depth, moisture, temperature, texture, structure, cation exchange capacity, base saturation, clay mineralogy, organic matter content and salt content (Woodard & Curran 2020).

The major soil types in the project area are 114 Cajon Loamy Sand with 0-5 percent slopes and 155 Norob-Neuralia Complex with 0-5 percent slopes. Other soil types in the project area include 109 Cajon-Norob Complex with 2-9 percent slopes, 116 Cajon Gravelly Loamy Sand with 0-9 percent slopes, 137 Norob Complex with 0-5 percent slopes (overblown), 154 Neuralia Sandy Loam with 2-5 percent slopes, and 157 pits. Refer to **Table 4.7-2**, *Soil Types by Project Site*.

Table 4.7-2. Soil Types by Project Site

Site	Soil Type
1	154 Neuralia Sandy Loam 109 Cajon-Norob Complex 114 Cajon Loamy Sand (0-5% slopes) 155 Norob-Neuralia Complex (0-5% slopes)
2	114 Cajon Loamy Sand (0-5% slopes) 155 Norob-Neuralia Complex (0-5% slopes) 109 Cajon-Norob Complex 116 Cajon Gravelly Loamy Sand (0-9% slopes)
3	114 Cajon Loamy Sand (0-5% slopes) 155 Norob-Neuralia Complex (0-5% slopes) 116 Cajon Gravelly Loamy Sand (0-9% slopes) 137 Norob Complex (0-5% slopes, overblown) 109 Cajon-Norob Complex
4	114 Cajon Loamy Sand (0-5% slopes) 157 Pits 116 Cajon Gravelly Loamy Sand (0-9% slopes) 155 Norob-Neuralia Complex (0-5% slopes)
5	114 Cajon Loamy Sand (0-5% slopes) 116 Cajon Gravelly Loamy Sand (0-9% slopes) 154 Neuralia Sandy Loam
Source: Woodard & Curran 2020; see Appendix J.	

According to the *CEQA Level Geotechnical Study* (Appendix G of this EIR) prepared for the project, the predominantly coarse-grained soils underlying the project area are potentially susceptible to erosion or the loss of topsoil due to surface water flows.

Paleontological Resources

Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, diagnostically important, or are common but have the potential to provide valuable scientific information for evaluating evolutionary patterns and processes, or which could improve our understanding of chronology (time scale), ecology (relationship of organism to their physical surroundings), phylogeography (historical processes), or depositional histories. New or unique specimens can provide new insights into evolutionary history; however, additional specimens of even well-represented lineages can be equally

important for studying factors such as evolutionary patterns and evolutionary rates. Even unidentifiable material can provide useful data for dating geologic units if radiocarbon dating is possible.

The project area is underlain by three geologic units mapped at ground surface: Quaternary alluvial gravel and sand, Quaternary windblown sand, and Quaternary older alluvium. Quaternary (Holocene) alluvial sediments, derived from the hills just to the north and south, form an unconsolidated layer of alluvial sand, silt, and gravel across much of the project area and Antelope Valley. Mapped at the surface within the southern portions of Site 2 and Site 3, the Quaternary (Holocene) aeolian deposits consist of loose, well-sorted, fine-grained sand deposited as dunes or thin veneers on alluvium and clay. Holocene-aged units are too young to contain scientifically significant paleontological resources and are considered to have low paleontological sensitivity. However, these younger deposits may grade into older Quaternary (Pleistocene) alluvial sediments which may preserve fossil remains.

Quaternary older (Pleistocene) alluvial deposits are exposed within portions of Site 1 and Site 2 and are composed of loose to weakly consolidated, massive to poorly bedded, arkosic or granitic sand with clasts of subrounded cobbles and pebbles. Pleistocene alluvial deposits have proven to yield significant vertebrate fossil localities in Kern County and throughout Southern California from the coastal areas to the inland valleys. Localities have produced fossil specimens of terrestrial mammals such as mammoth, horse, elephant, camel, bison, birds, rodents, and reptiles. The older Quaternary alluvium has a high paleontological sensitivity and a high potential to contain buried intact paleontological resources because the unit has proven to yield significant vertebrate fossils near the project area.

Records Search

A records search for paleontological locality data within the project area and the vicinity was obtained from the Natural History Museum of Los Angeles County and online records were reviewed at the University of California's Museum of Paleontology. According to the record searches, no vertebrate fossil localities have been previously recorded directly in the project boundary; however, multiple vertebrate fossil localities have been previously recorded nearby within deposits of older Quaternary alluvium. These localities yielded scientifically significant fossilized specimens of large terrestrial mammals, rodents, and reptiles. Based on this assessment, the project area is determined to have a high potential for paleontological resources and the likelihood of impacting scientifically significant vertebrate fossils as a result of project construction is high.

4.7.3 Regulatory Setting

Geologic resources and geotechnical hazards are governed primarily by local jurisdictions. The conservation elements and seismic safety elements of city and county general plans contain policies for the protection of geologic features and avoidance of hazards.

The California Environmental Quality Act (CEQA) is the major environmental statute that guides the design and construction of projects on nonfederal lands in California. This statute establishes a specific process for environmental impact analysis and public review. In addition, the project proponent must comply with other applicable federal, State, and local statutes, regulations, and policies. Relevant and potentially relevant statutes, regulations, and policies are discussed below.

Federal

Clean Water Act (Erosion Control)

The Federal Clean Water Act (CWA) (33 USC 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point-source and certain nonpoint-source discharges to jurisdictional waters of the United States. Such discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). The project site is within the jurisdiction of the Lahontan RWQCB. For purposes of regulating non-point source storm water discharges, projects that disturb one or more acres may be required to obtain NPDES coverage under the Construction General Permit if the project is deemed to discharge to a water of the United States. Because the project is in a terminal drainage area of Kern County (i.e., does not drain to a waters of the United States), NPDES coverage is not expected to be required as discussed further below.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which includes best management practices (BMPs) to regulate stormwater runoff, including measures to prevent soil erosion. Requirements of the CWA and associated SWPPP are described in further detail in Section 4.9, *Hydrology and Water Quality*.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1977 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by NEHRP, which refined the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the project would be required to adhere.

Paleontological Resources

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. The first of these is the Antiquities Act of 1906 (54 U.S.C. 320301–320303 and 18 U.S.C. 1866(b)), which calls for protection of historic landmarks, historic and prehistoric structures, as well as other objects of historic or scientific interest on federally administered lands, the latter of which would include fossils. The Antiquities Act both establishes a permit system for the disturbance of any object of antiquity on federal land and also sets criminal sanctions for violation of these requirements.

The Antiquities Act was extended to specifically apply to paleontological resources by the Federal-Aid Highways Act of 1958. More recent federal statutes that address the preservation of paleontological resources include the National Environmental Policy Act, which requires the consideration of important natural aspects of national heritage when assessing the environmental impacts of a project (P.L. 91-190, 31 Stat. 852, 42 U.S.C. 4321–4327). The Federal Land Policy Management Act of 1976 (P.L. 94-579; 90 Stat. 2743, U.S.C. 1701–1782) requires that public lands be managed in a manner that will protect the quality of their scientific values, while Title 40 Code of Federal Regulations Section 1508.2 identifies paleontological resources as a subset of scientific resources. The Paleontological Resources Preservation Act (Title VI, Subtitle D of the Omnibus Land Management Act of 2009) is the primary piece of federal legislation.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act offers provisions of paleontological resources identified on federal, Native American, or state lands and guidance for their management and protection and promotes public awareness and scientific education regarding vertebrate fossils. The law also requires federal agencies to develop plans for inventory, collection, and monitoring of paleontological resources and establishes stronger criminal and civil penalties for the removal of scientifically significant fossils on federal lands.

State

Alquist-Priolo Earthquake Fault Zoning Act (1972)

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. In accordance with this law, the California Geological Survey maps active faults and designates earthquake fault zones along mapped faults. Three basic types of faults exist: active, potentially active, and inactive. Historic- and Holocene-age faults are considered active, Late Quaternary- and Quaternary-age faults are considered potentially active, and pre-Quaternary-age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations to determine that building setbacks should be established. Any project that involves the construction of buildings or structures for human occupancy, such as an operation and maintenance building, is subject to review under Alquist-Priolo, and any structures for human occupancy must be located at least 50 feet from any active fault.

Seismic Hazards Mapping Act (1990)

In accordance with Public Resources Code, Chapter 7.8, Division 2, the California Department of Conservation, Division of Mines and Geology (now the California Geological Survey [CGS]) is directed to delineate seismic hazard zones. The purpose of this act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards, such as those associated with strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by CGS in their land use planning and permitting processes. In accordance with the Seismic

Hazards Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within seismic hazard zones.

California Building Code (2019)

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2019 edition of the CBC is based on the 2018 IBC published by the International Code Council. The code is updated triennially, and the 2019 edition of the CBC was published by the California Building Standards Commission in 2019, and took effect starting January 1, 2020. The 2019 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-10, *Minimum Design Loads for Buildings and Other Structures*, provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation

type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. Expansive soils are defined in the CBC as follows:

> **1803.5.3 Expansive Soil.** In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1,2 and 3 shall not be required if the test prescribed in Item 4 is conducted:
>
> 1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
> 2. More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers), determined in accordance with ASTM D 422.
> 3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
> 4. Expansion index greater than 20, determined in accordance with ASTM D 4829.

Public Resources Code Section 5097 and Section 30244

The State of California Public Resources Code (Chapter 1.7), Sections 5097 and 30244, include additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, and define the excavation, destruction, or removal of paleontological "sites" or "features" from public lands without the express permission of the jurisdictional agency as a misdemeanor. As used in Section 5097, "state lands" refers to lands owned by, or under the jurisdiction of, the state or any state agency. "Public lands" is defined as lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, in cooperation with the CWA, established the SWRCB. The SWRCB and the nine RWQCBs are responsible for protecting California's surface water and groundwater supplies. Section 13000 of the act directs each RWQCB to develop Water Quality Control Plans for all areas in its region, to designate the beneficial uses of California's rivers and groundwater basins; these plans are the basis for each board's regulatory program.

The Basin Plan gives direction on the beneficial uses of state waters in Region 6, describes the water quality that must be maintained to support such uses, and includes programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. The Lahontan RWQCB implements the Basin Plan by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges may affect water quality. These requirements are state Waste Discharge Requirements for discharge to land or federally delegated NPDES permits for discharges to surface water. Responsibility for implementing CWA Sections 401–402 and Section 303(d) is also outlined in the Porter-Cologne Water Quality Control Act.

State Regional Water Quality Control Board, Stormwater General Construction Permit

The five-member SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters.

In 1999, the state adopted the NPDES General Permit for Stormwater Discharges Associated with Construction Activities (Construction Activities General Permit) (SWRCB Order No. 2012-0006-DWQ, NPDES No. CAS000002). The General Construction Permit generally requires that construction sites with 1 acre or greater of soil disturbance, or less than one-acre but part of a greater common plan of development, apply for coverage for discharges under the General Construction Permit by submitting a Notice of Intent for coverage, developing a stormwater pollution prevention plan (SWPPP), and implementing best management practices to address construction site pollutants if the project is deemed to discharge into a water of the United States. However, as the project site is in a terminal drainage area of Kern County (e.g., does not drain to a waters of the United States), NPDES coverage is not expected to be required as described in further detail in Section 4.10, *Hydrology and Water Quality*.

The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list the best management practices (BMP) the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP. Enrollment under the General Construction Permit is through the Stormwater Multiple Application and Report Tracking System. Additionally, the SWRCB is responsible for implementing the CWA and issues NPDES permits to cities and counties through the individual regional boards.

California Environmental Quality Act

Appendix G of the State CEQA Guidelines (California Code of Regulations Title 14, Chapter 3) provides an Environmental Checklist of questions intended to guide analysis pertaining to project-level impacts to geology and soils and paleontological resources.

A project would have a significant impact to geology and soils under CEQA if it would place people in an area with significant geologic hazard and would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death. CEQA impacts to geology and soils also include the loss of topsoil from a project site; locating a project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project; or locating a project on expansive soil or on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available.

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review. The SVP defines a Significant Paleontological Resource as:

> *Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years) [p. 11] (SVP 2010).*

The loss of significant paleontological resources would be a significant impact under CEQA. The CEQA lead agency is responsible for ensuring that paleontological resources are protected in compliance with CEQA and other applicable statutes.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the Kern County General Plan, Kern County Zoning Ordinance and the Kern County Code of Building Regulations, which include policies pertaining to the avoidance of geologic hazards and/or the protection of unique geologic features, as well as policies for the preservation of paleontological resources. The policies, goals, and implementation measures in the Kern County General Plan for geology and soils and paleontological resources that are applicable to the proposed project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development. These measures are not listed below, but as stated in Chapter 2, *Introduction*, of this EIR, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Chapter 1: Land Use, Conservation, and Open Space

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Implementation Measures

Measure D: Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Chapter 4: Safety Element

4.1 Introduction

Goal

Goal 1: Minimize injuries and loss of life and reduce property damage.

4.3. Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

Policies

Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measures

Measure B: Require geological and soils engineering investigations in identifying significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.

4.5. Landslides, Subsidence, Seiche, and Liquefaction

Policies

Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater prior to discretionary development and determine specific mitigation to be incorporated into the

foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.

Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

Implementation Measures

Measure D: Discretionary actions will be required to address and mitigate impacts from inundation, land subsidence, landslides, high groundwater areas, liquefaction and seismic events through the CEQA process.

Kern County Code of Regulations

Chapter 17.08, Kern County Building Code

All construction in Kern County is required to conform to the Kern County Building Code (Chapter 17.08, Building Code, of the Kern County Code of Regulations). Kern County has adopted the 2019 CBC with some modifications and amendments. The entire County is in Seismic Zone 4, a designation previously used in the UBC to denote the areas of highest risk for earthquake ground motion. California has an unreinforced masonry program that details seismic safety requirements for Zone 4. Seismic provisions associated with Seismic Zone 4 have been adopted.

Chapter 17.28, Kern County Grading Code

The purpose of the Kern County Grading Code is to safeguard life, limb, property, and the public welfare by regulating grading on private property. All requirements of the Kern County Grading Code would be applied during implementation of the proposed project. All required grading permit(s) would be obtained prior to commencement of construction activities. Sections of the Grading Code that are particularly relevant to geology and soils are provided below.

Chapter 17.28.140, Erosion Control

A. Slopes. The faces of cut-and-fill slopes shall be prepared and maintained to control erosion. This control may consist of effective planting. Protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

B. Other Devices. Where necessary, check dams, cribbing, riprap, or other devices or methods shall be employed to control erosion and provide safety.

C. Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each work-day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

Chapter 17.28.170, Grading Inspection

A. General. All grading operations for which a permit is required shall be subject to inspection by the building official. Professional inspection of grading operations and testing shall be provided by the civil engineer, soils engineer and the engineering geologist retained to provide such services in accordance with Subsection 17.28.170(E) for engineered grading and as required by the building official for regular grading.

B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade and surface drainage of the development area. If revised plans are required during the course of the work they shall be prepared by the civil engineer.

C. Soils Engineer. The soils engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during grading and testing for required compaction. The soils engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the permittee, the building official and the civil engineer.

D. Engineering Geologist. The engineering geologist shall provide professional inspection within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the soils engineer.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this Code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the building official. In the event of changed conditions, the permittee shall be responsible for informing the building official of such change and shall provide revised plans for approval.

F. Building Official. The building official may inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.

G. Notification of Noncompliance. If, in the course of fulfilling their responsibility under this chapter, the civil engineer, the soils engineer, or the engineering geologist finds that the work is not being done in conformance with this chapter or the approved grading plans, the discrepancies shall be reported immediately in writing to the permittee and to the building official. Recommendations for corrective measures, if necessary, shall also be submitted.

H. Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist of record is changed during the course of the work, the work shall be stopped until:

   1. The civil engineer, soils engineer, or engineering geologist, has notified the building official in writing that they will no longer be responsible for the work and that a qualified replacement has been found who will assume responsibility.

   2. The replacement civil engineer, soils engineer, or engineering geologist notifies the building official in writing that they have agreed to accept responsibility for the work.

Kern County Water Quality Control Plan

Each of the nine RWQCBs adopts a Water Quality Control Plan which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's groundwater and surface waters, and local water quality conditions and problems. Water quality problems in the regions are listed in these plans, along with the causes, if they are known. Each RWQCB is to set water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance, with the understanding that water quality can be changed somewhat without unreasonably affecting beneficial uses.

The Kern County Public Works Department requires the completion of an NPDES applicability form for all construction projects disturbing one or more acre within Kern County. This form requires the applicant to provide background information on construction activities. Applicants must apply for the permit under one of the following four conditions:

1. All storm water is retained onsite and no storm water runoff, sediment, or pollutants from onsite construction activity can discharge directly or indirectly offsite or to a river, lake, stream, municipal storm drain, or offsite drainage facilities.
2. All storm water runoff is not retained on site but does not discharge to a Water of the United States (i.e., drains to a terminal drainage facility). Therefore, a SWPPP has been developed and BMPs must be implemented.
3. All storm water runoff is not retained on site, and the discharge is to a Water of the United States. Therefore, a Notice of Intent (NOI) must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.
4. Construction activity is between one to five acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

Kern County Public Health Services Onsite Wastewater Treatment System Permitting

The Kern County Public Health Services Department is responsible for permitting, inspecting, and approving onsite wastewater treatment systems, including septic tank wastewater disposal systems. The agency provides leach line requirements, seepage pit requirements, percolation testing standards, and other regulations for land development related to wastewater treatment systems.

4.7.4 Impacts and Mitigation Measures

Methodology

Potential significant impacts associated with the project site were identified based on a review of existing literature, the *CEQA Level Geotechnical Study* (Appendix G of this EIR) and available data, including the Kern County General Plan. The *CEQA Level Geotechnical Study* presents findings, conclusions, and recommendations concerning development of the proposed project based on an engineering analysis of geotechnical properties of the subsurface conditions and evaluation of the underlying soils.

Project-specific potential impacts to paleontological resources within the project area were evaluated based on an analysis of existing paleontological data. The three components of the analysis of existing data included a geologic map review, a literature search, and an institutional record search. The *Paleontological Resources Assessment* located in Appendix H of this EIR provides the results of the paleontological evaluation, including existing subsurface paleontological conditions within the project area and an analysis of the potential impacts to previously undiscovered paleontological resources as a result of the project.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant impact on geology and soils.

A project would have a significant adverse effect on geology and soils if it would:

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;

    ii. Strong seismic ground shaking;

    iii. Seismic-related ground failure, including liquefaction;

    iv. Landslides.

b. Result in substantial soil erosion or the loss of topsoil;

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems 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.

A significant impact to paleontological resources would include the loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region. Direct impacts to paleontological resources primarily concern the potential destruction of previously undiscovered, nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information. This constitutes a significant impact. However, direct impacts can be mitigated to a less than significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature." In general, for projects that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For projects that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

Project Impacts

Impact 4.7-1: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving: 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.

The project is located in the highly seismic Southern California region within the influence of several fault systems, including the San Andreas and Garlock Fault systems. However, it is not located within a State of California Alquist-Priolo Earthquake Fault Zone. Although no mapped active faults traverse the project site, there are several mapped, active faults in the proximity. The nearest active fault is the Helendale – South Lockhart fault, located approximately 9.2 miles northeast of the project site. The Kramer Hills Fault, a Late Quaternary Age fault, extends into the southwest portion of Site 3 (refer to **Figure 4.7-2**, *Project Area Fault Map*). The Kramer Hills Fault is not recognized by the USGS as a significant fault in the 2008 and 2014 National Hazard Maps database. As such, the potential for surface fault rupture is considered low to moderate.

Each site may include an operations and maintenance (O&M) building of approximately 40 feet by 80 feet in size, with associated on-site parking. The O&M building(s) may be co-located with the substation(s) and would be steel framed, with metal siding and roof panels. The building would include office space and storage space for spare parts and materials for the day-to-day operations and maintenance of the facility. Each site could require an operational staff of up to five full-time employees during normal weekday working hours. Personnel present during the construction and operation phases of the proposed project would not be exposed to substantially increased fault rupture hazards as a result of project implementation, as the project would have no effects that could result in triggering fault rupture on or off site.

Construction of the project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the 2019 CBC (California Code of Regulations Title 24), which imposes substantially the same requirements as the International Building Code (IBC), 2018 Edition, with some modifications and amendments. These requirements would ensure that project structures comply with minimum standards related to structural strength and general stability. Therefore, given the absence of any known active faults in the project area and required compliance with the Kern County Building Code, impacts related to fault rupture would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.7-2: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving strong seismic ground shaking.

As described above, the project is located in a highly seismic region within the influence of several fault systems, including the San Andreas and Garlock Fault systems, which are capable of generating strong ground motions that could affect the project area. As such, the project proponent is required to design project infrastructure to withstand substantial ground shaking in accordance with applicable CBC seismic design standards, Kern County Building Code, Chapter 17.08 standards, and as recommended by a California licensed professional geotechnical engineer in the site-specific geotechnical review.

In addition, Mitigation Measure MM 4.7-1 would implement the County Building Code by requiring the project proponent prepare a geotechnical study to evaluate soil conditions and geologic hazards be performed by a qualified geotechnical engineer on the project site. It also requires that the proponent design the project facilities to withstand probable seismically induced ground shaking. All grading and construction on-site would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations provided by the California-registered professional engineer in accordance with California and Kern County Building Code requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for buried metal. The final structural designs would be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final design requirements would be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design would be submitted to the Kern County Planning and Natural Resources Department.

Adherence to the requirements of the Kern County Building Code, and Mitigation Measure MM 4.7-1 would ensure that potential seismic hazards are reduced to a less than significant level. The facilities would be constructed in accordance with all applicable codes, which require property line and public roadway setbacks that would protect the general public and on-site staff from potential hazards associated with the facilities that could result from an earthquake. Thus, with implementation of the above-described measures, project structures and personnel present during the construction and operation phases of the project would not be exposed to substantial adverse effects, including the risk of loss, injury, or death resulting from strong seismic ground shaking, and impacts would be less than significant.

Mitigation Measures

MM 4.7-1 Prior to the issuance of building or grading permits for the proposed project, the project proponent/operator shall conduct a final geotechnical study to confirm the findings of the preliminary geotechnical engineering report regarding soil conditions and geologic hazards on the project site.

a. The final geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but not limited to the following:

1. Location of fault traces and potential for surface rupture and ground shaking potential;
2. Maximum considered earthquake and associated ground acceleration;
3. Potential for seismically induced liquefaction, landslides, differential settlement, and mudflows;
4. Stability of any existing or proposed cut-and-fill slopes;
5. Collapsible or expansive soils;
6. Foundation material type;
7. Potential for wind erosion, water erosion, sedimentation, and flooding;
8. Location and description of unprotected drainage that could be impacted by the proposed development; and,
9. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground and any seismic hazards.

b. The project proponent/operator shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The project proponent/operator shall not locate project facilities on or immediately adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate the fault trace(s) to avoid siting improvements on or close to these fault structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed.

c. The final geotechnical report shall be submitted for review and approval by the Kern County Department of Public Works. The Kern County Department of Public Works shall evaluate final facility siting design prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. Final design requirements shall also be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design shall be submitted to the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.7-1, impacts would be less than significant.

Impact 4.7-3: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving seismic-related ground failure, including liquefaction.

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. Depth to groundwater is an important element in liquefaction susceptibility. Groundwater

shallower than 50 feet results in high to very high susceptibility to liquefaction, while deeper water results in lower susceptibility.

According to the *CEQA Level Geotechnical Study*, groundwater data from an off-site location approximately three miles northeast of the site indicates the depth to groundwater is approximately 168 feet, although groundwater may fluctuate in the future based on factors such as rainfall, irrigation, and changes to site drainage (see Appendix G of this EIR). Thus, the potential for liquefaction at the surface is low. Furthermore, the project is not located within a current, mapped California Liquefaction Hazard Zone. Structures constructed as part of the project would also 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. Building code requirements may include, but are not limited to, ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. Adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the project. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.7-4: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides.

The project site is situated within the Antelope Valley, which sits at the western edge of the Mojave Desert. The project lies approximately 40 miles east of the Tehachapi Mountains, which extend to approximately 4,000 feet above the valley floor. The topography of the project area is relatively flat with slopes ranging from 0.78 percent to 4.7 percent.

Given the relatively flat terrain and distance to the surrounding mountain ranges, the potential for landslides on the project site is considered low. Furthermore, permanent slopes steeper than 5:1 (horizontal to vertical) or higher than 5 feet are not anticipated for the project. Therefore, adverse effects related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.7-5: The project would result in substantial soil erosion or the loss of topsoil.

According to the *CEQA Level Geotechnical Study* (Appendix G of this EIR) prepared for the project, the predominantly coarse-grained soils underlying the project area are potentially susceptible to erosion or the loss of topsoil due to surface water flows. Site preparation activities for the proposed project would include minor grading activities that would disturb surface soils. Project grading would be minimized to the extent feasible to reduce unnecessary soil movement that may result in the substantial loss of topsoil. Scrapers, excavators, dozers, water trucks, haul vehicles, and/or graders may be used in site preparation. Access roads may be compacted or may be surfaced with aggregate or decomposed granite in conformance with emergency access requirements, which would further reduce the potential for runoff or erosion to occur during storm events. Additionally, trenching would be required for installation of the underground cables and circuits on-site.

Regardless of how minimal, project-related grading and excavation activities would disturb soil, which has the potential to result in the loss of topsoil. During rainfall events, and particularly during construction activities when surface soils are exposed, there is the potential for significant surface erosion and off-site sediment transportation. As such, project construction may have the potential to result in erosion, sedimentation, and discharge of construction debris from the site. Additionally, clearing of vegetation and grading activities, for example, could lead to exposed or stockpiled soils susceptible to peak stormwater runoff flows and wind forces. However, development of the site, including such elements as the PV solar module footings, substation pad, O&M building pad(s), and other elements, would reduce the potential for substantial soil erosion or loss of topsoil to occur as such areas would become impervious to rainfall (and thus, the scouring effects of runoff) with project implementation.

Additionally, the project as designed would not affect any natural drainage courses on-site in a manner that would result in substantial soil erosion due to site runoff. As indicated in Section 4.10, *Hydrology and Water Quality*, the majority of the proposed facilities and construction activities have been designed to avoid existing drainage areas so as to not to intercept or alter the conveyance of ephemeral/episodic flows through the project site during storm events. During construction and decommissioning, ground disturbance (via activities such as grading and excavation) within drainage areas may alter drainage patterns of the site. These changes could concentrate flows from storms and construction water usage, thereby resulting in increased erosion of existing soils on-site and sedimentation of water. Ground disturbance in drainage areas has a higher likelihood of resulting in erosion and sedimentation as water flow is more concentrated in such areas and has a higher erosive power. However, the project proponent/operator would develop and implement a Stormwater Pollution Prevention Plan (SWPPP) for implementation during project construction and decommissioning that would include various best management practices (BMPs) designed to prevent soil erosion and sedimentation from occurring on-site.

As further described in Section 4.10, *Hydrology and Water Quality*, as the project would disturb more than 1 acre of ground surface and stormwater would not be contained on-site or discharge into a terminal drainage facility, the project proponent would be required to prepare and implement a SWPPP per Kern County National Pollution Discharge Elimination System (NPDES) program requirements (refer to Mitigation Measure MM 4.10-1). The SWPPP will provide a schedule for the implementation and maintenance of erosion control measures, and a description of the erosion control measures, including appropriate design details, to be implemented during the construction and decommissioning phases. The SWPPP would consider the full range of erosion control BMPs with consideration for any additional site-specific and seasonal conditions, as appropriate.

Also, per Mitigation Measure MM 4.7-1, the project would be required to submit grading plans accompanied by a soils engineering report, engineering geology report, and drainage calculations pursuant to the Kern County Grading Code (Section 17.28.070) to the Kern County Engineering and Survey Services Department in order to obtain required grading permits. Compliance with MM 4.7-1 would ensure that excessive grading does not occur.

Erosion control BMPs may include but are not limited to the application of straw mulch, hydroseeding, and the use of geotextiles, plastic covers, silt fences, and erosion control blankets, as well as construction site entrance/outlet tire washing. The State General Permit also requires that those implementing SWPPPs meet prerequisite qualifications that demonstrate the skills, knowledge, and experience necessary to implement those plans. Conformance with the NPDES requirements would substantially reduce the potential for erosion or topsoil loss to occur in association with new development. Water quality features intended to reduce construction-related erosion impacts would be clearly noted on the grading plans for implementation by the construction contractor.

Mitigation Measure MM 4.10-1 would require that ground disturbance is minimized and timed to avoid the rainy season where possible. This would decrease the potential of stormwater mixing with disturbed topsoil and transporting it off-site. The implementation of BMPs during project construction, such as covering exposed excavated dirt during periods of rain and protecting excavated areas from flooding with temporary berms, would further minimize potential erosion and loss of topsoil. As a result, the project would comply with required erosion and runoff control measures included as part of approval of the grading plan per the Kern County Grading Code (Chapter 17.28.140). The project would be required to submit grading plans accompanied by a soils engineering report, engineering geology report, and drainage calculations pursuant to the Kern County Grading Code (Section 17.28.070) to the Kern County Public Works Department to obtain required grading permits.

Furthermore, the proposed project would implement Mitigation Measure MM 4.10-2, which would require preparation of a hydrologic study and final drainage plan per Kern County Development Standards and the Kern County Code of Building Regulations, prior to issuance of a grading permit. The final hydrologic study and drainage plan would be designed to evaluate and minimize potential increases in runoff from the project site following project implementation, as well as the potential for erosion and sedimentation to occur as a result in changes in stormwater flows across the property. Engineering recommendations would include measures to offset increases in stormwater runoff, as well as identification of design measures to minimize or manage potential flow concentrations or changes in flow depths or velocity so as to minimize erosion, sedimentation, and flooding potential on-site or off-site. Compliance with the Kern County NPDES program and Kern County Code would ensure that substantial erosion or the loss of topsoil does not occur and that impacts remain less than significant.

During operation, maintenance vehicles and activities would have the potential to disturb topsoil and cause erosion. However, maintenance vehicles would use the proposed project's access roads, thereby minimizing ground disturbance on-site. Furthermore, maintenance activities would be infrequent and would consist primarily of panel washing with water. Water is expected to infiltrate into the ground and not result in substantial erosion or soil loss. Therefore, with conformance to applicable federal, state, and local regulations, and implementation of appropriate BMPs as required by same, project operations would not result in substantial soil erosion or the loss of topsoil. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1 and MM 4.10-1 and MM 4.10-2 (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.7-1 MM 4.10-1, and MM 4.10-2, impacts would be less than significant.

Impact 4.7-6: The project would 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.

Landslides

As described under Impact 4.7-5, the project lies in a relatively flat-lying plain where landslides are not expected to occur. Therefore, adverse effects related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area and impacts would be less than significant.

Subsidence

Groundwater in the site vicinity is expected to be approximately 168 feet below the ground surface. Groundwater levels in the Antelope Valley have declined more than 270 feet since the 1970s in some parts of the groundwater basin, especially near the City of Lancaster. These groundwater level declines have caused the aquifer system to compact, resulting in land subsidence. Land subsidence within the Antelope Valley has been most recently evaluated by the USGS through the use of Interferometric Synthetic Aperture Radar between 1992 and 2009. Based on these recent studies, the project site is not within an area that has sustained measurable subsidence due to groundwater drawdown. Due to the depth of groundwater and the fact that the site is not located in a mapped subsidence area, the potential for impacts due to subsidence is considered low (Appendix G of this EIR).

Liquefaction

The project site is not located within a current, mapped California Liquefaction Hazard Zone. Groundwater in the site vicinity is expected to be approximately 168 feet below the ground surface. Based on the near surface soil conditions and depth to groundwater, the potential for impacts due to liquefaction-related ground failure at the project site is low.

Lateral Spreading and Collapse

Due to the low potential for liquefaction, the depth of groundwater, and the fact that the project site is not located near free faces or bodies of water, the potential for impacts due to lateral spreading and collapse is considered low (Appendix G of this EIR).

As described under Impact 4.7-2, a final geotechnical study would be performed for the project site as part of Mitigation Measure MM 4.7-1 that would evaluate soil conditions and potential for geologic hazards on

the project site, then provide recommendations to address any unstable soils, including the potential for lateral spreading, seismic settlement, and collapse. Furthermore, all structures on-site would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08), as well as all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Therefore, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.7-1, impacts would be less than significant.

Impact 4.7-7: The project would 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.

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 near-surface soils encountered during the recent geotechnical investigation are mostly sandy soils whose expansion potential is considered low (Appendix G of this EIR). As described above, a final geotechnical study would be performed for the project site as part of Mitigation Measure MM 4.7-1, which would confirm the findings of the conceptual geotechnical study regarding soil conditions and their ability to support the proposed improvements over the long term. The final geotechnical study would also include recommendations to address any unstable soils, including the potential for expansive soils and their potential to create risks to life or property. Furthermore, all structures on-site would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08), as well as all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Therefore, impacts related to expansive soils would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.7-1, impacts would be less than significant.

Impact 4.7-8: The project would 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.

As described in Chapter 3, *Project Description,* of this EIR, the project includes development of a septic system and leach field for the operation and maintenance facility. If not designed correctly, septic systems

could result in health impacts, adversely affect natural habitat, and pollute groundwater. As such, impacts related to construction of a septic system are potentially significant and mitigation is required.

As shown in **Table 4.7-2**, *Soil Types by Project Site*, the on-site soils primarily consist of predominantly coarse-grained soils. According to the *CEQA Level Geotechnical Study*, on-site soils are suitable to support septic tanks and leach fields, if applicable, based on the soil properties completed at each test pit location and the preliminary permeability test results. However, percolation testing would be completed once the site layout has been established and the location of the septic system has been determined. The project's septic system and leach field would be constructed to comply with applicable requirements of the Kern County Environmental Health Services Division. The proposed septic system and leach field are anticipated to be located away from surface drainages and protected from potential surface runoff. Proper siting and design of the leach field would minimize the potential for a health or environmental impact from flooding. Mitigation Measure MM 4.7-2 would require the project operator to obtain all required permits and approvals from the Kern County Environmental Health Services Division and to implement all required conditions regarding the design and siting or the septic system and leach fields. Implementation of Mitigation Measure MM 4.7-2 would reduce impacts to a less than significant level.

Mitigation Measures

MM 4.7-2 Prior to the issuance of any building permit for the operation and maintenance facility, the project operator shall obtain all required permits and approvals from Kern County Environmental Health Services Division and shall implement all required conditions regarding the design and siting of the septic system and leach fields.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.7-2, impacts would be less than significant.

Impact 4.7-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The project area is underlain by three geologic units mapped at ground surface: Quaternary alluvial gravel and sand, Quaternary windblown sand, and Quaternary older alluvium. Quaternary (Holocene) sedimentary deposits, particularly those younger than 5,000 years old, are generally too young to contain fossilized material. As such, the Holocene alluvial and aeolian deposits mapped in the project area are considered as having low paleontological sensitivity. However, Older Quaternary (Pleistocene) sediments may underlie the Holocene sediments at depths as shallow as three feet bgs in the vicinity of the project. The older Quaternary alluvium unit has proven to yield significant vertebrate fossils near the project area and, as such, has a high paleontological sensitivity and a high potential to contain buried intact paleontological resources.

The geologic deposits underlying the project (i.e., Quaternary older alluvium) have a high potential to contain paleontological resources. As such, ground-disturbing activities in previously undisturbed portions of the project area could potentially result in significant impacts to paleontological resources. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources and associated stratigraphic and paleontological data. Activities may include grading, excavation, drilling, or any other activity that disturbs the surface or subsurface geologic formations with a high paleontological sensitivity. However, with implementation of Mitigation Measures MM 4.7-3 through MM 4.7-6, which would require the preparation of a Paleontological Resources

Mitigation Plan, preparation and implementation of a Paleontological Resources Awareness Training program for construction workers, use of a qualified paleontological monitor during construction activities, and appropriate treatment of accidentally uncovered paleontological resources, impacts to paleontological resources would be reduced to less than significant.

Mitigation Measures

MM 4.7-3 Prior to the commencement of ground-disturbing activities, a qualified professional paleontologist shall be retained to prepare and implement a Paleontological Resources Mitigation Plan (PRMP) for the project. A Qualified Paleontologist is an individual who meets the education and professional experience standards as set forth by the Society of Vertebrate Paleontology (SVP) (2010), which recommends the paleontologist shall have at least a master's degree or equivalent work experience in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The PRMP shall describe mitigation recommendations in detail, including paleontological monitoring procedures; communication protocols to be followed in the event that an unanticipated fossil discovery is made during project development; and preparation, curation, and reporting requirements.

MM 4.7-4 The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards (SVP, 2010), to carry out all mitigation measures related to paleontological resources.

a. Prior to the start of any ground disturbing activities, the qualified paleontologist shall prepare a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form.

b. Paleontological Resources Awareness Training may be conducted in conjunction with other awareness training requirements.

c. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources.

d. The Paleontological Resources Awareness Training Guides shall be kept onsite and available for all personnel to review and be familiar with as necessary.

MM 4.7-5 A qualified paleontologist or designated monitor shall be onsite initially to spot-check excavations below a depth of one-foot below the ground surface in a given area. If it is determined that sediments consist of older alluvium, then full-time paleontological monitoring shall ensue. If sediments are determined to consist of Holocene Quaternary

alluvium, paleontological monitoring shall be suspended until an excavation depth of five feet below the ground surface is reached in the area.

a. The duration and timing of monitoring shall be determined by the qualified paleontologist in consultation with the Kern County Planning and Natural Resources Department and shall be based on a review of geologic maps and grading plans.

    1. During the course of monitoring, if the paleontologist can demonstrate based on observations of subsurface conditions that the level of monitoring should be reduced, the paleontologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances, as warranted.

b. Paleontological monitoring shall include inspection of exposed rock units during active excavations within sensitive geologic sediments. The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary.

c. Following the completion of construction, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources onsite. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, recovery and curation efforts, and the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository such as the Natural History Museum of Los Angeles County.

MM 4.7-6: If a paleontological resource is found, the project contractor shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials. Accompanying notes, maps, and photographs shall also be filed at the repository.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.7-3 through MM 4.7-6, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Impacts of the project would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Cumulative projects listed in **Table 3-3**, *Cumulative Projects List*, of Chapter 3, *Project Description*, of this EIR would also be subject to similar seismic hazards and potential geologic instability. The majority of the cumulative projects are similar to the proposed project regarding construction and operational activities. Related projects would also be subject to similar seismic hazards since they are located in the project vicinity. However, the effects of these projects are not of a nature to cause cumulatively significant effects from geologic impacts, or on

soils, because such impacts are site-specific and would only have the potential to combine with impacts of the proposed project if they occurred in the same location. None of the cumulative projects would be located on or adjacent to the project site.

Although construction activities have the potential to result in erosion on the project site, adherence to the recommendations in the geotechnical report (Mitigation Measure MM 4.7-1) and other grading and building requirements would mitigate erosion impacts to a less than significant level. For example, erosion impacts during construction would be mitigated through the implementation of an SWPPP and appropriate BMPs Other cumulative projects would be required to adhere to similar requirements, thereby minimizing cumulative scenario erosion impacts. Specifically, all planned projects in the vicinity of the proposed project are subject to environmental review and would be required to conform to the Kern County General Plan and Building Code. With implementation of mitigation measure Mitigation Measure MM 4.7-1 and other grading and building requirements, the proposed project would not contribute to significant cumulative impacts for geologic, seismic hazards or related events because the proposed project and other cumulative projects in the area would be required to demonstrate compliance with local, state, and federal building and safety standards prior to County issuance of grading and/or building permits.

The geographic scope for cumulative effects to paleontological resources includes the north-central portion of the Antelope Valley. Given similarities in geologic formations, this area is expected to contain similar types of paleontological resources. There is no temporal scope because direct impacts to paleontological resources are permanent. Cumulative impacts to paleontological resources in the Antelope Valley could occur if other related projects, in conjunction with the proposed project, had or would have impacts on paleontological resources that, when considered together, would be significant. Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant paleontological resources impact due to the potential loss of paleontological resources unique to the region. To mitigate potential impacts to paleontological resources, the project proponent would implement Mitigation Measures MM 4.7-3 through MM 4.7-6, which would require the preparation of a Paleontological Resources Mitigation Plan, preparation and implementation of a Paleontological Resources Awareness Training program for construction workers, use of a qualified paleontological monitor during construction activities, and appropriate treatment of accidentally uncovered paleontological resources. Implementation of these mitigation measures would reduce potential impacts to paleontological resources to a less than significant level. Other cumulative projects with similarly sensitive underlying formations would have to implement similar mitigation measures to reduce their potential impacts if those projects are also located in a geological area that is conducive for paleontological resources. With implementation of Mitigation Measures MM 4.7-3 through MM 4.7-6, the project's contribution to a cumulative paleontological impact would be less than significant.

With implementation of the mitigation measures described above and compliance with other grading and building requirements, the proposed project would not contribute to significant cumulative impacts for geologic, paleontological resources, and seismic hazards or related events because the proposed project and other cumulative projects in the area would be required to demonstrate compliance with local, state, and federal building and safety standards prior to County issuance of grading and/or building permits. As a result, with implementation of mitigation, the project's contribution to a cumulative impact is less than cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1 through MM 4.7-6, and MM 4.10-1 and MM 4.10-2 (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.7-1 through MM 4.7-6, and MM 4.10-1 and MM 4.10-2, cumulative impacts would be less than significant.

Section 4.8
Greenhouse Gas Emissions

4.8.1 Introduction

This section of the EIR describes the affected environment and regulatory setting relating to greenhouse gases (GHGs) for the proposed project. It also describes the impacts associated with GHGs that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable.

Information in this section is based primarily on the *Air Quality and Greenhouse Gas Study* prepared by Rincon (Rincon 2021) located in Appendix C-1 of this EIR. The impact assessment for the project is also based upon a review of relevant literature and technical reports that include, but are not limited to, information and guidelines by the California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA), and the applicable provisions of CEQA.

Since the preparation of the initial *Air Quality and Greenhouse Gas Study*, the project footprint has been reduced by approximately 15 percent from approximately 2,700 acres to approximately 2,300 acres, with a corresponding reduction in the energy production capacity from 600 megawatts (MW) to 530 MW. The 15-percent reduction in project footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction, and a potentially commensurate reduction of GHG emissions generated during construction and operations. Therefore, the following discussion that is based on the approximately 2,700-acre footprint represents the worst-case potential impacts related to GHG emissions.

4.8.2 Environmental Setting

GHGs and climate change are a cumulative global issue. CARB and EPA regulate GHG emissions within the State of California and the United States, respectively. While CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. The project site is in the vicinity of the unincorporated communities of Boron and Desert Lake, north of the boundaries of Edwards Air Force Base, and is under the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD) and is located in the Mojave Desert Air Basin (MDAB).

Greenhouse Gases

Constituent gases that trap heat in the Earth's atmosphere are called GHGs, analogous to the way a greenhouse retains heat. GHGs play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface that would otherwise have escaped into space. Prominent GHGs contributing to this process include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons (CFCs).

Without the natural heat-trapping effect of GHG, a phenomenon known as the "Greenhouse Effect," the earth's surface would be about 34 degrees Celsius (°C) cooler. However, anthropogenic emissions of GHGs

in excess of natural ambient concentrations have led to unnatural changes to the Earth's climate, collectively known as global warming or climate change, or, more accurately, global climate disruption. Emissions of these gases that induce global climate disruption are attributable to human activities associated with industrial and manufacturing, utilities, transportation, residential, and agricultural sectors.

The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere. Individual GHG compounds have varying GWP and atmospheric lifetimes. The reference gas for the GWP is CO_2, which possesses a GWP of 1. The calculation of the CO_2 equivalent (CO_2e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. Methane's warming potential of 28 indicates that methane has a 28 times greater warming affect than CO_2 on a molecular basis. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs for the three GHGs produced by the project are as follows:

- **Carbon dioxide** (CO_2) – GWP 1: CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

- **Methane** (CH_4) – GWP 28: CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide** (N_2O) – GWP 265: N_2O is emitted during agricultural and industrial activities and during combustion of fossil fuels and solid waste.

A CO_2e is the mass emissions of an individual GHG multiplied by its GWP. GHGs are often presented in units called tonnes (i.e., metric tons) of CO_2e ($MTCO_2e$). Because different GHGs have different GWPs and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, SF_6 is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually worldwide, is a much more potent GHG with 22,800 times the GWP as CO_2. Therefore, an emission of 1 metric ton (MT) of SF_6 could be reported as an emission of 22,800 MT of CO_2e (IPCC 2007). Large emissions sources are reported in million MT of CO_2e (MMT CO_2e).

Carbon Dioxide

CO_2 is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound (such as wood) or fossilized organic matter, (such as coal, oil, or natural gas) is burned in the presence of oxygen. CO_2 is removed from the atmosphere by CO_2 "sinks," such as seawater, ocean-dwelling plankton, forests, and grasslands. Under certain circumstances, however, these sinks can also be a source of CO_2. Whereas the biosphere and ocean achieve a natural balance of CO_2 production and absorption, humankind has altered the natural carbon cycle since the industrial revolution. Beginning in the mid-1700s, the burning of coal, oil, natural gas, and wood has increased globally.

Methane

CH_4 is a colorless, odorless, combustible, non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH_4 is the main constituent of natural gas, a fossil fuel. CH_4 is released when organic matter decomposes in low oxygen environments. Natural sources include decomposition processes generated by wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies, and buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil fuel combustion and biomass burning.

Nitrous Oxide

N_2O is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas," and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Manmade sources of N_2O include agricultural fertilizers, nylon and nitric acid production, cars with catalytic converters, and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. In the 1970s, scientists discovered that CFCs destroy stratospheric ozone, leading to thinning of the Earth's protective ozone layer. Since then there has been an ongoing global effort to halt their production, which has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthesized chemicals that are used as a substitute for CFCs. Out of all of the GHGs, HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays are able to destroy the compounds only in the upper atmosphere. Consequently, PFCs have very long lifetimes – between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride

Sulfur hexafluoride (SF_6) is a manmade and extremely potent GHG. SF_6 is very persistent, with an atmospheric lifetime of more than a thousand years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate. SF_6 is used primarily by the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF_6 is used extensively in high-voltage circuit breakers and switchgear, and in the magnesium metal casting industry.

Greenhouse Gas Emissions Inventory

United States

Total United States GHG emissions were 6,511.3 million metric tons (MMT or gigatonnes) of CO_2e in 2016. Total United States emissions have increased by 2.4 percent since 1990; emissions decreased by 1.9 percent from 2015 to 2016. The decrease from 2014 to 2015 was a result of multiple factors, including: (1) substitution from coal to natural gas and other non-fossil energy sources in the electric power sector and (2) warmer winter conditions in 2016 resulting in a decreased demand for heating fuel in the residential and commercial sectors. Since 1990, U.S. emissions have increased at an average annual rate of 0.1 percent. In 2015, the industrial and transportation end-use sectors accounted for 29 percent each of GHG emissions (with electricity-related emissions distributed), respectively. Meanwhile, the residential and commercial end-use sectors accounted for 15 percent and 16 percent of CO_2e emissions, respectively (EPA 2018).

California

Based on CARB's California Greenhouse Gas Inventory for 2000-2016, California produced 429.4 MMT of CO_2e in 2016. The major source of GHGs in California is associated with transportation, contributing 41 percent of the state's total GHG emissions. The industrial sector is the second largest source, contributing 23 percent of the state's GHG emissions, and electric power accounted for approximately 16 percent (CARB 2018a). California emissions are due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. CARB has projected that statewide unregulated GHG emissions for the year 2020 will be 509 MMT CO_2e (CARB 2018b). These projections represent the emissions expected to occur in the absence of any GHG reduction actions. California GHG emissions by economic sector from 2009 to 2017 are summarized in **Table 4.8-1**, *California Greenhouse Gas Emissions (million metric tons CO_2e)*, including the percentages by sector for 2017. The most recent annual GHG emission inventory released by CARB is for year 2017, which was released August 12, 2019.

Table 4.8-1. California Greenhouse Gas Emissions (million metric tons CO_2e)

Emission Inventory Category	2009	2010	2011	2012	2013	2014	2015	2016	2017	% of 2017 tonnage
Transportation	170.20	165.13	161.76	161.31	160.91	162.53	166.18	168.76	169.86	40.05%
Electricity Generation (In State)	53.33	46.75	41.10	51.02	49.42	51.68	49.88	42.28	38.45	9.07%
Electricity Generation (Imports)	48.04	43.59	46.87	44.50	39.98	36.79	33.93	26.32	23.94	5.65%
Commercial	12.89	13.58	13.71	13.41	13.30	12.52	12.67	13.14	13.02	3.4%
Industrial	87.90	91.50	90.17	91.08	93.69	94.02	91.48	89.49	89.40	21.08%
Residential	29.32	30.06	30.51	28.21	29.02	23.75	24.17	25.27	26.00	6.30%
Agriculture	32.85	33.68	34.34	35.46	33.99	35.06	33.75	33.51	32.42	7.64%
High Global Warming Potential	12.29	13.52	14.53	15.51	16.75	17.73	18.60	19.26	19.99	4.71%
Recycling and Waste	8.27	8.37	8.47	8.49	8.52	8.59	8.73	8.81	8.89	2.10%
Total Gross Emissions	**457.3**	**448.5**	**443.6**	**451.2**	**447.7**	**444.7**	**441.4**	**429.0**	**424.1**	**100%**

Source: CARB 2019

Kern County

In 2012, the San Joaquin Valley Air Pollution Control District prepared a Communitywide GHG Inventory for Kern County. Using the 2005 baseline GHG emissions, the 2020 emissions inventory was forecasted to be 27.3 $MMTCO_2e$, of which the electricity consumption sector representing 31 percent, followed by the fossil fuel sector at 26 percent. **Table 4.8-2**, *Projected 2020 Kern County GHG Emissions*, presents the County's projected 2020 GHG emissions, minus sequestration.

Table 4.8-2. Projected 2020 Kern County GHG Emissions

Sector	Emissions ($MTCO_2e$)	Percent of Total
Electricity Consumption	8,572,261	31
Residential/Commercial/Industrial Combustion	1,689,414	6
Transportation	4,823,756	18
Fossil Fuels Industry	7,002,009	26
Industrial Processes	2,348,754	9
Waste Management	146,788	1
Agriculture Fugitives	2,652,616	10
Forestry and Land Use	14,669	<1
Other Sources	22,442	<1
Total	27,272,709	-

Notes: $MTCO_2e$ = metric tons carbon dioxide equivalent
Source: San Joaquin Valley Air Pollution Control District 2012

Climate Change

GHGs are gases in the atmosphere that trap heat. The major concern with GHGs is that increases in GHG concentrations in the atmosphere are causing global climate change, which is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to GHGs from human activities, most in the world-wide scientific community agree that there is a direct link between increased emissions of GHGs and long-term global temperature increases (i.e., global warming).

According to CARB, the potential impacts in California due to global climate change may include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and

residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems (CARB 2018). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC 2001):

- Higher maximum temperatures and more hot days over nearly all land areas
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas
- Reduced diurnal temperature range over most land areas
- Increase of heat index over land areas
- More-intense precipitation events

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, ocean acidification (including coral bleaching), impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, the potential for substantial environmental, social, and economic consequences over the long-term may be great.

Potential Environmental Effects

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air, land, and water temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The global combined land and ocean temperature data show an increase of about 0.89°C (0.69°C– 1.08°C) over the period 1901–2012 and about 0.72°C (0.49°C–0.89°C) over the period 1951–2012 when described by a linear trend. Several independently analyzed data records of global and regional Land- Surface Air Temperature (LSAT) obtained from station observations are in agreement that LSAT, as well as sea surface temperatures, has increased. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014).

According to the California Environmental Protection Agency's (CalEPA) 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include decreased snow pack, sea level rise, and increase in extreme heat days per year, high ground-level O_3 days, large forest fires, and drought (CalEPA2010).

4.8.3 Regulatory Setting

Federal

Environmental Protection Agency

The principal air quality regulatory mechanism at the federal level is the Clean Air Act (CAA) and in particular, the 1990 amendments to the CAA and the National Ambient Air Quality Standards (NAAQS) that it establishes. The U.S. Supreme Court in Massachusetts et al. v. Environmental Protection Agency et al. ([2007] 549 U.S. 05-1120) held that the EPA has the authority to regulate motor-vehicle GHG emissions under the CAA. The EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. In 2012, the EPA issued a Final Rule that establishes the GHG permitting thresholds that determine when federal CAA permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

In 2014, the U.S. Supreme Court in Utility Air Regulatory Group v. EPA (134 S. Ct. 2427 [2014]) held that EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

Federal Clean Air Act

The USEPA is responsible for implementing federal policy to address GHGs. The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO_2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR® labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act. The USEPA adopted a Final Endangerment Finding for the six defined GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6). The Endangerment Finding was required before the USEPA could regulate GHG emissions under Section 202(a)(1) of the Clean Air Act. The USEPA also adopted a Cause or Contribute Finding in which the USEPA Administrator found that GHG emissions from new motor vehicle and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. These findings do not themselves impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks

On May 19, 2009, the federal government announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard jointly approved by the USEPA and the National Highway Traffic Safety Administration (NHTSA) applies to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy (CAFE) standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016, based on USEPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mph (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle. In 2017, the USEPA recommended no change to the GHG standards for light-duty vehicles for model years 2022–2025; however, this was withdrawn by the EPA Administrator (USEPA 2018). In March 2020, the USEPA and NHTSA adopted the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule that would maintain the CAFE and CO_2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mph and 204 grams per mile for passenger cars and 31.3 mph and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mph, as compared to 46.7 mph under the standards issued in 2012. The proposal, if adopted, would also exclude CO_2-equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020 (USEPA and NHTSA 2018).

Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

In 2011, the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–57513). The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 percent to 23 percent over the 2010 baselines (USEPA and NHTSA 2011). In August 2016, the USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (USEPA and NHTSA 2016).

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule

This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 $MTCO_2e$ emissions per year (USEPA 2011). Additionally, reporting of emissions is required for owners of SF6- and PFC-insulted equipment, when the total nameplate capacity of these insulating gases is above 17,280 pounds. The project would not be expected to trigger GHG reporting according to the rule; however, GHG emissions of the project are quantified in this EIR.

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

USEPA mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year (USEPA 2010). The project would not be expected to trigger PSD permitting as required by this regulation; however, GHG emissions of the project are quantified in this EIR.

Fuel Efficiency Standards for Construction Equipment

The federal government sets fuel efficiency standards for non-road diesel engines that are used in construction equipment. The regulations, contained in 40 CRF Parts 1039, 1065, and 1068, include multiple tiers of emission standards. Most recently, the USEPA adopted a comprehensive national program to reduce emissions from non-road diesel engines by integrating engine and fuel controls as a system to gain the greatest reductions. To meet these Tier 4 emission standards, engine manufacturers will produce new engines with advanced control technologies (USEPA 2004).

State

Executive Order S-1-07

Executive Order S-1-07 recognizes that the main source of GHG emissions in California is from the transportation sector, and establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020. As a result of Executive Order S-1-07, CARB approved a proposed regulation to implement the Low Carbon Fuel Standard (LCFS) to reduce GHG emissions from the transportation sector in California by approximately 16 $MMTCO_2e$ by 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that establishes performance standards that fuel producers and importers must meet each year beginning in 2011.

Executive Order S-3-05

On June 1, 2005, the Governor issued Executive Order (EO) S-3-05, which set the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report"). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These strategies could be implemented by various state agencies to ensure the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of

passenger and light-duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, and so on. In April 2015, the governor issued EO B-30-15, calling for a new target of 40 percent below 1990 levels by 2030.

Executive Order B-30-15

On April 29, 2015, the Governor issued EO B-30-15, which added an interim target of GHG emissions reductions to help ensure that the state meets its 80 percent reduction by 2050 as set in EO S-3-05. The interim target is reducing GHG emissions by 40 percent by 2030. It also directs state agencies to update the Scoping Plan, update the Adaptation Strategy every 3 years, and take climate change into account in their planning and investment strategies. Additionally, it requires that the state's Five-Year Infrastructure Plan will take current and future climate change impacts into account in all infrastructure projects.

Assembly Bill 32

Assembly Bill (AB) 32 outlines California's major initiative for reducing GHG emissions; called the "California Global Warming Solutions Act of 2006," AB 32 was signed into law in 2006 and codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020, and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e.

Senate Bill 32

Signed into law on September 2016, Senate Bill 32 (SB 32) codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

Climate Change Scoping Plan

In December 2008, CARB approved the AB 32 Scoping Plan outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 $MMTCO_2e$ (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. Many of the GHG reduction measures included in the Scoping Plan have been adopted (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) since approval of the Scoping Plan. The Scoping Plan must be updated every 5 years to evaluate the implementation of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal.

In May 2014, CARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan Update defines CARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 statewide goals. The update highlights California's progress toward meeting the "near-term" 2020

GHG emission reduction goals defined in the original Scoping Plan. It also evaluates how to align the state's longer-term GHG reduction strategies with other state policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. CARB approved 431 $MMTCO_2e$ as the 2020 emission limit with the approval of the First Update to the Scoping Plan on May 22, 2014 (CARB 2014).

The 2017 Scoping Plan Update was adopted on December 14, 2017. The 2017 Scoping Plan Update addresses the 2030 target established by Senate Bill (SB) 32, and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the 2017 Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes (CARB 2017).

Senate Bill 97

SB 97 was enacted requiring the Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions, or the effects related to releases of GHG emissions. OPR submitted proposed amendments to the Natural Resources Agency in accordance with SB 97 regarding analysis and mitigation of GHG emissions. As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for GHG emissions, which became effective in 2010.

Senate Bill 375

SB 375 passed the Senate on August 30, 2008 and was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions and contributes more than 40 percent of the GHG emissions in California, with automobiles and light trucks alone contributing almost 30 percent. SB 375 indicates that GHGs from automobiles and light trucks can be reduced by new vehicle technology. However, significant reductions from changed land use patterns and improved transportation are also necessary. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

California Green Building Standard Code

The State of California adopted the 2010 CALGreen Code, which became effective in January 2011. Building off of the initial 2008 California Green Building Code, the 2010 CALGreen Code represents a more stringent building code that requires, at a minimum, that new buildings and renovations in California meet certain sustainability and ecological standards. The 2010 CALGreen Code has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

The California Building Standards Commission adopted the 2013 California Building Standards Code that also included the 2013 CALGreen Code, which became effective on January 1, 2014. The mandatory provisions of the code are anticipated to reduce GHG emissions by 3 $MMTCO_2e$ by 2020, reduce water use by 20 percent or more, and divert 50 percent of construction waste from landfills. Additionally, the California Building Code includes a requirement for a 20 percent reduction in indoor potable water usage. The 2013 California Energy Code (Title 24, Part 6), which is also part of the CALGreen Code (Title 24,

Part 11, Chapter 5.2), became effective on July 1, 2014. The 2016 CALGreen Code became effective on January 1, 2017. The updated code addresses clean air vehicles and requirements for electric vehicle charging infrastructure. The CALGreen Code was most recently updated in 2019 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2020.

Renewables Portfolio Standard

In 2002, a state law established the basic policy framework for the increased use of renewable energy resources in California, known as the Renewables Portfolio Standard (RPS). Specific requirements were established for investor owned utilities, including a 20 percent target and provisions for the types of renewable resources that could be used to meet the target. The major eligible renewable energy resources, as defined by the California Energy Commission (CEC), include biomass, geothermal, solar, wind, and small hydroelectric facilities. Under the law, publicly-owned utilities (POUs) were directed to pursue voluntary actions to increase the use of renewable energy in their portfolios, but were allowed the flexibility to define their targets and the types of resources that could meet those targets. The CEC and the California Public Utilities Commission work collaboratively to implement the RPS.

In 2006, new state policy heightened the need to increase the use of renewable energy as part of the state's GHG reduction efforts. In April 2011, Governor Brown signed SB X1-2 that revised the RPS target to be 33 percent renewables by 2020. The new RPS standards apply to all electricity retailers in the state, including POUs, investor owned utilities, electricity service providers, and community choice aggregators. In October 2015, Governor Brown signed SB 350, which expands and increases the target of the RPS program to 50 percent by the end of 2030. SB X1-2 and SB 350 included new enforcement provisions and direct CARB to collect financial penalties for any Notice of Violation issued by the CEC to a POU for its failure to comply with requirements of the state's RPS Program. Lastly, in 2018, SB 100 was signed into law, which again increased the RPS program to 60 percent by 2030 and requires all the state's electricity to come from carbon-free resources by 2045.

Senate Bill 100

SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") was approved by the California legislature and signed by Governor Brown in September 2018. The bill increases RPS in 2030 from 50 percent to 60 percent and establishes a goal of 100 percent RPS by 2045.

Senate Bill 1368

SB 1368 requires the CPUC to establish a baseload generation standard for publicly owned or leased facilities that generate electricity at a GHG Emissions Performance Standard (EPS) of 1,100 pounds of CO_2e per megawatt-hour. SB 1368 also requires the posting of notices of public deliberations by publicly owned companies on the CPUC website and establishes a process to determine compliance with the EPS.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combined the control of smog- and soot- causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-

forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2017b). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the USEPA and NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025. The Zero Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufactures to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in 2018 to 2025 model years.

California Air Pollution Control Officers Association White Paper

The California Air Pollution Control Officers Association (CAPCOA) issued a "white paper" (*CEQA and Climate Change*—an authoritative report issued by any organization) on evaluating GHG emissions under CEQA (CAPCOA 2008). The strategies provided in that document are guidelines only and have not been adopted by any regulatory agency. The white paper serves as a resource to assist lead agencies in evaluating GHGs during review of environmental information documents. The methodologies used in this GHG analysis are consistent with the CAPCOA guidelines.

Regional

2018 Regional Transportation Plan/Sustainable Communities Strategy

The KCOG is the regional planning agency for Kern County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. KCOG serves as the federally designated metropolitan planning organization for Kern County. With respect to air quality planning and other regional issues, KCOG has prepared the 2018 Regional Comprehensive Plan for the region (Kern COG 2018). The 2018 RCP is a long-term (24 year) general plan for the region's transportation network, and encompasses projects for all types of travel, including aviation and freight movement. The plan assesses environmental impacts of proposed projects.

The Kern COG 2018 RTP includes an SCS component in accordance with SB 375, the Sustainable Communities and Climate Protection Act of 2008. The Kern COG board of directors adopted its first SCS on June 19, 2014, and made a determination that, if implemented, the SCS would achieve the per capita passenger vehicle GHG emissions targets established by the board of directors. The 2020 target is a 5 percent per capita reduction and the 2035 target is a 10 percent per capita reduction from the 2005 base year.

The SCS strives to reduce air emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet CARB GHG targets for the region. As explained in the Kern COG 2018 RTP EIR, the key purpose of SB 375 and the Kern COG SCS is to reduce per capita emissions originating from passenger vehicles and light-duty trucks. Accordingly, the 2018 RTP:

- Describes sources of emissions in the Kern region, 2020 and 2035 emission reduction targets established by CARB for the San Joaquin Valley, and modeling techniques used to estimate and forecast emissions

- Identifies statewide strategies to reduce transportation-related emissions and their anticipated effect within the Kern region
- Identifies regional strategies that complement the SCS by reducing emissions in other sectors (e.g., energy consumption)
- Quantifies the effect of policies and programs in the RTP that reduce transportation-related emissions in the region and
- Compares the emissions reductions anticipated with implementation of the SCS with the regional targets (Kern COG 2018).

Local

Kern County General Plan

The Land Use, Open Space, and Conservation Element of the Kern County General Plan (Kern County 2009) provides goals, policies, and implementation measures applicable to air quality, and as related to the project, would also reduce project GHG emissions. These goals, policies, and implementation measures are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below.

Chapter 1. Land Use, Open Space and Conservation Element

Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act (CEQA), the appropriate decision making body, as part of its deliberations, will ensure that:

a. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

b. The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to CEQA.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low VOC producing trees on landscape plans.

d. Use of alternative fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of EPA certified, low emission natural gas fireplaces.

g. Provide bicycle lockers and shower facilities onsite.

h. Increase the amount of landscaping beyond what is required in the Zoning Ordinance (Ch. 19.86).

i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local air pollution control districts.

Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5. Energy Element

Solar Energy Development

Goal

Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Eastern Kern Air Pollution Control District

In 2012, EKAPCD adopted an addendum to its *CEQA Guidelines* to address GHG impacts, including quantitative thresholds for determining significance for GHG emissions for new stationary sources where EKAPCD serves as the lead CEQA review agency. A project is considered to have a significant project or cumulative considerable impact if it generates 25,000 tons or more of CO_2e per year (22,680 $MTCO_2e$). This impacts would be considered to be fully reduced to below the significance level if it meets one of the following conditions:

- The project demonstrates to EKAPCD that it is in compliance with a state GHG reduction plan such as AB 32 or future GHG reduction plan it if is more stringent than the state plan; or
- Project GHG emissions can be reduced by at least 20 percent below business as usual (BAU) through implementation of one or more of the following strategies:
    - Compliance with Best Performance Standard (BPS);
    - Compliance with GHG Offset; and/or
    - Compliance with an Alternative GHG Reduction Strategy.

4.8.4 Impacts and Mitigation Measures

Methodology

Construction and Operational Emissions

Construction of the solar project would generate temporary GHG emissions primarily from the use of on-site construction equipment, vehicles transporting construction workers to and from the project site, and heavy-duty trucks used to export earth materials off-site. Site preparation and grading typically generate the greatest amount of emissions from grading equipment and soil hauling. Operational activities of the project would generate GHG emissions primarily from operation of maintenance equipment on-site and vehicles transporting employees to and from the project site. Emissions associated with decommissioning the project were conservatively assumed to be equivalent to construction of the project give the type of equipment required for decommissioning. The analysis relied on CARB's on-road vehicle emission factor model (EMFAC2017), CARB's 2017 Off-Road Equipment Inventory Model (OFFROAD2017), and emission factors obtained from the USEPA AP-42 *Compilation of Air Pollutant Emissions Factors* (as amended). The EMFAC2017 model was used to develop carbon dioxide (CO_2) and methane (CH_4) emission estimates. The California Climate Action Registry, January 2016, was used for on-road emissions of CH_4 and N_2O. These emissions results were used to calculate carbon dioxide equivalent (CO_2e).

Short-term and annual project emissions were estimated based on equipment and construction schedule assumptions developed from similar solar projects and using appropriate emission factors. The Association of Environmental Professionals (AEP) recommends that total construction GHG emissions resulting from a project be amortized over the project's estimated lifetime and added to GHG emissions (AEP 2010). Up to five employees may be required per project site during scheduled operation and maintenance activities. However, it is possible that the project would share personnel for each site thus reducing the project's on-

site operational staff. To provide a conservative estimate, off-site emissions were based on the maximum number of employees that would be traveling to the site in a single day to perform maintenance activities if each project site required its own personnel (i.e., 25 total employees). Refer to Appendix C-1, *Air Quality and Greenhouse Gas Study*, of this EIR for details on equipment fleet, hours of operation, vehicle miles traveled, and other assumptions used in this analysis.

Decommissioning Emissions

The project has a tentative life of 30 to 40 years. At which time the operations may be renewed and onsite technology updated, or, alternatively, the project may be decommissioned. As decommissioning activities would be similar to the construction activities (using the same types of equipment and same general activities), the quantified emissions from construction are used as a surrogate for decommissioning activities. However, it would be anticipated that the decommissioning activities would be reduced from those estimated for the construction activities as the efficiencies of the construction equipment and on-road vehicles would be consistent with the future decommissioning year, which would require full compliance with stringent emissions standards for heavy-duty construction equipment resulting in anticipated substantial reductions in emissions from what is presented for construction activities.

Indirect GHG Emissions Associated with Water Use

The use of water in California can involve substantial energy consumption, depending on the source of the water and the use location relative to the source. Major portions of the state rely on imported water from the State Water Project (California Aqueduct), the Central Valley Project, the Colorado River Aqueduct, the All-American Canal, and similar large-scale water distribution systems. Moving water across the state involves considerable energy consumption for pumping and delivering the water to the use location. The use of groundwater can involve substantial energy consumption to pump water from deep aquifers. In addition to the energy consumption associated with wholesale water supply, energy is consumed during local treatment for potable use and for local delivery. Most of the energy associated with water supply is provided by electricity, which is generated from a variety of sources, including fossil-fueled power plants that produce GHGs. Consequentially, the use of water for dust control and grading compaction during construction and photovoltaic panel washing during operations results in indirect GHG emissions.

The project may require water during construction for dust suppression. During operation the project would require water for solar PV panel washing and facilities at the O&M buildings. Based on the energy factors in CPUC's *Embedded Energy in Water Studies* (CPUC 2010a) and assuming minimal treatment and delivery, it was estimated that each acre foot of water requires 650 kilowatt-hours of electricity for project site delivery. The amount of GHG emissions associated with the 650 kilowatt-hours was conservatively based on the emissions profile for statewide average provided in the California Emissions Estimator Model (CalEEMod) (CAPCOA 2017).

Displaced Emissions

Operation of the project would create renewable energy over the planned 30- to 40-year project lifetime. This energy would displace GHG emissions that would otherwise be produced by existing power generation resources, including coal and natural gas/other non-renewables. The project has the capacity to generate approximately 530 MW of electricity at peak sun exposure. Annual energy generation was estimated based on solar radiation at the project site and annual operational time. Photovoltaic cell capacity is rated in terms

of mega or kilowatts and indicates the amount of instantaneous power produced when operating at peak sun exposure. Total amount of electricity produced in measured in watt-hours and is dependent on operational time. Operational time of a solar panel is defined by the amount of time that the photovoltaic cells are actively converting solar energy into power, which depends on solar radiation. Solar radiation is the measure of energy emitted from the sun and varies daily depending on the time of day, season, local landscape, and geography. Refer to Appendix C-1 of this EIR for detailed calculations related to the project's annual energy generation. The project is assumed to displace a fraction of existing current annual power generated by fossil-fuels. Displaced GHG emissions were estimated assuming that generated solar energy would displace energy generated from fossil fuels in the California market and does not include the approximate 30 percent of the California electricity generated by non-combustion sources (CEC 2018a).

Thresholds of Significance

The Kern County Environmental Checklist identifies the following criteria as established in Appendix G of the CEQA Guidelines to determine if a project could potentially have a significant adverse effect on GHG emissions.

A project would have significant impacts on GHG emissions if it would:

a. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or,

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Quantitative significance thresholds for this impact area have not been adopted by the State of California. A project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB AB 32 Scoping Plan is presumed to have less-than-significant GHG impacts.

In March 2012, EKAPCD adopted an addendum to their CEQA Guidelines to address GHG impacts, including quantitative thresholds for determining significance of GHG emissions when EKAPCD is the CEQA lead agency. In these circumstances, a project is considered to have a significant impact or cumulatively considerable impact if it exceeds the following criterion:

- Generate 25,000 metric tons or more of CO_2e per year

The above impact would be considered to be fully reduced to below the significance level if it meets one of the following conditions:

- The project demonstrates to EKAPCD that it is in compliance with a state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than the state plan; or

- Project GHG emissions can be reduced by at least 20 percent below business as usual through implementation of one or more of the following strategies:

    a) Compliance with a Best Performance Standard (BPS) as set forth in Section IV of EKAPCD;

b) Compliance with GHG Offset as detailed din Section VI of the EKAPCD CEQA GHG Policy; and/or

c) Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of the EKAPCD CEQA GHG Policy.

Project Impacts

Impact 4.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

The proposed project would generate GHG emissions directly and indirectly during construction, routine operational and maintenance activities, and decommissioning activities. The majority of emissions from the project would be generated during construction and decommissioning activities.

Construction and Decommissioning

Table 4.8-3, *Estimated Construction and Decommissioning Emissions of Greenhouse Gases*, presents total estimated emissions from construction activities from on-site and off-site emission sources by individual project site and as a combined project. Construction of the proposed project would require approximately 12 to 18 months of continuous construction involving several overlapping phases. To provide for a realistic and conservative estimate, construction was assumed to last for 15 months for the purposes of this analysis. The estimated total GHG emissions during project construction would be approximately 8,578 $MTCO_2e$ over the 15-month construction period. It was conservatively assumed that decommissioning of the project would use the same type and amount of equipment in a similar schedule to construction, therefore decommissioning of the project was estimated to generate an equivalent amount of emissions as construction. This is a conservative estimate because on-road vehicles and off-site equipment would continue to improve in fuel efficiency which has increasingly reduced emissions, as such decommissioning emissions in 30 years would likely be substantially lower than construction emissions. Note that although the project would be constructed to last up to 40 years, the project construction-generated emissions were amortized over 30 years to provide a conservative estimate. As shown in **Table 4.8-3**, *Estimated Construction and Decommissioning Emissions of Greenhouse Gases*, estimated construction and decommissioning emissions related to the project amortized over 30 years, the anticipated project lifetime, would be approximately 572 $MTCO_2e$ per year.

Table 4.8-3. Estimated Construction and Decommissioning Emissions of Greenhouse Gases

Year	Site Number	Construction Emissions ($MTCO_2e$)				
		Off-Road	On-Site Mobile	Off-Site Mobile	Water Use	Total
2021	1	99	0.5	125	5	229
	2	254	1.4	321	13	589
	3	171	1.0	216	9	397
	4	117	0.7	148	6	272
	5	67	0.4	84	4	155
	Subtotal	**708**	**3.9**	**895**	**36**	**1,642**
2022	1	513	1.6	452	2	968
	2	1,318	4.0	1,161	4	2,487
	3	889	2.7	784	3	1,678
	4	609	1.9	537	2	1,149
	5	346	1.1	305	1	654
	Subtotal	**3,675**	**11.2**	**3,239**	**12**	**6,937**
Total Construction		**4,383**	**15.1**	**4,133**	**48**	**8,578**
Construction and Decommissioning		**8,765**	**30**	**8,267**	**95**	**17,157**
Amortized Emissions (30-year life)		**292**	**1**	**276**	**3**	**572**

Source: Rincon 2021; see Appendix C-1.

Operation

Operation and maintenance of the project would generate GHG emissions largely through motor vehicle trips to and from the project site; on-site maintenance activities involving portable equipment and maintenance vehicles; and energy use associated with water consumption. **Table 4.8-4**, *Estimated Annual Operational Greenhouse Gas Emissions*, summarizes operational emissions associated with the project. As shown in **Table 4.8-4**, the project is estimated to emit 257 $MTCO_2e$ per year during operation. Off-site emissions from worker commutes account for approximately 85 percent of operational emissions. The total construction and decommissioning GHG emissions, amortized over 30 years, was added to the annual estimated operational emissions to estimate annual GHG emissions generated by the project. As shown in **Table 4.8-4**, *Estimated Annual Operational Greenhouse Gas Emissions*, the project would emit 829 $MTCO_2e$ per year, throughout the operational life of the project (assumed 30 years).

Additionally, the proposed on-site 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.

Table 4.8-4. Estimated Annual Operational Greenhouse Gas Emissions

Site Number	Operational Emissions (MTCO2e)				
	Off-Road	On-Site Mobile	Off-Site Mobile	Water Use	Total
1	<0.1	3	30	3	36
2	<0.1	7	78	7	92
3	<0.1	5	53	5	62
4	<0.1	3	36	3	43
5	<0.1	2	20	2	24
Subtotal	**<0.1**	**20**	**217**	**20**	**257**
Amortized Construction and Decommissioning Emissions	**292**	**1**	**276**	**3**	**572**
Annual Total	**292**	**21**	**493**	**23**	**829**
Annual Displaced GHG Emissions (MT/year)	**318,611**				
Net Annual GHG Emissions (MT/year)	**-317,782**				
Source: Rincon 2021; see Appendix C-1.					

Displacement of Greenhouse Gases

Operation of the project would generate renewable energy over the planned 30- to 40-year project lifetime, which would displace GHG emissions that would otherwise be produced by existing power generation resources. The project has the capacity to generate approximately 530 MW of electricity at peak sun exposure.

The project would generate approximately 1,480 gigawatt-hours (GWh) of solar-generated electricity each year that would be added to the power grid and be used in place of electricity generated by fossil-fuel sources. Based on the project's projected annual electricity generation and the GHG emissions generated due to fossil-fuel combustion to generate the same level of electricity, the project has the potential to displace 318,611 $MTCO_2e$ per year. Therefore, the net generation of annual GHG emissions would be -317,782 $MTCO_2e$, as shown in **Table 4.8-4**, *Estimated Annual Operational Greenhouse Gas Emissions*. As such, the project would not exceed the EKAPCD regional GHG threshold (25,000 $MTCO_2e$ per year) and would be consistent with state GHG reduction plans such as AB 32 and SB 32. Further, the project would result in an overall lifetime reduction of approximately 9,533,447 $MTCO_2e$ (i.e. 317,782 $MTCO_2e$ per year * 30 years = 9,533,447 $MTCO_2e$) and would therefore be regionally beneficial. Therefore, implementation of the proposed project would result in a less than significant impact associated with the generation of GHG emissions.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.8-2: The project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As discussed above, impacts were evaluated based on whether the project would be consistent with the State's applicable GHG reduction goals, plans, policies, and regulatory requirements as well as other federal, state, and local policies, as provided in the following analyses.

CARB Climate Change Scoping Plan

The proposed project is consistent with the AB 32 Scoping Plan strategies to increase the total amount of renewable energy sources consistent with the state's RPS requirements. The project would help the state meet this goal by generating up to 530 MW of power to California's current renewable portfolio. In addition, the project would not conflict with CARB's emission reduction strategies in the Scoping Plan. As the project would not exceed applicable GHG screening thresholds and would provide a GHG emissions benefit, the project would be consistent with the Scoping Plan's goal of achieving cost-effective emissions reductions while accelerating the transition to a low-carbon economy.

The project would comply with the strategies recommended by the State of California, the USEPA, and the Climate Change Scoping Plan, as shown in **Table 4.8-5**, *California Greenhouse Gas Emission Reduction Strategies*. In order to meet the AB 32 GHG emissions reduction mandate, the Climate Change Scoping Plan relies on achievement of the 100 percent RPS by 2045 as well as the other measures listed in **Table 4.8-6**, *Applicable Scoping Plan Strategies for Project*. These measures would primarily be those actions related to energy efficiency. A discussion of the consistency of the project with these measures is provided below. The project and other similar projects are essential to achieving the RPS. Further, as discussed previously, the project is reasonably expected to displace region-wide and Statewide emissions of GHGs over the expected life of the project.

Table 4.8-5. California Greenhouse Gas Emission Reduction Strategies

Strategy	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB enforced standards; vehicles that access the project and are required to comply with the standards would comply with these strategies.
Other Light Duty Vehicle Technology: New standards would be adopted to phase in beginning in the 2017 model.	
Heavy-Duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Project would be subject to State law.
Hydrofluorocarbon Reduction: (1) Ban retail sale of HFC in small cans; (2) Require that only low global warming potential refrigerants be used in new vehicular systems; (3) Adopt specifications for new commercial refrigeration; (4) Add refrigerant leak tightness to the pass criteria for vehicular Inspection and Maintenance programs; (5) Enforce federal ban on releasing HFCs.	This measure applies to consumer products. When CARB adopts regulations for these reduction measures, any products that the regulations apply to would comply with the measures.
Transportation Refrigeration Units (TRU), Off-Road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	Not applicable

Table 4.8-5, continued

Strategy	Project Design/Mitigation to Comply with Strategy
Manure Management: Reduction of volatile organic compounds from confined animal facilities through implementation of control options.	Not applicable
Alternative Fuels – Biodiesel Blends: CARB would develop regulations to require the use of one to four percent biodiesel displacement of California diesel fuel.	Not applicable
Alternative Fuels – Ethanol: Increased use of ethanol fuel.	Not applicable
Achieve 50 percent Statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a Statewide basis. Therefore, a two percent additional reduction is needed.	The project would comply with the 1989 California Integrated Waste Management Act and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended.
Zero Waste – High Recycling: Additional recycling beyond the State's 50 percent recycling goal.	The project would comply with the 1989 California Integrated Waste Management Act and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended.
Landfill Methane Capture: Install direct gas use or electricity projects at landfills to capture and use emitted methane.	Not applicable
Urban Forestry: A new Statewide goal of planting five million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	Not applicable
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	Not applicable
Water Use Efficiency: 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	Not applicable
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	The project would be consistent with State law.
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	The project would be consistent with State law.
Cement Manufacturing: Cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	Not applicable
Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	Not applicable

Table 4.8-5, continued

Strategy	Project Design/Mitigation to Comply with Strategy
Smart land use, demand management, ITS, and value pricing are critical elements for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	Not applicable
Enteric Fermentation: Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	Not applicable
Green Buildings Initiative: Green Building Executive Order, S-20-04 (CA 2005), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. Consistent with Mitigation.	Not applicable
California Solar Initiative: Installation of 1 million solar roofs or an equivalent 3,000 megawatts (MW) by 2017 on homes and businesses; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	The project would result in an electric power generating capacity of approximately 530 MW. Therefore, the project would help support and not conflict with this strategy.

Table 4.8-6. Applicable Scoping Plan Strategies for Project

ID #	Sector	Strategy Name
T-1	Transportation	Advanced Clean Cars
T-2	Transportation	Low Carbon Fuel Standard
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
W-1	Water	Water Use Efficiency
CR-1	Electricity and Natural Gas	Energy Efficiency
H-6	High GWP Gases	SF_6 Leak Reduction Gas Insulated Switchgear
Source: CARB 2014c		

Action T-1 relates to the Advanced Clean Cars program, in which the project's employees would purchase vehicles in compliance with the CARB vehicle standards that are in effect at the time of the vehicle purchase. In addition, as it related to Low Carbon Fuel Standards, under Action T-2, motor vehicles driven by the project's employees would use compliant fuels.

Action E-3 relates to renewable energy and the RPS, which is intended to increase California's renewable energy production to 20 percent by 2010, to 33 percent by 2020 and up to 100 percent by 2045, pursuant to SB 100. The CPUC estimates that the utilities are well-positioned to meet the 33 percent requirement by 2020 (California Energy Commission 2019). Utilities would also be required to meet the updated RPS goals of 60 percent by 2030, and 100 percent by 2045, pursuant to SB 100. A key prerequisite to reaching a target of 100 percent RPS would be to provide sufficient electric transmission lines to renewable resource zones and system changes to allow integration of large quantities of intermittent wind and solar generation. The project proposes a solar array with an electric power generating capacity of approximately 530 MW. Therefore, the project would be consistent with Action E-3.

Action E-4 aims to install 3,000 MW of solar energy capacity under the Million Solar Roofs Program. This measure would offset electricity from the grid, thereby reducing GHG emissions. By requiring greater energy efficiency for projects that seek solar incentives, the State would be able to reduce both electricity

and natural gas needs and their associated GHG emissions. The project would result in an electric power generating capacity of approximately 530 MW. Therefore, the project would not conflict with Action E-4.

Action W-1 relates to water use efficiency. The State is currently implementing targeted water use efficiency programs as part of an integrated water management effort. Consistent with this measure, the project will utilize water panel washing, equipment washing, non-sanitary uses, and other miscellaneous uses, such as landscaping obtained on site from existing wells or by truck. The water using during operation of the project would be used in an efficient manner to reduce impacts to local water resources.

Action CR-1 relates to energy efficiency in commercial and residential buildings. Also, Action CR-1 notes the need for more aggressive utility programs to achieve long-term energy savings. The project would result in the development of PV solar energy generating facilities that would provide renewable energy to California Investor-Owned utilities, which in turn would be used by commercial and residential buildings in the State. Therefore, the project is consistent with and would not obstruct Action CR-1.

Action H-6 relates to sulfur hexafluoride (SF_6) from leakage of gas insulated switchgear use in electricity transmission and distribution systems by setting limits on leakage rates and implement best management practices for the recovery and handling of SF_6. Consistent with this action, the project would comply with any and all applicable regulatory requirements for any SF_6 containing switchgear.

KCOG's 2018 RTP

The 2018 RTP incorporates local land use projections and circulation networks in city and county general plans. The 2018 RTP is not directly applicable to the project because the underlying purpose of the 2018 RTP is to provide direction and guidance by making the best transportation and land use choices for future development. Nevertheless, the project would not conflict with the goals and policies of the 2018 RTP. In addition, the project would not impact local transportation or land use during operation.

Other Federal/State/Local Policies

Table 4.8-7, *Project Consistency with an Applicable Plan, Policy, or Regulation for GHG Emissions*, evaluates project consistency with other applicable federal, State and local policies regarding GHG emissions. As shown in the table below, the project would fall below the annual emission triggers for compliance with federal regulations; therefore, federal regulations would not be applicable to the project. As a renewable energy project, the project would be exempt from State annual GHG reporting requirements and would be considered consistent with California's Emission Performance Standard and RPS requirements (described in Section 4.8.3, *Regulatory Setting*).

Table 4.8-7. Project Consistency with an Applicable Plan, Policy, or Regulation for GHG Emissions

Adopted Plan, Policy, or Regulation	Consistency Determination	Project Consistency
Federal		
40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.	Not applicable	The project would have direct CO_2e operating emissions that are well below the 25,000 ton/year rule trigger.
40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.	Not applicable	The project would have direct CO_2e operating emissions that are well below the 75,000 ton/year rule trigger.
State		
SB 1368. EPS Standard.	Consistent	The project, as a renewable energy generation facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368.
SB 351. 50% RPS Standard.	Indirectly consistent	This regulation is applicable to utilities, not generating facilities, but the energy from this project would help enable the utility buying the project's generation to comply with this legislation.
SB 100. 60% Standard by 2030 and 100% by 2045	Indirectly consistent	This regulation is applicable to utilities, not generating facilities, but the energy from this project would help enable the utility buying the project's generation to comply with this legislation.
AB 32. Annual GHG Emissions Reporting	Not applicable	The project, as a solar energy generation project, is exempt from the mandatory GHG emission reporting requirements for electricity generating facilities as currently required by the CARB for compliance with the California Global Warming Solutions Act of 2006 (AB 32 Núñez, Statutes of 2006, Chapter 488, Health and Safety Code Sections 38500 et seq.).
Local		
Kern County General Plan – Air Quality Element Policies Goals and Implementation Measures	Consistent	Air Quality Mitigation Measures would ensure that the project is consistent with the Kern County General Plan Air Quality Element Policies, Goals, and Implementation Measures that will indirectly reduce GHG emissions by reducing fossil fuel combustion.

Overall, because the main objectives of the project are to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goal of 1990 level GHG emissions by 2020 as required by AB 32 and the future reduction goal of 40 percent below 1990 levels by 2030, the project would be compliant with the applicable recommended actions of the CARB Climate Change Scoping Plan as well as applicable federal, State, and local policies. Specifically, the project would assist the State and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the 2030 and 2045 RPS, including the targets established under SB 100.

Consideration of Mitigation Measures

The Office of the California Attorney General maintains a website with a list of CEQA mitigation measures for global climate change impacts. The Attorney General has listed some examples of types of mitigation measures that local agencies may consider offsetting or reduce global climate change impacts from a project. The Attorney General assures that the presented lists are examples and not intended to be exhaustive, but instead provide measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General suggests that the lead agency should use its own informed judgment in deciding which measures it would analyze, and which measures it would require, for a given project.

The Attorney General suggests measures that could be undertaken or funded by a diverse range of projects, related to energy efficiency; renewable energy; water conservation and efficiency; solid waste measures;

land use measures; transportation and motor vehicles; and carbon offsets. However, most of the suggested measures from the Attorney General's office would not be applicable to the project, since they are more appropriate and applicable measures to reduce long-term operational GHG emissions, and the majority of emission sources from the project are short-term in nature. Long-term operational emissions would be minimal and more than offset by the renewable energy production.

The impacts of GHG emissions on climate change are indirect, climate change is a worldwide phenomenon, and project-level emissions cannot be correlated with specific impacts based on currently available science. However, based on the analysis above, the project would be consistent with California's strategies to reduce greenhouse gas emissions to the levels required by AB 32, as well as state GHG emission reductions post-2020. As a renewable energy project, the project would contribute to achieving the mandated emission reduction targets established by AB 32. Additionally, the project would comply with any applicable forthcoming regulations or requirements adopted under AB 32 or imposed by the State or federal government. Therefore, considering the project's minimal annual emissions and anticipated reduction in overall GHG emissions, the project is not expected to significantly contribute to global warming or climate change.

Furthermore, as the project would have an electric power generating capacity of approximately 530 MW, the project would be consistent with the Attorney General's recommended measures to reduce GHG emissions. Specifically, the project complies with the Attorney General's Recommended Measure to "Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning." Therefore, the project would be compliant with the Attorney General's Recommended Measure regarding renewable energy. Because the project is below regional regulatory thresholds and would result in a reduction of GHG emissions, no mitigation measures would be required.

SB 100 accelerated the state's RPS Program by increasing California's procurement of electricity from renewable sources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. The project would generate approximately 1,480 GWh of electricity each year or approximately 44,413 GWh over the project's 30-year lifetime. This additional solar-generated energy would be added to the power grid and used in place of electricity generated by fossil-fuel sources, and thus would directly support energy goals under SB 100 and the 2017 Scoping Plan Update. Replacement of fossil-fuel sources with renewable solar energy would also displace GHG emissions, ultimately off-setting any GHG emissions produced by construction, decommissioning, and operation of the project. Additionally, the project would be consistent with the County's General Plan goals and policies to encourage solar development to conserve fossil fuels and improve air quality. Therefore, the project would be consistent with state and regional plans to reduce GHG emissions. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Emissions of GHGs and their contribution to global climate change are considered a cumulative impact by definition. Therefore, the geographic extent of the project's cumulative area of impact would be worldwide.

The adopted CEQA Guidelines provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Quantitative significance thresholds for this impact area have not been adopted by the State of California. In addition, Kern County has not adopted quantitative thresholds for determining significance of GHG emissions at the time of this writing. However, EKAPCD has recently adopted an addendum to its CEQA Guidelines titled: "Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency." This addendum is the policy that EKAPCD will use when it is the lead agency for CEQA to determine the project-specific and cumulative significance of GHG emissions from new and modified stationary source (industrial) projects. Under this policy, a project is considered to have a cumulatively considerable impact if it generates 25,000 metric tons or more of CO_2e per year.

As shown in **Table 4.8-4**, *Estimated Annual Operational Greenhouse Gas Emissions*, the project would emit 829 $MTCO_2e$ per year, throughout the operational life of the project (assumed 30 years). In addition to these project GHG emissions, other cumulative projects in the Antelope Valley, identified in **Table 3-3**, *Cumulative Projects List*, in Chapter 3, *Project Description*, largely consist of utility-scale alternative power generation (i.e., solar and wind) facilities. The nature of these projects is such that, like the project, they would be consistent with the strategies of the Climate Change Scoping Plan. In order to meet the AB 32 GHG emissions reduction mandate, the Scoping Plan relies on achievement of the RPS target of 33 percent of California's energy coming from renewable sources by 2020 and 50 percent by 2030. As previously discussed, the RPS target was updated in September 2018 under SB 100 to 60 percent by 2030. The project and other similar projects are essential to achieving the RPS.

The main contribution of GHG emissions from the project would be from construction equipment usage during the construction phase and motor vehicles trips by employees and maintenance vehicles during project operations. The major source of GHGs in California is associated with transportation, contributing 41 percent of the state's total GHG emissions. The project's emissions would, therefore, contribute to the increase in emissions in the transportation sector. Construction emissions would be finite and temporary and would cease at the end of construction activities.

Although the project would result in a short-term contribution to cumulative GHG emissions in California, operation of the project would offset emissions from the electricity generation sector. It is estimated that the project would displace approximately 318,611 $MTCO_2e$ annually over the project's maximum 30-year lifespan (refer to **Table 4.8-4**, *Estimated Annual Operational Greenhouse Gas Emissions*). Therefore, the total GHG construction emissions associated with the project would likely be offset by less than one month of operations. Overall, the project would not contribute to cumulative GHG emissions in California because operation of the project would provide electric power with negligible operational GHG emissions over the long-term when compared to traditional fossil-fueled generation technologies. Thus, the project would not have a cumulatively considerable impact on global climate change, and cumulative impacts would therefore be less than significant.

CEQA Guidelines Section 15130 notes that sometimes the only feasible mitigation for cumulative impacts may be to adopt ordinances or regulations rather than impose conditions on a project-by-project basis.

Global climate change is this type of issue. GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. Causes and effects are not just regional or Statewide, they are worldwide. Because the project's operational GHG emissions would be offset and no mitigation is required, any other feasible reductions would be accomplished through CARB regulations adopted pursuant to AB 32. Cumulative impacts of the project on global climate change would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

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Section 4.9
Hazards and Hazardous Materials

4.9.1 Introduction

This section discusses the existing conditions and regulatory setting related to hazards and hazardous materials in the project area and describes the environmental setting for hazardous materials and waste, airports, and wildfire hazards. It also describes the project's potential impacts on residents and other sensitive receptors that could be exposed to potential hazards and/or hazardous materials and identifies mitigation measures where applicable. Information in this section is based primarily on the *Phase I Environmental Site Assessment* (Stantec 2020a) and the *Phase II Environmental Site Assessment* (Stantec 2020b) both prepared by Stantec and provided as Appendices I-1 and I-2, respectively, of this EIR. Additional information was obtained from publicly available databases including the Department of Toxic Substances Control's Envirostor and State Wosater Resources Control Board's Geotracker.

Since the preparation of the *Phase I and Phase II Environmental Site Assessments,* the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from 2,672 acres to 2,317 acres. The 15 percent reduction in project footprint associated with the proposed project would result in a 15 percent reduction of land disturbed during construction. The reduced development footprint reduces the project electrical generation capacity from 600 megawatts (MW) to 530 MW. Therefore, the following discussion that is based on the previous approximately 2,317-acre footprint represents the worst-case potential impacts related to hazards and hazardous materials, in particular, such conditions that may be currently unknown (i.e., such as buried unexploded ordnance).

4.9.2 Environmental Setting

This section discusses the existing conditions related to hazards and hazardous materials in the project area, and describes the environmental setting for hazardous materials and waste, airports, electromagnetic fields (EMFs), and wildfire hazards. Residences and other sensitive receptors such as schools are also described as their proximate location to the project site affects their exposure to the potential hazards described below. A description of the project site relative to hazards and hazardous materials can also be found below.

As described in Chapter 3, *Project Description*, the project includes the development of a solar facility and associated infrastructure necessary to generate up to a total of 530 MW of renewable electrical energy including associated energy storage on 2,317 acres of privately-owned land. The project consists of five sites and is comprised of 22 parcels. The project's permanent facilities would include service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, project substations, energy storage system(s), and operations and maintenance facilities. The energy would be ultimately transferred to the electrical grid via the Southern California Edison's (SCE) Holgate Substation.

Existing Setting

The project site is located in unincorporated southeastern Kern County in the vicinity of State Route 58 (SR 58) between Gephart Road on the west and the San Bernardino County line on the east. The project consists of five Sites (Sites 1 through 5) located on 22 parcels, totaling approximately 2,317 acres of undeveloped land. These parcels are largely contiguous; however, Sites 4 and 5 are bisected by SR 58. The unincorporated communities of Desert Lake and Boron lie adjacent to the north and east of the proposed development area.

The project site is bounded by Edwards Air Force Base to the south (Sites 1 to 4) and to the west (Site 3). The existing U.S. Borax open pit mine and refinery are located approximately 2 miles north of the project site, across SR 58. The Boron Sanitary Landfill is located between Sites 1 and 2. Several U.S. government-owned railway lines are present within Edwards Air Force Base, extending through Site 3 and continuing eastward along the northern perimeter of the project site into San Bernardino County. Additionally, the BNSF railway extends east-west through the surrounding community, running along the southern border of Site 4 and the northern border of Sites 2 and 3 eastward into San Bernardino County. A second BNSF line also extends northward from the community of Boron.

The nearest public airport to the project site is the California City Municipal Airport located approximately 18 miles to the northwest of the project site. The Kern County Airport Land Use Compatibility Plan (ALUCP) covers operations at the County's airports, as well as the Edwards Air Force Base. The project site is not located within any safety or noise zones for the California City Municipal Airport as discussed in the ALUCP.

Elevations within the project site range from approximately 2,542 feet above mean sea level (amsl) in the southeast corner to approximately 2,340 feet amsl in the southwest corner. The project site is relatively flat with some slight undulations in the western area; no steep slopes or hillsides are present on-site. Seven vegetation communities are present on-site including shrubland alliance (creosote bush - white bursage scrub); shrubland alliance (creosote bush scrub); shrubland alliance (white bursage scrub); shrubland alliance (spinescale scrub); shrubland alliance (allscale scrub); successional allscale - spinescale scrub; successional spinescale scrub; and woodland alliance (Joshua tree woodland).

Sites 1 to 5 are generally undeveloped lands; multiple dirt roads traverse the subject properties. Several burnt and largely destroyed buildings, along with a historic quarry, are present in the southwestern portion of the property within Site 2. A number of natural gas pipelines and associated valve stations are also present (Stantec 2020a).

According to the Fire Hazard Severity Zone (FHSZ) maps published by the California Department of Forestry and Fire Protection (CAL FIRE) and Kern County, the project site is not located within or near a State Responsibility Area (SRA) or lands classified as very high fire hazard severity zones. The project site is located outside of areas identified by CAL FIRE as having a substantial or very high risk for wildfire to occur. The project site is located within a local responsibility area (LRA) and is designated as LRA Moderate (KCFD 2009). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior.

Hazardous Materials and Waste

A hazardous material is any substance that, because of its quantity, concentration, or physical or chemical properties, may pose a hazard to human health and the environment. Under Title 22 of the California Code of Regulations (CCR), the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (22 CCR 11, Article 3). A hazardous material is defined as:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (22 CCR 66260.10).*

Various forms of hazardous materials can cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property. Hazards to human health and the environment can occur during production, storage, transportation, use, or disposal of hazardous materials.

Recognized Environmental Conditions

A Recognized Environmental Condition (REC) is a term used to identify environmental liability within the context of a Phase I ESA. The American Society for Testing and Materials (ASTM) defines an REC as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." "De minimis" conditions are minor occurrences of contamination that generally do not present a material risk to human health and would not likely be subject to enforcement action if brought to the attention of governmental agencies (ASTM 2013).

A Phase I Environmental Site Assessment (ESA) was conducted on the project site to review, evaluate, and document present and past land uses and practices, and visually examine site conditions in order to identify RECs. Based on the results of the Phase I ESA conducted, the following is a list of RECs identified in connection with the project site.

Site 1

Boron Sanitary Landfill. The Boron Sanitary Landfill, operated by Kern County Public Works Department, is located in the southeastern portion of the project site, in between Sites 1 and 2. Although the landfill is not a part of the project site, the project site boundaries nearly fully enclose the landfill facility. A historical release of volatile organic compounds (VOCs) occurred from the landfill operations during the 1990's which contaminated groundwater beneath the property. Groundwater monitoring has been performed since the discovery of the VOCs in groundwater. According to a 2018 groundwater sampling report for the landfill, the VOC compounds in shallow groundwater near the landfill have naturally attenuated to concentrations below the California Maximum Contaminant Levels (MCLs) (Stantec 2020a).

According to documents reviewed on the California State Water Resources Control online database Geotracker, no landfill gas collection system currently operates at this facility. However, landfill gas

monitoring is performed at vapor well locations surrounding the facility. According to the most recent monitoring report, no landfill gas (i.e. methane) was detected above action levels. Nonetheless, the presence of the landfill facility adjacent to the subject site is considered to be a REC.

Shooting Range. A shooting range was identified in the southeastern portion of the project site, within Site 1. The shooting range is approximately ¼-mile in length and contains multiple targets for small munitions (handgun and rifle). The accumulation of heavy metals from small munitions within shallow soils of the shooting range area are considered likely. Therefore, the shooting range is considered a REC.

Site 2

Historical Target Site PB-9. A historical target identified as "PB-9" was used by Edwards Air Force Base and is located along the southern boundary of Site 2. In 2012, the identification and removal of munitions debris and non-munitions related debris was performed in portions of the project site (Site 2). While munitions debris was found and removed, no munitions or explosives of concern (MEC) or materials potentially presenting an explosion hazard (MPPEH) have been found in Site 2 to date. In addition, environmental sampling performed within the vicinity of PB-9 reported no detectable levels of munitions constituents (MC) of concern above human health screening levels according to a letter report prepared for the site by BayWest (Stantec 2020b). A recommendation for no further action (NFA) was made to the State and Edwards Air Force Base in the Remedial Investigation/Feasibility Study (RI/FS) prepared for the PB-9 munitions response site in February of 2018. A response on the NFA had not been received as of January 2019 (Stantec 2020b). The historical target is considered a historical REC (HREC).

Sites 3 through 5

No RECs were identified on Sites 3 through 5.

Photovoltaic Solar Panels and Cadmium Telluride

Solar photovoltaic (PV) panels that would be installed on the project site are made from polycrystalline silicon or thin film technology. Polycrystalline silicon solar panels may include small amounts of solid materials that are considered to be hazardous. Because such materials are in a solid and non-leachable state, broken polycrystalline silicon solar panels would not be a source of pollution to surface water, stormwater, or groundwater. Polycrystalline silicon panels removed from the site (i.e., during project decommissioning) would be recycled or otherwise disposed at an appropriate waste disposal facility. In addition, the energy storage facility could include ion batteries containing chemical contents that are considered hazardous, as well as lead acid, sodium sulfur, and/or sodium or nickel hydride.

Although the specific type of solar PV modules has not been selected for the project, it is conceivable that the modules may utilize Cadmium Telluride (CdTe) thin film technology. The semiconductor layer in the CdTe modules is in the environmentally stable form of a compound rather than the leachable form of a metal. The CdTe compound is encapsulated in the PV module with the PV module containing less than 0.1 percent Cd content by weight. Due to optimal optical properties, only a 3-micron thin layer of CdTe is used to absorb incident sunlight, with Cd content per 8 square feet of solar PV module less than that of 1 C– size flashlight Nickel-Cadmium (NiCd) battery.

It has been demonstrated that standard operation of CdTe solar PV systems does not result in cadmium emissions to air, water, or soil. During the solar PV module manufacturing process, CdTe is bound under

high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment.

Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe solar PV modules. These studies have consistently concluded that during normal operations, CdTe solar PV modules do not present an environmental risk. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe solar PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. Additionally, the solar PV module manufacturer provides CdTe module collection and recycling services. Since 2005, the end-of-life CdTe solar PV modules are currently characterized as federal non-hazardous waste, and as a California-only hazardous waste. Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. CdTe solar PV modules are an article of commerce and are not classified as a hazardous material for shipping purposes under either federal and/or State law.

Human health risk assessments looking at the environmental, health, and safety aspects of both crystalline silicon and thin film CdTe PV technologies have been evaluated by the International Energy Agency, concluding that CdTe PV modules do not present a health risk in the event of exceptional accidents such as fire or breakage, with regards to their use of lead and cadmium compounds, respectively (P. Sinha et al. 2018 and P. Sinha et al. 2019).

Electromagnetic Fields

Electromagnetic fields (EMFs) are associated with electromagnetic radiation, which is energy in the form of photons. Radiation energy spreads as it travels and has many natural and human-made sources. The electromagnetic spectrum, the scientific name given to radiation energy, includes light, radio waves, and x-rays, among other energy forms. Electric and magnetic fields are common throughout nature and are produced by all living organisms. Concern over EMF exposure, however, generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems.

Commonly known human-made sources of EMF are electrical systems, such as electronics and telecommunications, as well as electric motors and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most environments, the levels of such radiation added to natural background sources are low (Massachusetts Clean Energy Center 2012).

Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs. Power frequency EMF is a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The California EMF Consensus Group's fact-finding process was open to the public, and its report incorporated public concerns. Its recommendations were filed with the CPUC in March 1992. Based on the work of the California EMF Consensus Group, written testimony, and

evidentiary hearings, CPUC's decision (93-11-013) was issued on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

> *"We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value."*

This continues to be the stance of the CPUC regarding standards for EMF exposure. Currently, the State has not adopted any specific limits or regulations regarding EMF levels from electric power facilities. However, the CPUC did adopt a policy that requires electric utilities operating within California agree to incorporate various measures into the construction of new or upgraded power lines and substations, and authorized each utility to develop and publish a set of "EMF Design Guidelines" implementing this policy. As a result, SCE published guidelines to reduce exposure of EMF from electrical utility transmission and distribution facilities. The proposed project is required to be designed to the published guidelines, including siting, construction, operation, and maintenance criteria.

In addition to transmission lines, the project proposes the construction of energy storage systems (ESS), consisting of battery storage modules placed in multiple prefabricated enclosures. The energy storage technology and design for the ESS has not been determined at this time, but could include any commercially available battery technology, including but not limited to lithium ion, lead acid, sodium sulfur, and sodium or nickel hydride. Either way, the energy storage would occur as direct current (DC) which produce static EMFs and has not been associated with adverse health effects.

Increase in Ambient Temperatures

All exposed surfaces (e.g., houses, cars, rocks) absorb heat produced by the sun. A "heat island" effect is generated when land is covered with structures (e.g., concrete buildings and asphalt roads) which absorb and store significantly more heat during the day than the undeveloped earth surface. Additionally, these developed areas are often filled with energy-consuming devices (e.g., engines, appliances, and heating, air-conditioning, and ventilation [HVAC] systems) that generate waste heat.

Solar arrays consist of PV panels mounted on aluminum and steel support structures, restricting sunlight from reaching the ground surface. Additionally, the amount of the sun's heat absorbed by a solar panel is similar to the amount of the sun's heat absorbed by open land. However, solar panels store less heat than the earth because they consist of a thin, lightweight glass that is surrounded by airflow. Therefore, heat dissipates quickly from a solar panel compared with solid earth, which dissipates heat slowly. The project would also include energy-consuming devices (e.g., inverters) that could generate marginal amounts of waste heat. There is nothing in the record to date that would indicate that the project would significantly increase ambient air temperatures outside the project site.

Fthenakis and Yu from Columbia University and Brookhaven National Laboratory combined models with field data to determine the extent to which PV facilities altered ambient air temperatures (Fthenakis and Yu 2013). Temperatures surrounding the facility were found to cool completely at night and the researchers determined that the PV facility "did not induce a day-after-day increase in ambient temperatures, and therefore, adverse micro-climate changes from a potential PV plant are not a concern". This study also

concluded that increases in temperatures completely dissipated approximately 5-18 meters above the facility and that thermal energy "promptly dissipated" with distance from the facility. Remote sensing research produced by Edalat and Stephen from UNLV in 2017 supports the conclusions of Fthenakis and Yu (2013), demonstrating that land surface temperatures surrounding a solar facility were not significantly impacted by the solar facility (Edalat and Stephen 2017).

Increased Noise

Noise from project construction would be temporary and would occur over a period of approximately 12 to 18 months. The ambient noise regime in the project vicinity consists of traffic traveling along SR 58 and train traffic operating along local railways. Sensitive receptors located in the project area consist predominantly of rural residential dwellings located at varying distances from the project site. The Desert Lake residential community is located within proximity to Sites 3 and 4. Other residences are located in Boron within proximity to Sites 1 and 2. Refer also to **Figure 4.12-2**, *Location of Sensitive Receptors Closest to Project Site*.

As discussed in Section 4.12, *Noise*, of this EIR, construction activities could cause periodic increases in ambient noise levels at the nearest sensitive receptors when compared to the relatively quiet environment in the project area. However, such increases would be temporary and would not substantially disrupt or otherwise adversely affect residential uses.

Hazardous Materials Transportation

The transportation of hazardous materials within the State of California is subject to various federal, State, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway that is not designated for that purpose, unless the use of a highway is required to permit delivery or the loading of such materials (California Vehicle Code, Sections 31602 (b) and 32104(a)). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Information on CHP requirements and regulatory authority is provided in Section 4.9.3, *Regulatory Setting*, below. According to Section 2.5.4 of the Kern County General Plan Circulation Element, SR 58 is designated as an adopted commercial hazardous materials shipping route.

Airports

The project site is not located within an area covered by the Kern County Airport Land Use Compatibility Plan. The nearest public airport to the project site is the California City Municipal Airport located approximately 18 miles northwest of the project site. As stated above, Edwards Air Force Base abuts the project site to the south and west; refer to **Figure 3-2**, *Project Site Boundaries*.

Fire Hazard Areas

The California Department of Forestry and Fire Protection (Calfire) requires counties within the State to develop fire protection management plans that address potential threats of wildland fires. The Kern County Wildland Fire Management Plan identifies federal, State, and local responsibility areas for the entire County to facilitate coordination efforts for fire protection services.

According to CalFire, Kern County Fire Hazards Severity Zone Maps for the Local Responsible Areas, the project site is classified as Local Responsibility Area (LRA) Moderate (California State Geoportal 2020). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. Impacts related to wildfire hazards are further discussed in Section 4.17, *Wildfire*, of this EIR.

4.9.3 Regulatory Setting

Federal

U.S. Environmental Protection Agency (EPA)

The U.S. Environmental Protection Agency (EPA) was established in 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The EPA's mission is to protect human health and to safeguard the natural environment – air, water, and land – upon which life depends. The EPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for using permits and for monitoring and enforcing compliance. Where national standards are not met, the EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

Federal Toxic Substances Control Act (TCSA)/Resource Conservation and Recovery Act (RCRA)/Hazardous and Solid Waste Act

The Federal Toxic Substances Control Act (TSCA; 1976) and the Resource Conservation and Recovery Act of 1976 established a program administered by the EPA to regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as "Superfund," was enacted by Congress on December 11, 1980. This law (42 United States Code [USC] 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enables revision of the National Contingency Plan (NCP). The NCP (Title 40, Code of Federal Regulations [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Clean Water Act/Spill Prevention, Control, and Countermeasure (SPCC) Rule

The Clean Water Act (CWA) (33 USC 1251 et seq., formerly known as the Federal Water Pollution Control Act of 1972) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of waters of the United States. As part of the CWA, the EPA oversees and enforces the Oil Pollution Prevention regulation contained in 40 CFR 112, which is often referred to as the "SPCC rule" because the regulations describe the requirements for facilities to prepare, amend, and implement spill prevention, control, and countermeasure (SPCC) plans. A facility is subject to SPCC regulations if a single oil storage tank has a capacity greater than 660 gallons, the total aboveground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon "Navigable Waters" of the United States.

Other Regulations

Other federal regulations overseen by the EPA relevant to hazardous materials and environmental contamination include 40 CFR Parts 100 to 149 -- Water Programs, 40 CFR Parts 239 to 259 – Solid Wastes, and 40 CFR Parts 260 to 279 – Hazardous Waste. These regulations designate hazardous substances under the CWA; determine the reportable quantity for each substance that is designated as hazardous; and establish quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration's (OSHA's) mission is to ensure the safety and health of U.S. workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs. OSHA standards are listed in 29 CFR 1910 and include requirements for the preparation of Health and Safety Plans (HASPs). HASPs identify potential hazards associated with a proposed land use and may identify appropriate mitigation measures if required. 29 CFR Section 1910.120(e) requires all employees working on sites potentially exposed to hazardous substances, health hazards, or safety hazards, as well as the supervisors and management responsible for the site to receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards.

National Weather Service

Under extreme fire weather conditions, the National Weather Service (NWS) issues Red Flag Warnings for all affected areas. A Red Flag Warning means that any ignition could result in a large-scale damaging wildfire. The project site is located in the NWS Los Angeles/Oxnard region. Red Flag Warning criteria for the Los Angeles/Oxnard region are as follows:

- Relative humidity of 15 percent or less with either sustained winds 25 miles per hour (mph) or greater or frequent gusts of 35 mph or greater (for duration of six hours or more);

- Relative humidity of 10 percent or less with 15 mph sustained winds or greater or frequent gusts of 25 mph or greater (for duration of six hours or more); and
- Relative humidity of 15 percent or less with 25 mph sustained winds (for duration of eight hours or more) (NWS 2012).

Federal Aviation Administration (FAA)

The FAA regulates aviation at regional, public, private, and military airports, such as Edwards Air Force Base. The FAA regulates objects affecting navigable airspace and structures greater than 200 feet in height according to Federal Aviation Regulations 14 CFR Part 77.13. The U.S. and California Departments of Transportation also require the operator to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration. According to 14 CFR Part 77.17, notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing adverse impacts on the safe and efficient use of navigable airspace. Any structure that would constitute a hazard to air navigation, as defined in FAA Part 77, requires issuance of a permit from California Department of Transportation's Aeronautics Program. The permit is not required if the FAA aeronautical study determines that a structure would not impact on air navigation.

As described in 14 CFR 77.13 (Construction or Alteration Requiring Notice), each sponsor who proposes any of the following construction or alteration scenarios shall notify the FAA in the form and manner prescribed in 14 CFR 77.17: (1) any construction or alteration of more than 200 feet in height above the ground level at its site; or (2) any construction or alteration of greater height than an imaginary surface extending outward and upward at one of the following slopes:

- 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport. These airports and heliports include: an airport that is available for public use and is listed in the Airport Directory of the current Airman's Informational Manual or in either the Alaska or Pacific Airman's Guide and Chart Supplement; an airport under construction, that is the subject of a notice or proposal on file with the FAA, and, except for military airports, it is clearly indicated that the airport will be available for public use; an airport that is operated by an armed force of the United States;
- 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport, with its longest runway no more than 3,200 feet in actual length, excluding heliports; and
- 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport.

Per 14 CFR 77.17, notification requirements including sending one executed form set (four copies) of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager, Air Traffic Division, FAA Regional Office, having jurisdiction over the area within which the construction or alteration will be located. The notice required must be submitted at least 30 days before the earlier of the following dates: (1) the date the proposed construction or alteration is to begin; or (2) the date an application for a construction permit is filed.

Additionally, the U.S. Air Force (USAF) implements FAA and Department of Defense (DoD) policy and guidance regarding Special Use Airspace and Airspace for Special Use through various instructions, processes, and organizations. The Air Force Flight Standards Agency, AF/A30, Headquarters Air Force

(HAF) Encroachment Management Working Group, major command (MAJCOM), and Unit Airspace Managers are responsible for identifying and evaluating projects that may adversely affect operations associated with military airfields, ranges, and airspace.

State

California Public Utilities Commission (CPUC) General Order 95 (GO 95): Rules for Overhead Electric Line Construction

Adopted in 1941 and updated most recently in 2012, GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines within the State of California. It was adopted in 1941 and updated most recently in 2012. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, and standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. The latter, governed by Rule 35, and inspection requirements, governed by Rule 31.2, are summarized below:

- GO 95: Rule 35, *Tree Trimming*, defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conduction of a line operating at 110,000 Volts or more, but at less than 300,000 Volts. This requirement would apply to the proposed 230 kilovolt (kV) lines.
- GO 95: Rule 31.2, *Inspection of Lines*, requires that lines be inspected frequently and thoroughly to ensure that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition so as not to create a hazard.

Power Line Hazard Reduction (PRC 4292)

Public Resources Code (PRC) 4292 requires a 10-foot clearance around any tree branches or ground vegetation at the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Project structures would be exempt primarily because of their design specifications.

Power Line Clearance Required (PRC 4293)

PRC 4293 provides guidelines for line clearance, including a minimum of 10 feet of vegetation clearance around any conductor operating at 110 kilovolts (kV) or higher.

Minimum Clearance Provisions (14 CCR 1254) and Exemptions (14 CCR 1255)

With respect to minimum clearance requirements, 14 CCR 1254 presents guidelines pertaining to nonexempt utility poles. Some utility poles are exempt under 14 CCR 1255; exemptions are determined by utility pole characteristics such as conductor continuousness and fire propagation potential. The project structures would be exempt from the clearance requirements, with the exception of cable poles and dead-end structures.

The firebreak clearances required by 14 CCR 1254 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from the minimum clearance requirements by the provisions of 14 CCR 1255 or PRC 4296. The radius of the cylindroid is 10 feet, which is measured horizontally from the outer circumference of the specified pole or tower, with the height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space would be treated as follows:

- At ground level: Remove flammable materials, including ground litter, duff, and dead or desiccated vegetation that would propagate fire.
- From 0 to 8 feet above ground level: Remove flammable trash, debris, or other materials, grass, and herbaceous and brush vegetation. Remove all limbs and foliage of living trees up to a height of 8 feet.
- From 8 feet to the horizontal plane of highest point of the conductor attachment: Remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

California Building Code, Section 608

Section 608 of the California Building Code includes requirements for battery energy storage systems greater than 20 kilowatt hours (kWh), which includes the proposed energy storage facilities. Section 608 includes requirements for vehicle impact protection, location, spacing between batteries, egress, security, and fire suppression systems.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step; they are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

A Hazardous Materials Business Plan (HMBP) must be submitted to the local Certified Unified Program Agency (the Kern County Public Health Services Department/Environmental Health Services Division) if the facility handles, uses, or stores a hazardous material or mixture containing a hazardous material that has a quantity equal to or greater than 55 gallons of liquid, 500 pounds of a solid substance, or 200 cubic feet of compressed gas, a hazardous compressed gas in any amount, or hazardous waste in any amount. A HMBP must include the following:

- Inventory of hazardous materials at a facility;
- Emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material; and

- Training for all new employees and annual training for all employees in safety procedures in the event of a release or threatened release of a hazardous material (California Governor's Office of Emergency Services 2011).

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to but more stringent than the federal RCRA program. The act is implemented by regulations contained in Title 26 CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the Department of Toxic Substances Control (DTSC).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Senate Bill 1082 (1993) created the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), which requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are as follows:

- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (i.e., Tiered Permitting);
- Aboveground Petroleum Storage Tank Program;
- Hazardous Materials Release Response Plans and Inventory Program (i.e., Hazardous Materials Disclosure or "Community-Right-To-Know");
- California Accidental Release Prevention Program (Cal ARP);
- Underground Storage Tank (UST) Program; and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses in complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA. The CUPA in Kern County is the Environmental Health Division of the Kern County Public Services Department.

California Environmental Protection Agency (Cal/EPA)

The Cal/EPA was created in 1991 and unified California's environmental authority in a single cabinet-level agency and brought the California Air Resources Board (CARB), State Water Resource Control Board (SWRCB), Regional Water Quality Control Board (RWQCB), CalRecycle, DTSC, Office of Environmental Health Hazard Assessment, and Department of Pesticide Regulation under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect, and enhance the environment and to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substances Control

DTSC, a department of Cal/EPA, is the primary agency in California for regulating hazardous waste, cleaning up existing contamination, and finding ways to reduce the amount of hazardous waste produced in the State. DTSC regulates hazardous waste primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

USC 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks or a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites with a known migration of hazardous waste/material.

California Office of Emergency Services (OES)

In order to protect public health and safety, and the environment, the California OES is responsible for establishing and managing Statewide standards for business and area plans relating to the handling and release, or threatened release, of hazardous materials. The OES requires that basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and health risks) be available on-site to firefighters, public safety officers, and regulatory agencies. Typically, this information is included in business plans in order to prevent or mitigate damage to the health and safety of persons and the environment from the release or threatened release of such materials into the workplace or environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code, Article 1—Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2—Hazardous Materials Management (Sections 25531 to 25543.3).

Title 19 CCR, Public Safety, Division 2, Office of Emergency Services, Chapter 4 - Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans)

establishes minimum Statewide standards for hazardous materials business plans. These plans must include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business is required to prepare a hazardous materials business plan if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance;
- 55 gallons of a liquid;
- 200 cubic feet of compressed gas;
- A hazardous compressed gas in any amount; or
- Hazardous waste in any quantity.

California Occupational Safety and Health Administration (Cal/OSHA)

Cal/OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

California Highway Patrol

A valid Hazardous Materials Transportation License, issued by the CHP, is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by State regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (14 CCR 6 [1] [1150–1152.10]). Inhalation hazards face similar, more restrictive rules and regulations (13 CCR 6 [2.5] [1157–1157.8]). Transportation of radioactive materials is restricted to specific safe routes.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the general and specific plans, including the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies pertaining to the avoidance of

hazards and adverse effects related to hazardous materials. The policies, goals, and implementation measures in the Kern County General Plan related to hazards and hazardous materials that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan for hazards and hazardous materials applicable to the project are provided below.

Chapter 1. Land Use, Open Space and Conservation Element

1.3. Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries and property damage, and minimize economic and social diseconomies resulting from natural disaster by directing development to areas that are not hazardous.

Policy

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes 2.6–2.9 and Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in an unmitigated significant impact.

Chapter 2. Circulation Element

2.5.4 Transportation of Hazardous Materials

Transportation-related accidents and spills of hazardous materials pose a serious threat to the traveling public and nearby sensitive land uses. Transportation of hazardous materials poses a short-term threat to public health.

Goal

Goal 1: Reduce risk to public health from transportation of hazardous materials.

Policies

Policy 1: The commercial transportation of hazardous material[s], identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2: Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Implementation Measure

Measure A: Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 4. Safety Element

4.2 General Policies and Implementation Measures, Which Apply to More than One Safety Constraint

Implementation Measure

Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency, shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.9 Hazardous Materials

Policy

Policy 2: Innovative technologies to manage hazardous waste streams generated in Kern County will be encouraged.

Implementation Measure

Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.

Chapter 5. Energy Element

5.4.5. Solar Energy Development

Policy

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Chapter 9. Seismic and Safety Element

Objective

Objective 9.3: Protect the community from human-caused hazards related to air and ground transportation, hazardous materials, and other human activities.

Policy

Policy 9.3.2: Ensure that hazardous materials used in business and industry are properly handled and that information on their handling and use is available to fire protection and other safety agencies in accordance with the Fire Code.

Kern County Multi-Hazard Mitigation Plan

The latest Kern County Multi-Hazard Mitigation Plan was developed in 2006. The plan was developed by a Hazard Mitigation Planning Committee and identifies goals, objectives and actions pertaining to mitigating impacts from identified natural hazards. The public at large had an opportunity to comment prior to the completion of the plan's final draft. The Federal Emergency Management Agency (FEMA) realizes the importance of mitigation planning and offers incentives to communities that develop one. By following FEMA guidelines for approval of this plan, Kern County can be eligible for grant funding intended for mitigation projects.

Kern County Wildland Fire Management Plan

The Kern County Fire Department (KCFD) Wildland Fire Management Plan documents the assessment of wildland fire situations throughout the State Responsibility Areas (SRAs) within the County. The Kern County Fire Department Wildland Fire Management Plan provides for systematically assessing the existing levels of wildland protection services and identifying high-risk and high-value areas that are potential locations for costly and damaging wildfires. The goal of the plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Based on this assessment, preventive measures are implemented, including the creation of wildfire protection zones.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2019 California Fire Code and the 2018 International Fire Code with some amendments made to more specifically address conditions in Kern County. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release, and/or explosion due to handling of dangerous and hazardous materials; conditions hazardous to life or property in the occupancy and use of buildings and premises; the operation, installation, construction, and location of attendant equipment; and the installation and maintenance of adequate means of egress. It also provides for the issuance of permits and collection of fees related to such activities (Kern County 2019).

Kern County Fire Department (KCFD) Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March 2018, is the current document that assesses the wildland fire situation throughout the SRA within Kern County. The document includes stakeholder contributions and priorities and identifies strategic targets for pre-fire solutions as defined by the people who live and work in the local area. The plan provides a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. The

plan gives an overview of KCFD battalions and ranks these areas in terms of priority needs, as well as identifying the SRA areas. According to the plan, 69 percent of the land area within Kern County is located within a SRA. The County is divided into six fuel management areas: Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley. The project site is located within Battalion 1 (Tehachapi), which lies within a moderate fire hazard severity zone within the Tehachapi fire plan management area (KCFD 2018).

Fire Prevention Standard No. 503-507 Solar Panels

The KCFD Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The Standard is implemented in accordance with the 2019 County Fire Code and is an official interpretation of the Kern County Fire Marshal's Office. The Standard outlines installation requirements for photovoltaic ground-mounted and roof-mounted solar panels. Ground-mounted solar panel requirements identified by this Standard address water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD 2019).

Kern County Public Health Services Department/Environmental Health Services Division

The Kern County Public Health Services Department/Environmental Health Services Division/Hazardous Materials Section is the CUPA for the project area, which provides site inspections of hazardous materials programs (above ground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans, and the California Fire Code). This Department also provides emergency response to hazardous materials events, performing health and environmental risk assessment and substance identification.

Kern County and Incorporated Cities Hazardous Waste Management Plan

In response to the growing public concern regarding hazardous waste management, State Assembly Bill 2948 enacted legislation authorizing local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within the local government's jurisdiction.

The Kern County and Incorporated Cities Hazardous Waste Management Plan (Hazardous Waste Plan) was first adopted by Kern County and each incorporated city before September 1988 and was subsequently approved by the State Department of Health Services. The Hazardous Waste Plan was updated and incorporated by reference into the Kern County General Plan in 2004 as permitted by Health and Safety Code Section 25135.7(b), and thus must be consistent with all other aspects of the Kern County General Plan.

The Hazardous Waste Plan provides policy direction and action programs to address current and future hazardous waste management issues that require local responsibility and involvement in Kern County. In addition, the Hazardous Waste Plan discusses hazardous waste issues and analyzes current and future waste generation in the incorporated cities, county, and State and federal lands. The purpose of the Hazardous Waste Plan is to coordinate local implementation of a regional action to effect comprehensive hazardous waste management throughout Kern County. The action program focuses on development of programs to

equitably site needed hazardous waste management facilities; to promote on-site source reduction, treatment, and recycling; and to provide for the collection and treatment of hazardous waste from small-quantity generators. An important component of the Hazardous Waste Plan is the monitoring of hazardous waste management facilities to ensure compliance with federal and State hazardous waste regulations.

Kern County Zoning Ordinance

The Kern County Zoning Ordinance provides regulations regarding maximum permitted heights, both within specific zone districts and in districts with the H (Airport Approach Height) Combining District. The purpose of the H Combining District is to minimize aviation hazards by regulating land uses, restricting the height of buildings and vegetation, and specifying design criteria necessary to promote aviation safety. Structure height is restricted to prevent aesthetic impacts and to provide privacy for neighboring properties. Height limits are also established for structures within the Joint Service Restricted R-2508 Complex (which is part of a Special Use Airspace) that require written concurrence from the military authorities responsible for operations in the area.

4.9.4 Impacts and Mitigation Measures

Methodology

The methodology for determining impacts related to hazardous materials focuses on (1) potentially significant impacts related to the routine transport, use, or disposal of hazardous materials and the release of hazardous materials into the environment; and, (2) project components that could result in environmental contamination.

The methodology for determining impacts relating to wildland fires focuses on the fire severity potential at the project site and on surrounding lands based upon existing State and local maps and land characteristics.

Thresholds of Significance

As established in Appendix G of the CEQA Guidelines, the Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria to determine if a project would potentially have a significant adverse effect related to hazards and hazardous materials.

The project could have a significant impact related to hazards and hazardous materials if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would 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, 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, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or

h. Generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste.

   Specifically, would the project exceed the following qualitative threshold:

   The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:

   i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

   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.

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in Appendix A of this EIR, that the proposed project would not result in significant impacts to some of these environmental issue areas, and that no further analysis would be required in the EIR. Thus, the following issue areas are scoped out of further analysis in this EIR:

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.

The Kern County Airport Land Use Compatibility Plan (ALUCP) covers operations at the Edwards Air Force Base, which borders the project site to the west and south. The nearest public airport to the project site is the California City Municipal Airport located approximately 18 miles northwest of the project site. The project site is not located within any safety or noise zones for the California City Municipal Airport. Due to the nature of the proposed land use, impacts from air traffic hazards or excessive aircraft noise are not anticipated to occur for people residing or working in the project area with respect to the project's proximity to an airport. Therefore, impacts would be less than significant, and no further analysis is warranted in the EIR.

h. Generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste.

   Specifically, would the project exceed the following qualitative threshold:

   The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:

   i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

   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.

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.

Project Impacts

Impact 4.9-1: The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction

The proposed project, including the solar PV facility and gen-tie connection, would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. Most of the hazardous waste generated by the project would occur during the construction period and would consist of liquid waste, including cleaning fluids, dust palliative, herbicides, and solvents. Some solid hazardous waste, such as welding materials, may also be generated during construction. These materials would be transported to the project site during construction, and any hazardous materials that are produced as a result of the construction of the project would be collected and transported away from the site for disposal in an approved off-site waste disposal facility. During project construction, material safety data sheets for all hazardous materials present on-site would be made readily available to on-site personnel to ensure awareness and proper handling in accordance with required BMPs as part of a Stormwater Pollution Prevention Plan (see Section 4.10, *Hydrology and Water Quality*). Workers would be trained to properly identify and handle all hazardous materials.

During construction, non-hazardous construction debris would also be generated and would be disposed of off-site in an approved local landfill. Sanitary waste would be managed using portable toilets located at a reasonably accessible on-site location. As discussed in Section 4.16, *Utilities and Service Systems*, Mitigation Measure MM 4.16-1 would require debris and waste generated during construction to be recycled to the extent feasible during construction, operation, and decommissioning and designation of a Recycling Coordinator to facilitate recycling of all waste through coordination with the on-site contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes.

Overall, the relatively limited use of hazardous materials, and subsequent transport and disposal of such materials during construction, would be controlled through compliance with applicable regulations including the Kern County and Incorporated Cities Hazardous Waste Management Plan and other measures to limit releases of hazardous materials and wastes (see further discussion of best management practice (BMP) requirements in Section 4.10, *Hydrology and Water Quality*, of this EIR). Fuels and lubricants used on field equipment would be subject to a Material Disposal and Solid Waste Management Plan and a SPCC plan. The disposal of all oils, lubricants, and spent filters would occur in accordance with applicable local, State, and federal regulations. Recyclable materials including wood, shipping materials, and metals would be separated as feasible for recycling. Liquids and oils in the transformer and other equipment would be used in accordance with applicable regulations. As such, project construction is not anticipated to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant.

Operation

Operation and Maintenance (O&M) activities associated with a PV solar facility are minimal compared to those for conventional power plants and would require limited use of hazardous materials. Those that would be used would be stored on-site in designated, secured areas. The perimeter of each of the project sites (Sites 1 to 5) would be fenced to prevent public access to any hazardous materials and/or the solar PV panels on-site.

Operational activities would be limited to monitoring facility performance and conducting scheduled or emergency maintenance of on-site electrical equipment and/or the gen-tie line. No heavy equipment would be routinely used during normal project operation. O&M vehicles would include trucks (i.e., pickup, flatbed), forklifts, and/or loaders for routine and unscheduled maintenance, as well as water trucks for solar panel washing. Large heavy-haul transport equipment and cranes may be brought to the project site when needed for equipment repair or replacement. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations. Solar panels are warranted for 25 years or longer and typically have an operating life of 30 or more years. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter ventilation equipment, would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary. The project would also include operational and maintenance protocols that would be used to identify and remove damaged or defective PV solar modules during annual inspections. Implementation of Mitigation Measure MM 4.9-1 which requires the preparation of a Hazardous Materials Business Plan that would ensure that all handling, storage, and disposal of hazardous materials associated with project operation would be conducted in accordance with standard practices to minimize potential exposure of workers or the public.

As described above in the Environmental Setting regarding CdTe thin film modules, CdTe is generally bound to a glass sheet by a vapor transport deposition during the manufacturing process, followed by sealing the CdTe layer with a laminate material, and then encapsulating it in a second glass sheet. It has been

demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil. The modules meet rigorous performance testing standards demonstrating durability in a variety of environmental conditions. The PV modules with CdTe thin film technology conform to the International Electrotechnical Commission (IEC) test standards IEC 61646 and IEC61730 PV as tested by a third-party testing laboratory certified by the IEC. In addition, the PV modules also conform to Underwriters Laboratory (UL) 1703 a standard established by the independent product safety certification organization. In accordance with UL 1703, the PV modules undergo rigorous accelerated life testing under a variety of conditions to demonstrate safe construction and monitor performance. During normal operations, CdTe PV modules do not present an environmental risk. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis et al 2003). The project includes operational and maintenance protocols that would be used to identify and remove damaged or defective PV modules during annual inspections. The PV module manufacturer created the first global and comprehensive module collection and recycling program in the PV industry in 2005. Therefore, the use of a CdTe PV system would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during normal operations.

Environmental risks of both crystalline silicon and thin film CdTe PV technologies have been evaluated by the International Energy Agency, using U.S. Environmental Protection Agency (USEPA) fate and transport methods for potential emissions to air, water, and soil from non-routine events such as fire and field breakage. Based on comparisons with USEPA health screening levels, crystalline silicon and thin film CdTe PV technologies do not present a health risk in the event of fire or breakage, with regards to their use of lead and cadmium compounds, respectively (P. Sinha et al., 2018 and P. Sinha et al., 2019).

Project operations would require the use of transformer oil at the project substation(s) and the energy storage facility could contain battery acids, as well as lead acid, sodium sulfur, and sodium or nickel hydride. All transformers would be equipped with spill containment areas and battery storage would operate in accordance with OSHA requirements such as inclusion of ventilation, acid resistant materials, and spill response supplies. All components would have a comprehensive SPCC plan, in accordance with all applicable federal, State, and local regulations. Dust palliatives and herbicides, if used during operations to control vegetation, may be transported to the project site. These materials would be stored in appropriate containers to prevent accidental release. In addition, implementation of Mitigation Measure MM 4.9-1 would require preparation of a Hazardous Materials Business Plan that would describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill; such requirements would further reduce impacts related to hazards to a less-than-significant level.

Further, implementation of the project would not result in the significant risk of EMFs associated with overhead power lines, as each facility would interconnect into an existing Holgate Substation. To the extent commercially feasible, the project intends to utilize previously approved and/or existing interconnection facilities associated with other generating and transmission projects to minimize potential environmental impacts. In addition, the project would not construct sensitive uses under the existing lines but would adhere to applicable CPUC requirements on location of any gen-tie lines or gen-tie connections. As the State has

not adopted any specific limits or regulations regarding EMF levels from electric power facilities, impacts in this regard would be less than significant.

Decommissioning

During the decommissioning process, it is anticipated that all project structures would be fully removed from the ground. Above-ground equipment that would be removed would include the PV solar panels, electrical wiring, equipment on the inverter pads, and the interconnection transformer pad and associated equipment. Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site. Removal of the PV solar modules would include removal of the racks on which the solar panels are attached, and their placement in secure transport crates and a trailer for storage, for ultimate transportation to an approved off-site disposal facility. Once the PV solar modules have been removed, the racks would be disassembled and the structures supporting the racks would be removed. All other associated site infrastructure would be removed, including fencing/gates; concrete pads that may support the inverters, transformers, and related equipment; and underground conduit/electrical wiring, and all materials would be recycled to the extent feasible. The affected land area would be thoroughly cleaned and all debris removed and properly disposed of off-site. As discussed above, the majority of the panel materials would be recycled, thereby resulting in minimal disposal of solid waste in area landfills, consistent with applicable regulations.

It is anticipated that the PV solar module manufacturer would provide CdTe module collection and recycling services. Current CdTe solar PV modules are constructed to pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, which means they would not pose a significant risk for cadmium leaching if they were to be disposed of in a landfill. As noted above, several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV solar modules. CdTe releases are unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe solar PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. Studies indicate that unless the solar PV module is purposefully ground to a fine dust, use of CdTe in PV solar modules do not generate emissions of CdTe (Fthenakis 2003 and Fthenakis et al., 2020). Such studies have consistently concluded that use of CdTe solar PV modules do not present an environmental risk.

In the case of both crystalline silicon and thin film CdTe PV technology, a national PV module recycling network has been established by the U.S. Solar Energy Industry Association (SEIA) for providing module collection and recycling services: https://www.seia.org/initiatives/seia-national-pv-recycling-program.

As described in Section 4.16, *Utilities and Service Systems*, Mitigation Measure MM 4.16-1 requires that an on-site recycling coordinator be designated by the project proponent to facilitate recycling of all waste through coordination with the on-site contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. The on-site recycling coordinator shall also be responsible for ensuring that wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal. The name and phone number of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits. Given that the normal use and disposal of CdTe solar PV modules would not present an environmental risk, project decommissioning would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Implementation of Mitigation Measure MM 4.16-1 would further reduce impacts related to hazards to less than significant.

Mitigation Measures

Implementation of Mitigation Measure MM 4.16-1 would be required (refer to Section 4.16, *Utilities and Service Systems*, for full mitigation measure text).

MM 4.9-1 During the life of the project, including decommissioning, the project operator shall prepare and maintain a Hazardous Materials Business Plan, as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System at http://cers.calepa.ca.gov/ for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section.

a. The Hazardous Materials Business Plan shall:

   1. Delineate hazardous material and hazardous waste storage areas;

   2. Describe proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials;

   3. Describe methods to be used to avoid spills and minimize impacts in the event of a spill;

   4. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction;

   5. Establish public and agency notification procedures for spills and other emergencies including fires; and

   6. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site.

b. The project proponent/operator shall provide the Hazardous Materials Business Plan to all contractors working on the project and shall ensure that one copy is available at the project site at all times.

c. A copy of the approved Hazardous Materials Business Plan shall be submitted to the Kern County Planning and Natural Resources Department prior to issuance of a building permit.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and MM 4.16-1, impacts would be less than significant.

Impact 4.9-2: The project would 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.

Construction

Construction of the project may result in temporary hazards related to the transport and use of hazardous materials, including those used for construction vehicle use and maintenance (i.e., diesel fuel, motor oil, etc.), construction waste, components of construction materials (i.e., cement), or other such materials. Mitigation Measure MM 4.9-1, as described above, would be implemented to reduce the potential for impacts related to the accidental release of hazardous materials into the environment to a less-than-significant level.

Although not anticipated, nearby sensitive receptors could also be exposed to pollutant emissions during project construction, resulting in a potentially significant impact. An adverse risk related to public exposure to hazardous materials could result from the grading of the site, the application of herbicides, or other construction processes because of the proximity between the sensitive receptors and the project site. Implementation of Mitigation Measure MM 4.9-2, which would regulate the use of herbicides on-site, would reduce such potential impacts on sensitive receptors to less than significant.

Additionally, to further address the potential for the project to create a significant hazard to the public or the environment involving the release of hazardous materials into the environment during construction, Mitigation Measure MM 4.16-1 would be implemented to require that an on-site recycling coordinator be designated by the project proponent to facilitate recycling of all waste through coordination with the on-site contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. The on-site recycling coordinator would be responsible for ensuring that wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal. The name and phone number of the coordinator would be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits. Implementation of Mitigation Measure MM 4.16-1 would further reduce impacts related to hazards to a less-than-significant level.

As noted above, the Phase I ESA prepared for the subject site identified the following RECs on the project site and/or in the immediate vicinity:

Site 1

Boron Sanitary Landfill. The Boron Sanitary Landfill, operated by Kern County Public Works Department, is located in the southeastern portion of the project site, between proposed Sites 1 and 2. Although the landfill is not a part of the project site, the project site boundaries nearly fully enclose the landfill facility. During the 1990's, a historical release of volatile organic compounds occurred from landfill operations which contaminated groundwater beneath the property. Groundwater monitoring has been performed since the discovery of the VOCs in the underlying groundwater table. According to a 2018 groundwater sampling report for the landfill, the VOC compounds in shallow groundwater near the landfill have naturally attenuated to concentrations below the California Maximum Contaminant Levels (MCLs) (Stantec 2020a).

According to documents reviewed on the California State Water Resources Control online database Geotracker, no landfill gas collection system currently operates at this facility. However, landfill gas

monitoring is performed at vapor well locations surrounding the facility. According to the most recent monitoring report, no landfill gas (i.e. methane) was detected above action levels (Stantec 2020a).

In May 2020, the presence of methane, oxygen, carbon monoxide, and balance gases were field screened at 2 locations in close proximity to the Boron Landfill to investigate if soil vapor conditions have been affected from this facility. The findings of the soil vapor borings determined that oxygen levels ranged from 19.1 to 19.8 percent by volume (% vol); carbon monoxide readings were detected at 0.0 parts per million by volume (ppmv); and methane content was detected at 0.0 % vol (Stantec 2020b). Due to the lack of methane detected in the soil vapor screening points, it is not anticipated that methane has encroached from the Boron Landfill onto the subject site. Therefore, no further investigation regarding this issue is required or recommended.

Shooting Range. A shooting range was identified in the southeastern portion of the project site, within Site 1. The shooting range is approximately ¼-mile in length and contains multiple targets for small munitions (handgun and rifle). The accumulation of heavy metals from small munitions within shallow soils of the shooting range area are considered likely. Therefore, the shooting range is considered a REC and may pose a potential hazard to the public or the environment, resulting in a significant impact.

In May 2020, 8 shallow soil borings were undertaken at the site (Stantec 2020b). The testing results indicated that copper, lead, and nickel were detected above the laboratory reporting limit in all soil samples collected within the shooting range area. However, all detected levels of these compounds were reported within typical California regional background levels, and below commercial-use screening criteria. Additionally, no VOCs were detected in the soil sample collected at location B6 where chemical odors were- observed (Stantec 2020b). Based on these results, no further investigation regarding the shooting range in Site Area 1 is required or otherwise recommended. The site is not anticipated to create a significant hazard to the public or the environment. Impacts are considered less than significant.

It was noted that multiple areas of soil and other debris dumping were observed near the property boundary south of the shooting range. As such, removal of the materials within the property boundary prior to development was recommended. This was identified as a de minimis condition, and therefore, does not represent a potentially hazardous condition that would result in a significant impact or require implementation of mitigation measures. Impacts in this regard would be less than significant.

Site 2

Historical Target Site PB-9. As indicated above, historical target site identified as "PB-9" was used by Edwards Air Force Base and was located along the southern boundary of Site 2. The historical target site is considered a HREC and may therefore pose a potential hazard to the public or the environment, thereby potentially resulting in a significant impact.

In 2012, the identification and removal of munitions debris and non-munitions related debris was performed in portions of Site 2. While munitions debris was found and removed, no MEC or MPPEH have been found in Site Area 2 to date. Environmental sampling performed within the vicinity of PB-9 reported no detectable levels of munitions constituents of concern above human health screening levels. A recommendation for no further action (NFA) was made to the State and Edwards Air Force Base (Stantec 2020a). A response on the NFA recommendation has not yet been received (Stantec 2020b).

As such materials, if encountered, may pose a significant hazard to the public or the environment as the result of release of hazardous materials. Although no MEC or MPPEH has been found on Site 2, it was

recommended that, at a minimum: 1) all site workers should be given UXO awareness training prior to commencement of construction activities; 2) proper procedures to be implemented in the event that MEC or MPPEH are encountered should be identified; and, 3) that qualified UXO technicians should be present for any ground disturbing activities occurring within 1,000 feet of historical PB-9 site (Stantec 2020b). Based on such recommendations, an UXO Construction Support Plan (CSP) was subsequently prepared relative to investigative geotechnical testing that was to be performed on-site. The CSP included the above three recommendations, in addition to other guidance, for construction support.

To ensure that potential hazards pertaining to Site 2 are minimized to the extent feasible, it was recommended that the CSP be modified, as needed, to address future ground disturbance activities that would occur during development of the solar facility (Stantec 2020b). In addition, it was recommended that an inquiry into the status of the NFA recommendation previously made to the State and Edwards Air Force Base be conducted, and that the previous Remedial Investigation/Feasibility Study (February 2018) identifying the NFA recommendation be reviewed for completeness (Stantec 2020b). Mitigation Measure MM 4.9-3, therefore requires that such actions take place prior to any project-related ground disturbance. With implementation of Mitigation Measures MM 4.9-3, potential impacts resulting in a potential significant hazard to the public or the environment relative to historical target site PB-9 would be reduced to less than significant.

Operation

The routine transport, use, and disposal of hazardous materials can result in hazards to the public through the potential for accidental release. Such hazards are typically associated with certain types of land uses, such as chemical manufacturing facilities, industrial processes, waste disposal, and storage and distribution facilities.

Operation of the proposed project is not anticipated to produce hazardous waste. The PV solar modules and inverters would not produce hazardous waste during operation. Each enclosed transformer at the substation would include mineral oil; however, secondary containment would be provided in accordance with applicable federal, State, and local laws and regulations. The mineral oil contained in each transformer does not normally require replacement, and the disposal of such mineral oil would occur in accordance with applicable federal, State, and local laws and regulations.

As discussed above, standard operation of polycrystalline silicon PV solar systems does not result in pollution emissions to air, water, or soil. Polycrystalline silicon panels removed from the project site would be recycled or otherwise disposed of at an appropriate off-site waste disposal facility. Hazardous materials are unlikely to occur during accidental breakage of the polycrystalline silicon solar PV panels. Similarly, fire damage would not result in the release of hazardous materials. The polycrystalline silicon PV solar panels therefore do not pose a hazardous threat to nearby residences in surrounding communities relative to the release of hazardous materials.

Regarding thin film CdTe PV technology, CdTe releases are unlikely to occur from accidental breakage of or fires involving PV solar modules. CdTe is a highly stable semiconductor compound due to strong chemical bonding that translates to extremely low solubility in water, low vapor pressure, and a melting point greater than 1,000 ˚C. Potential impacts to soil, air, and groundwater quality from broken CdTe PV solar modules are highly unlikely to pose a potential health risk as they are below both human health screening levels and background levels (Sinha et al. 2011).

Potential CdTe emissions from fire are unlikely to occur at the project site because of the lack of fuel to support a sustained wildfire. Grass fires are the most likely fire exposure scenario for ground-mounted solar PV solar systems, and these fires tend to be short-lived due to the thinness of grass fuels. As a result, these fires are unlikely to expose solar PV solar modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe, which has a melting point of 1,000 ˚C. Moreover, even if a desert wildfire could reach that temperature, the actual CdTe emissions from a PV solar module would be insignificant (~0.04 percent) due to encapsulation in the molten glass matrix (Fthenakis et al. 2003).

Potential CdTe emissions from broken solar PV modules exposed to precipitation are also unlikely. Based on warranty return data, the breakage rate of CdTe solar PV solar modules is low, one percent over 25 years, which translates to an average of 0.04 percent per year. This breakage rate is an overestimate because over one third of solar PV module breakage occurs during shipping and installation. Modules that break during shipping and installation are removed from the construction site and returned to a manufacturing facility for recycling. Even if the CdTe semiconductor layer becomes exposed to the environment, it strongly resists being released from the PV solar module into the environment, and CdTe has a low solubility in water.

The CdTe solar PV modules would not pose a threat to nearby residences. The use of CdTe PV solar modules at the project site would not result in human exposure of cadmium. Available research further substantiates that during operation, CdTe solar PV modules do not pose a threat to human health or the environment due to its construction (Sinha et al. 2011). Under a worst-case scenario to estimate potential exposures to CdTe compounds in soil, air or groundwater, it has been shown that exposure point concentrations in soil, air, and groundwater are one to six orders of magnitude below human health screening levels and below background levels, indicating that it is highly unlikely that exposures would pose potential health risks to on-site workers or off-site residents.

Operational environmental risks for both crystalline silicon and thin film CdTe PV technologies have been evaluated by the International Energy Agency, concluding that they do not present a health risk in the event of exceptional accidents such as fire or breakage, with regards to their use of lead and cadmium compounds, respectively (P. Sinha et al., 2018 and P. Sinha et al., 2019).

In addition, hazardous materials associated with the energy storage facility (i.e., batteries) would be contained in conformance with specifications that follow applicable federal, State, and local requirements. Adherence to OSHA requirements for the inclusion of appropriate ventilation, acid resistant materials, and presence of spill protection supplies would further reduce the potential for significant hazard to the public or the environment.

Routine removal and/or maintenance of on-site vegetation may require the use of pesticides and herbicides during project operation. If not handled properly, use of these products could create a hazard to the public (maintenance workers, on-site employees, and/or nearby residents), resulting in a potentially significant impact. Implementation of Mitigation Measure MM 4.9-2 would reduce impacts related to the use of pesticides and herbicides to a less than significant level.

Project operation would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. The nearest designated routes for the transport of hazardous materials are SR 58 and SR 14. Adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would minimize the potential for adverse health effects or public exposure to occur.

Overall, adherence to local, State, and federal regulations as well as standard protocols during the storage, transportation, and usage of any hazardous materials during project operation, combined with implementation of Mitigation Measure MM 4.9-1, would reduce potential impacts to less than significant.

Decommissioning

The decommissioning process is described under Impact 4.9-1, above. The majority of materials from the PV solar panels would be recycled to the extent feasible, requiring minimal disposal of solid waste in local landfills, consistent with applicable regulations. Based on current manufacturing conditions, CdTe solar PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, and therefore would not pose a significant risk for cadmium leaching if they were disposed of in a landfill. Additionally, batteries within the proposed on-site energy storage facility would also be recycled to the extent feasible, thereby requiring minimal disposal of related wastes in local landfills. However, as such activities may create a significant hazard to the public from the release of hazardous materials into the environment, a significant impact may occur.

Implementation of Mitigation Measure MM 4.16-1 would require that an on-site recycling coordinator be designated by the project proponent to facilitate recycling of all waste through coordination with the on-site contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. The on-site recycling coordinator would also be responsible for ensuring that wastes requiring special disposal are handled in accordance with applicable State and County regulations in effect at the time of disposal. The name and phone number of the coordinator would also be required to be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits. Implementation of Mitigation Measure MM 4.16-1 would reduce impacts related to hazards in this regard to less than significant.

Gen-Tie

The Phase I ESA prepared for the project did not identify any RECs on lands affected by the proposed improvements for the gen-tie route. The gen-tie would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. Construction, operation, and decommissioning of the gen-tie would be subject to applicable federal, State, and local laws and regulations during construction and operation, including those regulations that relate to the handling and disposal of hazardous materials. Mitigation Measure MM 4.9-1 would be implemented to reduce potential impacts to less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 (see Section 4.1, *Aesthetics,* for full mitigation measure text) , MM 4.16-1 (see Section 4.16, *Utilities and Service Systems,* for full mitigation measure text).

MM 4.9-2 During project construction and operation, the project proponent/operator shall continuously comply with the following:

a. The construction contractor or project personnel shall use herbicides that are approved by the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Personnel applying herbicides shall have all appropriate State and local herbicide

applicator licenses and comply with all State and local regulations regarding herbicide use.

b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions.

c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife.

d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water.

e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

f. A written record of all herbicide applications on the site, including dates and amounts shall be furnished to the Kern County Planning and Natural Resources Department.

MM 4.9-3 Prior to the issuance of grading permits or commencement of any ground disturbance activities with Site 2 (CUP 1, Map 209-01; CUP 7, Map 208-06), which contains Historical Target Site PB-9, the project proponent shall prepare and implement a Construction Support Plan to address future ground disturbance on or near Historical Target Site PB-9. A copy of the Construction Support Plan shall be provided to Edwards Airforce Base and the Kern County Planning and Natural Resources Department. Measures identified in the Construction Support Plan shall include, but may not be limited to:

a. All site workers shall be given unexploded ordinance awareness training by a U.S. Department of Defense Explosives Safety Board Technical Paper 18 qualified unexploded ordnance technician as part of the safety program. This training shall focus on the munitions items that have previously been identified and associated with the site, including the condition they are likely to be found in.

b. Identification of proper notification procedures in the event that munitions are recovered during project ground disturbing activities. In the event a munitions item is recovered, notification procedures identified in the unexploded ordnance awareness training shall be implemented and employees shall "Recognize, Retreat, and Report" the munitions item. The initial report shall be provided to the California Highway Patrol office in Bakersfield, California at phone number (661) 396-6600. The California Highway Patrol shall make notification to the Edwards Air Force Base Explosive Ordnance Disposal unit.

c. Any ground disturbance activities occurring within 1,000 feet of the historical PB-9 target shall include construction support by a minimum of two U.S. Department of Defense Explosives Safety Board Technical Paper 18 qualified unexploded ordnance technicians to allow for real-time surveillance of ground disturbing activities and an

immediate assessment of anomalous debris. Compliance with this measure shall be verified by the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3 and MM 4.16-1, impacts would be less than significant.

Impact 4.9-3: The project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

The West Boron Elementary School is located approximately 0.30 mile north of Site 3. The majority of hazardous waste generated by the project would occur during the construction period and would consist of liquid waste, including cleaning fluids, dust palliative, herbicides, and solvents. Some solid hazardous waste, such as welding materials, may also be generated during construction.

As discussed above, the fuels and lubricants used on field equipment would be subject to the County's requirement for preparation of a Material Disposal and Solid Waste Management Plan and SPCC plan, as well as other measures to limit potential releases of hazardous materials and wastes. Liquids and oils in the transformers and other equipment would be used in accordance with applicable regulations. The disposal of oils, lubricants, and/or spent filters would occur in conformance with applicable regulations including the requirements of licensed receiving facilities. Overall, the relatively limited use of hazardous materials and subsequent transport and disposal of such materials during construction would be controlled through compliance with applicable regulations including the Kern County and Incorporated Cities Hazardous Waste Management Plan. Impacts in this regard would be less than significant.

Site 2 (Historical Target Site PB-9) is distanced from the elementary school and would be buffered by the proposed solar panel field. In the event that UXO is identified during project ground disturbing activities, the removal of such materials would occur in accordance with recommendations made in the Construction Support Plan and applicable local, State, and federal regulations pertaining to the handling and disposal of such materials. The other RECs identified were determined not to pose a potential hazard. Therefore, it is not anticipated that any of the sites identified would pose a significant risk to occupants of the school from the emission or handling of hazardous materials or waste.

Additionally, the project would be a solar energy generation facility having solar PV panels and the gen-tie line to generate and transfer electricity and would not involve handling acutely hazardous materials, substances, or waste as a part of day-to-day operations. In addition, compliance with federal, State, and local regulations would be required during project construction, operation, and decommissioning activities. In this context, the project would not emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school that would pose a substantial risk to public health or safety. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-4: The project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

The project site is not identified in any of the California hazardous materials databases. Searches were completed for the subject parcels in the following hazardous materials lists: Cal/EPA's Cortese List including the California Department of Toxic Substances and Control's EnviroStor database of hazardous substances release sites; and Geotracker, the California database of leaking underground storage tanks (DTSC 2020; SWRCB 2020).

One site is erroneously identified in the Geotracker database as being within the project boundaries. The site is listed as Edwards Air Force Base - Military Clean-up Site [(Edwards Air Force Base -7 - AOC 371 (DOD100133200)]. As this site is identified as being on the military base, it can be inferred that the location is improperly mapped, as the project site lies outside of the boundaries of the Edwards Air Force Base. According to Geotracker, military clean-up sites "include sites that are located on existing military bases or those which are to be transferred. Military cleanup sites include a wide range of discharges, but are primarily regulated under RCRA/CERCLA standards by each of the nine Regional Water Quality Control Boards" (SWRCB 2020). The site is listed as inactive as of April 6, 2010, with no regulatory oversight activities being conducted, and no potential contaminants of concern identified (SWRCB 2020). Due to such conditions, this site is not considered to pose a significant hazard to the public or the environment.

Therefore, the project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. A significant hazard to the public or the environment would not result in this regard. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-5: The project would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

The proposed project would not physically impede an existing emergency response plan, emergency vehicle access, or personnel access to the project site. The project site is located in an area with several alternative roadways allowing access in the event of an emergency. As required by routine and standard construction specifications administered by Kern County, access would be maintained throughout construction, operation, and decommissioning phase and appropriate detours would be provided in the event of potential road closures. Therefore, no significant impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan would occur during project construction.

The limited size of the project's operational work force would not generate significant traffic volumes during an emergency evacuation scenario that could complicate area-wide emergency evacuation efforts. Driveways built to connect to existing local roads for direct site access would not affect designated emergency evacuation routes, as these are small local streets, and the driveways would not conflict with potential evacuation routes for surrounding land uses. Proposed amendments to the County General Plan Circulation Element to remove section and mid-section line road reservations within the project boundaries would not affect any existing roadways or planned evacuation routes. Additionally, proposed amendments to the County General Plan Circulation Element to remove section and mid-section line road reservations would not affect existing roadways or any existing or planned evacuation routes.

Therefore, the project would not impair the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-6: The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Refer also to Section 4.17, *Wildfire*, for additional discussion. According to the Fire Hazard Severity Zone (FHSZ) Map for Kern County prepared by CAL FIRE, the project site is not located in or near State Responsibility Areas or lands classified as high or very high hazard severity zones (CalFire 2007). According to the CalFire, Kern County Fire Hazards Severity Zone Maps for the Local Responsible Areas (LRA), the project site is classified as LRA Moderate (KCFD 2009). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. However, there is still a potential risk of wildfire.

The project site supports sparse vegetation and site preparation would involve the removal of additional vegetation. The creosote bush community which makes up the majority of the vegetation on-site is not considered to have a high flammability potential because the shrubs are too sparse to carry fire; however, the foliage of creosote bush, which contains resin, is considered to be flammable (USFS 2018).

The project site is not located within an urbanized area. However, residential development is present in the project vicinity, as the community of Boron lies directly to the north of Sites 1 and 2, and the community of Desert Lake lies directly to the north and east of Sites 3 and 4. Therefore, a potential wildfire event on-site could occur within the proximity of area residences and structures.

The project components would be constructed of various flammable materials [i.e., solar PV panels, O&M building(s)] and/or would be electrified (i.e., substation(s), collector lines, gen-tie line) and may therefore have the potential to exacerbate fire risk. Additionally, the project includes on-site energy storage (batteries) which, while generally burn with difficulty, can burn or become damaged by fire and generate fumes and gases that are corrosive. Dry chemical, carbon dioxide (CO_2), and foam are the preferred methods for

extinguishing a fire involving batteries, as water is not effective in battery fires. Class D extinguishers are used for lithium-metal fires only. To further increase safety, the battery units are usually low voltage, encased in a steel enclosure, and are distanced from combustible materials on-site. They are typically constructed with a thermal management system that includes coolant pumps, fans, and a refrigerant system to maintain cool temperatures within the unit.

Common sources of fires within the desert environment are most often lightning strikes or vehicle exhausts. With regard to the proposed project, there is the potential for lightning to hit the collection system or energy storage facility, potentially causing a wildfire. The use of vehicles during project construction or operation may also increase fire risk due to the driving of heated mufflers and possibly scraping of loose metal pieces over vegetated areas which could cause a spark. Such conditions may result in a slight increase in the risk of wildfire ignition.

As discussed in Section 4.13, *Public Services*, Mitigation Measure MM 4.13-1 would require the project proponent to develop and implement a Fire Safety Plan that identifies notification procedures and emergency fire precautions consistent with the 2019 California Fire Code and Kern County Fire Code for implementation during project construction, operation, and decommissioning. Implementation of this plan would ensure that potential impacts related to installation or maintenance of project infrastructure are minimized. The plan would be submitted to the Kern County Fire Department for review and approval and would require that project construction and maintenance personnel be trained and equipped to extinguish small fires on-site, thus reducing the potential risk of damage from and/or spread of wildfire. The Fire Safety Plan would also address potential fire hazards for the various components of the project, including the energy storage system, and would include measures for fire suppression and extinguishment techniques if a fire were to occur.

Additionally, the proposed on-site energy storage systems would be situated internally to the project site, with access from a primary fire apparatus roadway, and would be separated from each other per setback requirements identified in the California Building Code, Section 608. Ongoing project maintenance and 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.

In a wildfire event, it is anticipated that any employees occupying the site during project construction or operation would be rapidly evacuated in conformance with applicable County evacuation directives put in place. Such measures would ensure that the exposure of project occupants to the risk of injury or death from wildfire would be minimized to the extent feasible. Similarly, local residents would be evacuated from the surrounding communities as needed to ensure public safety.

While construction, operation, or decommissioning of the PV solar facility and gen-tie are not anticipated to significantly increase the risk of wildfire, Mitigation Measure MM 4.13-1 (see Section 4.13, *Public Services*) would be implemented to require the development and implementation of a Fire Safety Plan for construction, operation, and decommissioning of the project. Although impacts would be less than significant without mitigation, Mitigation Measure MM 4.13-1 would further reduce the potential for the project to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Impacts would be reduced to less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.13-1 (refer to Section 4.13, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.13-1, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Solar Facility

As described in Chapter 3, *Project Description*, multiple projects, including utility-scale solar and wind energy production facilities, are proposed throughout Kern County. Similar to the project, many are located in the Antelope Valley and Mojave Desert. As shown in **Table 3-3**, *Cumulative Projects List*, approximately 26 solar energy and non-solar projects are proposed and/or are currently being processed within Kern County. The geographic scope of impacts associated with hazardous materials generally encompasses the project site and a 0.25-mile-radius around the project sites. A 0.25-mile-radius area allows for a conservative cumulative analysis that ensures that all potential cumulative impacts will be assessed. Similar to other potential impacts, such as those related to geology and soils, risks related to hazards and hazardous materials are typically localized in nature since they tend to be related to on-site existing hazardous conditions and/or hazards caused by a project's construction or operation. A geographic scope of a 0.25-mile-radius area also coincides with the distance used to determine whether hazardous emissions or materials would have a significant impact upon an existing or proposed school, as discussed above.

Impacts regarding the handling, use, and/or storage of hazardous materials would be project-specific and would therefore not be anticipated to contribute to a cumulative impact. An accident involving a hazardous material release during project construction, operation, or decommissioning through upset or accident conditions including site grading or excavation, or the use and transport of petroleum-based lubricants, solvents, fuels, batteries, herbicides, and pesticides to and from the project site would be location-specific. Conformance with existing local and State regulations, as well as project safety design features and the implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3 and MM 4.16-1 would further reduce the project's potential to contribute to a significant cumulative impact. In addition, it is anticipated that the implementation of appropriate standard safety measures during project construction and operation and other cumulative projects would further reduce potential impacts to a level that would not contribute to cumulative effects. Given the minor risks of hazards at the project site, it is not anticipated that the project would contribute to a significant cumulative impact. Therefore, impacts would not be cumulatively significant.

Hazardous materials typically used during construction, operation, and decommissioning and removal activities would be of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials. Potentially hazardous effects from minor spills or drips would be avoided by thoroughly properly cleaning up such spills as soon as they occur in adherence with local and State regulations. While foreseeable cumulative projects would have the potential to cause similar impacts, it is assumed these projects would also

implement similar BMPs to reduce the potential for hazardous effects to result. Project conformance with existing federal, State, and local regulations, as well as implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3 and MM 4.16-1, would further reduce the potential for the project to contribute to a significant cumulative impact. In addition, implementation of appropriate safety measures during construction, operation, and decommissioning of the project, as well as for other cumulative projects, would be anticipated to reduce potential impacts to less than significant. Therefore, impacts related to the use of hazardous materials would not be cumulatively considerable.

As stated, the project site (Site 3) lies approximately 0.30 mile south of the West Boron Elementary School. The majority of hazardous waste generated by the project would occur during the construction period and would consist of liquid waste, including cleaning fluids, dust palliative, herbicides, and solvents, or in the form of solid hazardous waste (i.e., welding materials). Other cumulative projects would be expected to generate similar hazardous materials during the construction phase. Additionally, other cumulative projects would be evaluated for proximity to existing or proposed schools, and if appropriate, would implement mitigation measures based on project conditions, to reduce the potential for adverse effects on schools or the public; none of the cumulative projects identified in **Table 3-3**, *Cumulative Projects List*, are within 0.25 mile of the West Boron Elementary School. With conformance to local, State, and federal requirements for the handling and use of any hazardous materials, substances, or waste during project construction, operation, or decommissioning, the project's contribution to a cumulative impact in this regard would be less than significant.

As discussed above, the fuels and lubricants used on field equipment would be subject to the County's requirement for preparation of a Material Disposal and Solid Waste Management Plan and SPCC plan, as well as other measures to limit potential releases of hazardous materials and wastes. Liquids and oils in the transformers and other equipment would be used in accordance with applicable regulations. The disposal of oils, lubricants, and/or spent filters would occur in conformance with applicable regulations including the requirements of licensed receiving facilities. Overall, the relatively limited use of hazardous materials and subsequent transport and disposal of such materials during construction would be controlled through compliance with applicable regulations including the Kern County and Incorporated Cities Hazardous Waste Management Plan. The project's contribution to a significant cumulative impact in this regard would be less than significant.

Additionally, as noted, several RECs have been identified relative to the project site. Mitigation measures would be implemented to ensure that potential hazards to the public or environment relative to these sites would be reduced to less than significant. All cumulative projects identified would similarly be evaluated for the presence of documented hazardous sites, either on-site or off-site, having the potential to create a significant hazard to the public or the environment. As such, it is not anticipated that the project would result in a significant cumulative impact in this regard, as such conditions would be more site-specific and would be reduced to less than significant with mitigation, The project's cumulative impacts in this regard are considered less than significant with mitigation incorporated.

The project would not have the potential to impair implementation of, or physically interfere with, an adopted response plan or emergency evacuation plan. Access on local roadways would be maintained at all times during project construction, operation, and decommissioning, and the project as designed would not remove or restrict emergency access in the short-or long-term. Other cumulative projects would be evaluated on a project-specific basis for their potential to affect local roadways and/or emergency routes in the area and would be required to provide measures to avoid or minimize any potential adverse effects,

consistent with State and local regulations that may apply. Cumulative impacts in this regard are considered to be less than significant.

Due to the nature of the proposed utility improvements, the project would have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. While the PV solar facility is not anticipated to significantly increase the risk of wildfire, Mitigation Measure MM 4.13-1 would be implemented to require development and implementation of a Fire Safety Plan for project construction, operation, and decommissioning activities. Similarly, other cumulative projects would be evaluated for their specific location pertaining to wildfire risk, in addition to project characteristics and/or operations that may increase the risk of wildfire events or resulting damage. All cumulative projects, similar to the proposed project, would be subject to State and local regulations intended to avoid or minimize the risk of wildfire occurrence, and mitigation measures would be incorporated as needed. Although impacts resulting with construction, operation, and decommissioning of the proposed project would be less than significant without mitigation, Mitigation Measure MM 4.13-1 would be implemented to further reduce the potential for the project to contribute to a significant cumulative impact relative to wildfire. Nevertheless, given the location in a rural area and limited infrastructure, the project and related projects would have the potential to result in a cumulative impact from the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. As such, the project, in combination with other related projects, could result in a significant and unavoidable cumulative impact in this regard.

Gen-Tie

Construction or decommissioning of the gen-tie could potentially release hazardous materials into the environment; however, such a release would not result in combined impacts if the same event were to occur at another site. Operation of the gen-tie is not anticipated to generate hazardous waste. The gen-tie would be subject to applicable federal, State, and local laws and regulations during construction, operation, and decommissioning activities relative to the transport, use, or disposal of hazardous materials. Implementation of Mitigation Measures MM 4.9-1 to MM 4.9-2, MM 4.13-1, and MM 4.16-1 would reduce the potential for the project to contribute to a significant cumulative impact pertaining to hazards, as such measures would reduce project impacts to less than significant. Therefore, project impacts related to hazards and hazardous materials would not be cumulatively considerable.

As stated above, the gen-tie is not anticipated to impair implementation of, or physically interfere with, an adopted response plan or emergency evacuation plan. Access on local roadways would be maintained at all times during gen-tie construction, operation, and decommissioning, and the project as designed would not remove or restrict emergency access in the short-or long-term. Other cumulative projects would be evaluated on a project-specific basis for their potential to affect local roadways and/or emergency routes in the area and would be required to provide measures to avoid or minimize any potential adverse effects, consistent with State and local regulations that may apply. As such, the gen-tie is not anticipated to contribute to a significant cumulative impact relative to impairment of or physical interference with an adopted response plan or emergency evacuation plan.

Construction, operation, and decommissioning of the proposed gen-tie would require minimal ground disturbance and vegetation removal. Such activities would not significantly increase the risk of wildfire. However, Mitigation Measure MM 4.13-1 would be implemented to require development and implementation of a Fire Safety Plan to reduce the potential for wildfire occurrence or resulting damage. Similarly, other cumulative projects with electrical transmission lines would be evaluated for their specific location pertaining to wildfire risk, in addition to project characteristics and/or operations that may increase

the risk of wildfire events or spread. All cumulative projects, similar to the proposed project, would be subject to State and local regulations intended to avoid or minimize the risk of wildfire occurrence, and mitigation measures would be incorporated as needed. Although impacts resulting with construction, operation, and decommissioning of the proposed gen-tie would be less than significant without mitigation, Mitigation Measure MM 4.13-1 would be implemented to further reduce the potential for the project to contribute to a significant cumulative impact relative to wildfire. Nevertheless, given the location in a rural area and limited infrastructure, the project and related projects would have the potential to result in a cumulative impact from the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires affected by electrical power transmission lines. As such, the project, in combination with other related projects, could result in a significant and unavoidable cumulative impact in this regard.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 through MM 4.9-3, MM 4.13-1, and MM 4.16-1 (see Sections 4.13-1, *Public Services*, and 4.16, *Utilities and System Services*, for full text).

Level of Significance after Mitigation

Cumulative impacts involving wildland fire hazards would be significant and unavoidable.

With implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, MM 4.13-1, and MM 4.16-1, cumulative impacts would be reduced to less than significant.

Section 4.10
Hydrology and Water Quality

4.10.1 Introduction

This section of the EIR describes the affected environment and regulatory setting relating to hydrology and water quality for the proposed project. It also describes the impacts associated with hydrology and water quality that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable. The information and analysis in this section is largely based on the *Aratina Solar Hydrology Report* prepared by Woodard & Curran (Woodard & Curran 2020) located in Appendix J of this EIR.

Since the preparation of the *Aratina Solar Hydrology Report* and the *Aratina Solar Project Water Supply Assessment*, the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from 2,672 acres to 2,317 acres. The 15-percent reduction in project footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction. The reduced development footprint reduces the project electrical generation capacity from 600 megawatts (MW) to 530 MW. This section reflects the revised project acreage.

4.10.2 Environmental Setting

Regional Setting

The project site is located in the northern region of the Mojave Desert Basin (Basin), which is defined by surrounding mountain ranges that help create its generally dry conditions. The Basin contains numerous mountain ranges that create valleys, closed drainage basins, salt pans, and seasonal saline lakes when precipitation is high enough. Most of the Basin's valleys are internally drained, resulting in a closed system where all precipitation that falls within the valley does not eventually drain to the ocean. The project site is located in the Antelope Valley.

Antelope Valley Hydrologic Unit (No. 626.00-626.80)

The project site is located in the Antelope Valley Watershed within the South Lahontan Hydrologic Region. The Antelope Valley Watershed spans the Los Angeles/Kern County Line. It covers 1,220 square miles in Los Angeles County, 2,006 square miles in Kern County, and 143 square miles in San Bernardino County. The Basin does not outlet to the Pacific Ocean. Instead, stream flows pond in the dry lakes in Edwards Force Base. The three dry lakes are Rosamond Lake, Buckhorn Lake, and Rogers Lake, which are all located southwest of the project area. Water that ponds in the dry lakes typically evaporates rather than infiltrating since the dry lakes are very impervious and have high evaporation rates. The South Lahontan Hydrologic Region spans 33,100 square miles, covering 21 percent of California's surface area (Appendix J of this EIR).

The Lahontan Regional Water Quality Control Board (RWQCB) has identified beneficial uses for the minor surface waters in the Antelope Valley Watershed. Beneficial uses include municipal and domestic supply, agricultural supply, groundwater recharge, non-contact and contact water recreation, commercial and sport fishing, warm freshwater habitat, cold freshwater habitat and wildlife habitat. The beneficial uses for minor wetlands in the watershed are municipal and domestic supply, agricultural supply, groundwater recharge, noncontact and contact water recreation, commercial and sport fishing, warm freshwater habitat, cold freshwater habitat and wildlife habitat, flood peak attenuation, and water quality enhancement (LRWQCB 1995-2019).

Climate

The proposed project is located within the unincorporated communities of Boron and Desert Lake in Kern County, California. In Boron, the average annual precipitation is 5.4 inches with most of the rainfall occurring between the months of November and March. In January, the temperature ranges from 31 degrees Fahrenheit (ºF) to 70ºF with an average temperature of 48ºF. In July, the temperature ranges from 59ºF to 105ºF with an average temperature of 82ºF (Appendix J of this EIR).

Site Hydrology

Surface Hydrology and Drainage

The topography of the project area is relatively flat with slopes ranging from 0.78 percent to 4.7 percent. The elevation of the project area ranges from 2,350 feet above mean sea level (MSL) at the northwest corner of the project site to 2,540 feet above MSL at the southeast corner. On Sites 1 and 2, drainage flows from southeast to northwest. On Sites 3 and 4, drainage flows from east to west. On Site 5, drainage flows from northeast to southwest.

As shown in **Figure 3-5**, *FEMA Floodplain Zone Hazards*, Twenty Mule Team Creek runs through the northern portion of the project site near Sites 4 and 5. An unnamed creek crosses Site 2.

Floodplains

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 project is partially located in a 100-year flood area (Zone A, 1 percent annual chance of flooding) and partially located in a 500-year flood area (Zone X, 0.2percent annual chance of flooding). The major source of flooding in this area is the Twenty Mule Team Creek. As shown in **Figure 3-5**, *FEMA Floodplain Zone Hazards*, the majority of Site 5 and the westernmost portion of Site 4 are located within the 100-year floodplain of the Twenty Mule Team Creek. The 100-year floodplain of an unnamed creek crosses Site 2. The majority of Site 4 is located within the 500-year floodplain.

Soil Types and Erosion

Soil conditions for the proposed project site were evaluated using the soil surveys prepared by the USDA Natural Resources Conservation Service. The USDA provides a classification of soil types according to several parameters (most commonly their properties) and in several levels: Order, Suborder, Great Group, Subgroup, Family, and Series. The classification system evaluates soils on the following properties:

depth, moisture, temperature, texture, structure, cation exchange capacity, base saturation, clay mineralogy, organic matter content and salt content (Woodard & Curran 2020).

The major soil types in the project area include 114 Cajon Loamy Sand with 0-5 percent slopes and 155 Norob-Neuralia Complex with 0-5 percent slopes. Other soil types in the project area include 109 Cajon-Norob Complex with 2-9 percent slopes, 116 Cajon Gravelly Loamy Sand with 0-9 percent slopes, 137 Norob Complex with 0-5 percent slopes (overblown), 154 Neuralia Sandy Loam with 2-5 percent slopes, and 157 pits. Refer to **Table 4.10-1**, *Soil Types by Project Site*.

Table 4.10-1. Soil Types by Project Site

Site	Soil Type
1	154 Neuralia Sandy Loam 109 Cajon-Norob Complex 114 Cajon Loamy Sand (0-5% slopes) 155 Norob-Neuralia Complex (0-5% slopes)
2	114 Cajon Loamy Sand (0-5% slopes) 155 Norob-Neuralia Complex (0-5% slopes) 109 Cajon-Norob Complex 116 Cajon Gravelly Loamy Sand (0-9% slopes)
3	114 Cajon Loamy Sand (0-5% slopes) 155 Norob-Neuralia Complex (0-5% slopes) 116 Cajon Gravelly Loamy Sand (0-9% slopes) 137 Norob Complex (0-5% slopes, overblown) 109 Cajon-Norob Complex
4	114 Cajon Loamy Sand (0-5% slopes) 157 Pits 116 Cajon Gravelly Loamy Sand (0-9% slopes) 155 Norob-Neuralia Complex (0-5% slopes)
5	114 Cajon Loamy Sand (0-5% slopes) 116 Cajon Gravelly Loamy Sand (0-9% slopes) 154 Neuralia Sandy Loam
Sources: Woodard & Curran 2020; see Appendix J.	

According to the *CEQA Level Geotechnical Study* (Appendix G of this EIR) prepared for the project, the predominantly coarse-grained soils underlying the project area are potentially susceptible to erosion or the loss of topsoil due to surface water flows.

Groundwater Resources

Regional and Local Groundwater

The proposed project would source water from one or more of the following water sources: an on- or off-site groundwater well pumping water from the Antelope Valley Groundwater Basin, a local retailer source by the Antelope Valley-East Kern Water Agency (AVEK), or pumped from an off-site groundwater well in the Harper Valley Groundwater Basin.

The Antelope Valley Groundwater Basin includes an area of 1.01 million acres (1,580 square miles), and underlies an extensive alluvial valley in the western Mojave Desert. The basin is bounded on the northwest by the Garlock Fault zone at the base of the Tehachapi Mountains and on the southwest by the San Andreas Fault zone at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide and on the north by the Fremont Valley Groundwater Basin at a groundwater divide approximated by a southeast-trending line from the mouth of

Oak Creek through Middle Butte to exposed bedrock near Gem Hill and the Rand Mountains farther east (California Department of Water Resources 2004).

Groundwater in the Antelope Valley basin is used for both public water supply and local irrigation. The main water-bearing units are gravel, sand, silt, and clay derived from the surrounding mountains. Public-supply wells in the basin are anywhere from 360 to 700 feet deep. Groundwater recharge in the Antelope Valley is primarily runoff from surrounding mountains, as well as direct infiltration from irrigation, sewer, and septic systems (USGS 2013).

The groundwater basin is an undrained, closed basin, meaning there is no outlet for water to flow to the ocean. When water enters a closed basin, any minerals or chemicals in the water typically accumulate in the basin. Currently, groundwater quality is excellent within the principal aquifer but is not as good toward the northern portion of the dry lake areas. Some portions of the basin contain groundwater with high fluoride, boron, total dissolved solids, and nitrate concentrations, and arsenic. A salt and nutrient management plan has been developed to help monitor and maintain future water quality conditions in the Antelope Valley Groundwater Basin (Antelope Valley Integrated Regional Water Management Group 2013).

Natural and artificial sources recharge the Antelope Valley Groundwater Basin. Precipitation provides the primary water source for the groundwater basin and is recharged naturally via perennial runoff from the surrounding mountains and hills. The two primary sources of natural recharge are mountain-front recharge and infiltration from streamflow. The groundwater basin is also recharged via artificial sources including agricultural return flow, flooding of agricultural lands, off-stream spreading, and well injection. Natural recharge of the basin is estimated to be approximately 30,000 to 40,000 AFY. Total groundwater storage capacity in the basin is estimated to be approximately 70 million acre-feet (Appendix J of this EIR).

Harper Valley Groundwater Basin

The project site is located approximately 1.5 miles west of the boundary to the Harper Valley Groundwater Basin, a subbasin of the Mojave Groundwater Basin. This western portion of the Harper Valley Groundwater Basin is located in the Centro Hydrologic Subarea, a designated hydrologic subarea used for groundwater modeling and watershed management efforts. The proposed project's water demands may be met with groundwater pumped from an off-site well in the Harper Valley Groundwater Basin.

The Harper Valley Groundwater Basin spans approximately 640 square miles and extends across the western portion of San Bernardino County and eastern portion of Kern County, in the central Mojave Desert. This basin is bounded on the east by Fremont Peak, Black Mountain, the Gravel Hills, and the Mud Hills; on the west by a combination of surface drainage divides, portions of the Harper, Kramer Hills and Lockhart faults, and low-lying basement hills; on the south by Mount General, Iron Mountain, and the Waterman Hills, and by subsurface drainage patterns; and on the north by the Rand Mountains (Rincon 2020).

The Harper Valley Groundwater Basin is primarily recharged via rainfall infiltration and percolation of surface runoff through alluvial fans around the edges of Harper Valley. The basin also receives groundwater underflow from the Middle Mojave River Valley and Cuddeback Valley Groundwater Basins. Groundwater flows to the south toward Harper Lake. Total groundwater storage capacity in the basin is estimated to be approximately 6,975,000 acre-feet (Rincon 2020).

Regional Groundwater Overdraft Conditions and Recharge Activities

Historically, groundwater in the Antelope Valley Groundwater Basin flowed north from the San Gabriel Mountains, and south and east from the Tehachapi Mountains. As agricultural production and urban development increased in the Antelope Valley area, groundwater extraction increased as well. During the post-World War II era, groundwater accounted for approximately 90 percent of the area's overall water supply. Due to increased pumping, groundwater levels across the Basin declined and the natural groundwater flow directions were re-directed locally towards groundwater pumping wells. In 2011, the Court ruled the Antelope Valley Groundwater Basin was in overdraft and required a physical solution to bring the basin into balance A recent adjudication for the Antelope Valley groundwater rights resulted in the establishment of a Watermaster that is responsible for assigning pumping allocations to groundwater users, with the long-term goal of sustainably managing the Antelope Valley Groundwater Basin water resource (Appendix J of this EIR).

The Harper Valley Groundwater Basin is also managed through an adjudication process, known as the Mojave Basin Judgment, which was initiated to address conflicting claims for water rights.

Please refer to Section 4.16, *Utilities and Services Systems,* for further discussion of the adjudication of the two basins and processes required to obtain groundwater pumping rights.

Seiche and Tsunami

A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. A seiche is a standing wave in an oscillating body of water. The project site is located approximately 80 miles northwest of the Pacific Ocean and there are no enclosed bodies of water within the project vicinity. Therefore, the risk for tsunami or seiche in the project area is very low.

4.10.3 Regulatory Setting

Federal

Clean Water Act

The federal Clean Water Act (CWA) is the primary surface water protection legislation throughout the country. By employing a variety of regulatory and non-regulatory tools, including establishing water quality standards, issuing permits, monitoring discharges, and managing polluted runoff, the CWA aims to restore and maintain the chemical, physical, and biological integrity of surface waters to support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." The CWA regulates both the pollutant content of point-source discharges, as well as addressing polluted runoff (nonpoint-sources).

As the Twenty Mule Team Creek runs through the project area, CWA Sections 401 and 404 permits may be required if construction, operation, or decommissioning activities would result in direct or indirect impacts to that waterway. CWA Section 404 requires that any project within waters of the United States have a permit for the discharging into such waters. CWA Section 401 requires that any discharge into

navigable water must provide certification to the local RWQCB proving that such discharge complies with the applicable provisions of the CWA.

Section 401, Water Quality Certification. Section 401 of the CWA requires that, prior to issuance of any federal permit or license, any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into waters of the U.S., must be certified by the state, as administered by the RWQCB. This certification ensures that the proposed activity does not violate state and/or federal water quality standards.

Section 402, National Pollutant Discharge Elimination System. Section 402 of the CWA authorizes the State Water Resources Control Board (SWRCB) to issue a NPDES General Construction Storm Water Permit (Water Quality Order 2009-0009-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

NPDES regulations are administered by the Lahontan RWQCB at the project site.

Section 404, Discharge of Dredged or Fill Materials. Section 404 of the CWA establishes programs to regulate the discharge of dredged and fill material in waters of the U.S., including wetlands. For purposes of section 404 of the CWA, the limits of non-tidal waters extend to the ordinary high water line, defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris. When an application for a Section 404 permit is made the applicant must show it has:

- Taken steps to avoid impacts to wetlands or waters of the U.S. where practicable;
- Minimized unavoidable impacts on waters of the U.S. and wetlands; and
- Provided mitigation for unavoidable impacts.

Section 404 of the CWA requires a permit for construction activities involving placement of any kind of fill material into waters of the U.S. or wetlands. A water quality certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request for water quality certification (or waiver thereof) from the Lahontan RWQCB. Project activities would adhere to state and federal water quality standards and would be in compliance with Sections 401 and 404 of the CWA.

Section 303, Water Quality Standards and Implementation Plans. Section 303(d) of the CWA (33 U.S. Code 1250, et seq., at 1313(d)) requires states to identify "impaired" water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to

the U.S. Environmental Protection Agency for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of total maximum daily loads (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements.

National Flood Insurance Program

The FEMA National Flood Insurance Program (NFIP) includes a flood hazard mapping program, in which FEMA identifies flood hazards and assesses flood risks. Under this program, FEMA produces FIRMs, which delineate flood risk areas and risk levels. Areas identified as at risk for flooding on the FIRMs are referred to as Special Flood Hazard Areas, which are those areas at risk of the 100-year flood (1% annual chance of flooding). It also delineates areas that are in moderate flood hazard areas, or those areas between a 0.2% annual chance of flooding (500-year flood) and 1.0% chance of flooding (a Special Flood Hazard Area). Special Flood Hazard Areas are further divided into zones, which provide information on the degree of flooding within the risk area, including average depth of flooding. Kern County is a participating jurisdiction in the NFIP and, therefore, all new development must comply with the minimum requirements of the NFIP.

State

Department of Water Resources

The major responsibilities of the California Department of Water Resources (DWR) include preparing and updating the California Water Plan to guide development and management of the state's water resources; planning, designing, constructing, operating, and maintaining the State Water Resources Development System; regulating dams; providing flood protection; assisting in emergency management to safeguard life and property; educating the public; and serving local water needs by providing technical assistance. In addition, DWR cooperates with local agencies on water resources investigations, supports watershed and river restoration programs, encourages water conservation, explores conjunctive use of ground and surface water, facilitates voluntary water transfers, and, when needed, operates a state drought water bank.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, also referred to as Porter-Cologne, is contained in the California Water Code, Division 7, Section 13000 et seq. It is the principal law governing water quality regulation in California. It is the policy of the State, as set forth in Porter-Cologne, that the quality of all the waters of the State shall be protected, that all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason, and that the State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the state from degradation. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. Porter-Cologne directs the State Water Resources Control Board (SWRCB) to formulate and adopt State policies for controlling water quality and designates the SWRCB as the state water pollution control agency for all purposes stated in the CWA. Porter-Cologne establishes the policies that are to be implemented and authorities that are to be used in achieving the goals of the CWA.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every 3 years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges as discussed above.

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State," file a report of waste discharge. Absent a potential effect on the quality of "waters of the State," no notification is required. However, the RWQCB encourages implementation of BMPs similar to those required for NPDES storm water permits to protect the water quality objectives and beneficial uses of local surface waters as provided in the Lahontan Region Water Quality Control Plan (Basin Plan).

Regional Water Quality Control Boards

California's RWQCBs are established by the SWRCB via Porter-Cologne. The Lahontan RWQCB would review the project in accordance with the CWA. The Water Quality Control Plan for the Lahontan Region (Basin Plan; LRWQCB 1995-2019) sets the water quality standards for the basin, identifies water quality problems and control measures, and identifies monitoring activities for waste discharge requirements. The RWQCB would review the Stormwater Pollution Prevention Plan (SWPPP) and issue a Waste Discharge Identification Number for the project.

NPDES Permit for MS4

The Central Valley Region of the California RWQCB Water Quality Order No. R5-2016-0040 (NPDES General Permit NO. CAS0085324) Waste Discharge Requirements General Permit for Discharges from Municipal Separate Storm Sewer Systems (MS4s) is the MS4 permit applicable to Kern County. It regulates any discharges from stormwater and other authorized waters from municipal separate stormwater systems. This is a single region-wide permit that replaces the previous Phase I and Phase II MS4 permits. The region-wide permit advocates for greater protection for water quality, program implementation efficiencies, and watershed coordination. Discharges from the MS4 may not cause or threaten to cause pollution, contamination, or nuisance as defined by Water Code Section 13050. Discharges from MS4s may not violate any applicable prohibition in the Basin Plans.

The MS4 permit also requires development of a Post Construction Stormwater Management Program, which includes site design measures, source control measures, and low impact development design standards, among others. For projects that create or replace between 2,500 and 5,000 square feet of impervious surface, one or more of the following site design measures are required: stream setbacks and buffers, soil quality improvements, tree planting and preservation, rooftop and impervious surface area disconnection, porous pavement, green roofs, vegetated swales, and rain barrels and cisterns.

NPDES Stormwater Construction General Permit

As the proposed project is over 1 acre, the applicant would need to obtain a NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order (Order 2012-0006-DWQ, CAS000002 (amending Order 2009-0009-DWQ as amended by 2010-0014-DWQ). The

permit regulates stormwater runoff due to construction activities. Construction activities include any construction or demolition activity that causes more than 1 acre of land disturbance. A SWPPP must be developed in accordance with Part 7 of the Construction General Permit. The SWPPP describes best management practices (BMPs) that will be implemented to comply with the permit requirements.

Sustainable Groundwater Management Act

In September 2014, California Governor Jerry Brown signed a three-bill package known as the Sustainable Groundwater Management Act (SGMA) into law. The SGMA establishes a framework for local groundwater management and requires local agencies to bring overdrafted basins into balanced levels of pumping and recharge.

The California Statewide Groundwater Elevation Model Priority List ranks groundwater basins across the state with assessment rankings of High, Medium, Low, or Very Low. In unmanaged groundwater basins, the SGMA requires the formation of locally controlled Groundwater Sustainability Agencies (GSA). GSAs are responsible for developing and implementing groundwater sustainability plans to guide groundwater management decisions and ensure long-term sustainability in their basins. In adjudicated basins, the court-identified Watermaster serves the purpose of the GSA, and the adjudication judgment serves as the groundwater sustainability plan.

DWR identifies the Antelope Valley Groundwater Basin and Harper Valley Groundwater Basin as a Very Low-priority groundwater basin. This designation indicates the basin is not currently critically overdrafted. Because the basin is adjudicated, the court-identified Watermaster serves the purpose of the GSA, and the judgment and physical solution for the Antelope Valley Groundwater adjudication serve as the groundwater sustainability plan. DWR requires that the Antelope Valley Watermaster submit annual reports to ensure compliance with the SGMA (Appendix J of this EIR).

Streambed Alteration Agreement (California Fish and Game Code)

California Fish and Game Code Section 1602 protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Wildlife (CDFW) in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state, and requires any person, state or local governmental agency, or public utility to notify the CDFW before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

During final engineering and design of a project, if it is determined that any project-related actions would have the potential to necessitate a streambed alteration agreement, such an agreement would be prepared and implemented prior to construction of the project, thus maintaining compliance with Section 1602 of the California Fish and Game Code. A streambed alteration agreement is required if the CDFW determines the activity could substantially adversely affect an existing fish and wildlife resource. The agreement includes measures to protect fish and wildlife resources while conducting the project. The CDFW must comply with

CEQA before it may issue a final lake or streambed alteration agreement; therefore, the CDFW must wait for the lead agency to fully comply with CEQA before it may sign the draft lake or streambed alteration agreement, thereby making it final.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the general and specific plans, including the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to hydrology and water quality name. The policies and implementation measures in the Kern County General Plan related to hydrology and water quality that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Chapter 1. Land Use, Open Space, and Conservation Element

1.3 Physical and Environmental Constraints

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Policy 2: In order to minimize risk to Kern County residents and their property, new development will not be permitted in hazard areas in the absence of implementing ordinance and programs. The ordinances will establish conditions, criteria and standards for the approval of development in hazard areas.

Policy 3: Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.

Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.

Policy 10: The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.

Policy 11: Protect and maintain watershed integrity within Kern County.

Implementation Measures

Measure D: Review and revise the County's current Grading Code as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.9 Resources

Policies

Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

1.10.6 Surface Water and Groundwater

Policies

Policy 33: Water related infrastructure shall be provided in an efficient and cost effective manner.

Policy 34: Ensure that water quality standards are met for existing users and future development.

Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act (CEQA), to prevent the degradation of the watershed to the extent practical.

Kern County Floodplain Management Ordinance

Kern County Municipal Code Section 17.48 promotes the health, safety, and welfare of the public by minimizing flood losses in specific areas. The ordinance requires restricting or prohibiting uses that are dangerous or cause drastic increases in erosion or flood heights or velocities. It also requires that any uses that are vulnerable to flooding shall be protected against flood damage during construction. The ordinance controls the alteration of any floodplains or water bodies that help channel flood waters. It also controls filling, grading, dredging, and other development that may result in increased flood damage as well as regulating the constructing of flood barriers that would unnaturally divert flood waters and cause flood

hazards in other areas. As part of the project area sits in a floodplain within the unincorporated areas of Kern County, the project must comply with this ordinance.

Kern County Grading Code

Chapter 17.28 of the Kern County Municipal Code is referred to the Kern County Grading Code. Grading and other construction activities within Kern County must comply with the provisions of the Grading Code. Of particular note with respect to hydrology and water quality is Section 17.28.140, Erosion Control, which addresses the following:

Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each work day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

A grading permit is required prior to commencement of grading activities within Kern County. Obtaining a grading permit from Kern County requires submittal of an application, which must include plans and specifications including but not limited to construction and material requirements, a soils engineering report, an engineering geology report, and engineering calculations and drainage computations. Plans must include information of the existing ground and details of terrain and area drainage, proposed elevations and grading, surface and subsurface drainages that would be constructed as part of the project. Recommendations in the soils engineering report and the engineering geology report must be incorporated into plans and specifications.

Kern County Development Standards

The Kern County Development Standards apply to all developments within Kern County that are outside of incorporated cities. These standards establish minimum design and construction requirements that will result in improvements that are economical to maintain and will adequately serve the general public. The requirements set forth in these standards are considered minimum design standards and will require the approval of the entity that will maintain the facilities to be constructed prior to approval by the County.

Division Four of the Kern County Development Standards include Standards for Drainage. Chapter XII, Natural Channels, requires that all natural channels are identified and clearly delineated on site plans with their appropriate floodplain designations. For natural channels with side slopes steeper than 2:1, a setback measures from the toe of the slope must be a 2:1 slope plus a 10-foot-wide buffer strip. For natural channels with slide slopes flatter than 2:1, the required setback must be a minimum of 10 feet from the floodway limit.

Kern County Water Quality Control Plan

Each of the nine RWQCBs adopts a Water Quality Control Plan which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's groundwater and surface waters, and local water quality conditions and problems. Water quality problems in the regions are listed in these plans, along with the causes, if they are known. Each RWQCB is to set water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance, with the understanding that water quality can be changed somewhat without unreasonably affecting beneficial uses.

The Kern County Engineering and Survey Services Department requires the completion of an NPDES applicability form for all construction projects disturbing one or more acre within Kern County. This form requires the project proponent to provide background information on construction activities. Project proponents must apply for the permit under one of the following four conditions:

1. All storm water is retained onsite and no storm water runoff, sediment, or pollutants from onsite construction activity can discharge directly or indirectly offsite or to a river, lake, stream, municipal storm drain, or offsite drainage facilities.

2. All storm water runoff is not retained on site but does not discharge to a Water of the United States (i.e., drains to a terminal drainage facility). Therefore, a SWPPP has been developed and BMPs must be implemented.

3. All storm water runoff is not retained on site, and the discharge is to a Water of the United States. Therefore, a Notice of Intent (NOI) must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.

4. Construction activity is between 1 to 5 acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

Kern County – NPDES Applicability Form

As closed systems that never contact the ocean or other waters of the United States, many of the waters within Kern County are technically not subject to protective regulations under the federal NPDES Program. The Kern County Public Works Department requires the completion of an NPDES applicability form for projects with construction activities disturbing one or more acres, and requires the project proponent to provide information about construction activities and to identify whether stormwater runoff has the potential of discharging into waters of the United States, waters of the State, or a terminal drainage facility. The purpose of the form is to identify which water quality protection measure requirements apply to different projects (if any). Should stormwater runoff be contained on-site and not discharge into any waters, no special actions are required. Should stormwater runoff discharge into waters of the United States, compliance with the SWRCB Construction General Permit SWPPP requirements is required. Should stormwater runoff not be contained on-site and drain to waters of the State or a terminal drainage facility, development of a SWPPP and BMPs are required.

Kern County Water Well Permitting

Kern County requires the submittal of an application to construct, reconstruct/modify, deepen, or destroy any water wells within the County's jurisdiction. For new wells, the application requires the disclosure of

various details including but not limited to the well's location, depth, diameter, sealing material, as well as the depth to groundwater at that location. A water sample must also be taken at the proposed well location. Any work related to water well construction cannot legally occur prior to approval of the well site from Kern County. Approval of water quality and final construction features is required before the water well is put to use (Kern County 2017).

4.10.4 Impacts and Mitigation Measures

Methodology

This section analyzes impacts on hydrology and water quality from the implementation of the proposed project based on changes to the environmental setting as described above, identified drainage conditions in the project site, and the current regulatory framework. The proposed project's potential hydrology and water quality impacts have been evaluated using the *Aratina Solar Project Hydrology Report* prepared for the project (Woodard and Curran 2020) located in Appendix J of this EIR. Potential significant impacts associated with the project were evaluated based on a review of available data and information, which is summarized above, consideration of changes that would occur as a result of project implementation, in comparison to existing conditions.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on hydrology and water quality.

A project could have a significant impact on hydrology and water quality if it would:

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 that 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 offsite;

    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;

    iv. Impede or redirect flood flows;

d. In flood hazard, tsunami, or 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.

Project Impacts

Impact 4.10-1: The project would violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.

Construction

The project site is relatively flat. Project construction would involve minimal grading in areas to further flatten the site for facility installation. Project grading would be minimized to the extent feasible to reduce unnecessary soil movement that may result in dust generation. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders may all be used in site preparation. Access roads may be compacted, as required, to support construction and emergency vehicles. Certain access roads may also be surfaced with aggregate or decomposed granite in conformance with emergency access requirements. Any grading would be balanced on-site, with no need for the export or import of soils. Additionally, on-site trenching for the placement of underground electrical and communication lines would occur. Excavation would be required to install certain project facilities, including but not limited to substations and operation and maintenance buildings.

Regardless of how minimal, grading and excavation would disturb soil, which has the potential to result in sedimentation of stormwater and subsequent degradation of stormwater quality. Further, any construction activity that results in the accidental release of pollutants, hazardous or potentially hazardous materials could also degrade stormwater quality. Materials that could contribute to this impact include, but are not limited to, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids utilized by construction and maintenance vehicles and equipment. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error (refer to Section 4.9, *Hazards and Hazardous Materials*).

To avoid impacts to water quality, the Kern County Public Works Department requires the completion of an NPDES Applicability Form for projects with construction activities that would disturb one or more acre in Kern County. Since the project area drains to a terminal basin that is not hydrologically connected to a navigable waterway, acquisition of coverage under the State Construction General Permit for stormwater is not required. However, because the project would disturb more than one acre of ground surface and stormwater would not be contained on-site or discharge into a terminal drainage facility, the project proponent would be required to prepare and implement an SWPPP for the project.

As required by Mitigation Measure MM 4.10-1, below, the proposed project would implement a SWPPP that would include erosion control and sediment control BMPs designed to prevent soil erosion, from occurring and would retaining loose sediments on-site and preventing runoff of water pollutants from active construction areas. Specific BMPs for the construction phase would be identified during completion and County review of the SWPPP. However, typical BMPs to be implemented would include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Installation of a stabilized construction entrance/exit and stabilization of disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials;

- Proper protections for fueling and maintenance of equipment and vehicles; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

In addition, the project must comply with the Kern County Grading Ordinance, which requires implementation of dust control during all grading operations and the use of temporary drainage and erosion control measures on-site as needed. Furthermore, Mitigation Measure MM 4.10-2 would require the preparation of a hydrologic study and drainage plan per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. Based on the findings of the hydrologic study, the drainage plan would recommend an on-site design that complies with all channel setback requirements and ensures facilities are located in such a way to lessen their impact on drainage areas and their water quality. Therefore, the concurrent ground disturbance required for construction of these facilities would mostly avoid drainage areas. Mitigation Measure MM 4.10-1 would require that ground disturbance is minimized within drainage areas and timed to avoid the rainy season where possible. This would decrease the potential of stormwater mixing with construction-related materials and degrading water quality.

Further, as noted in Section 4.9, *Hazards and Hazardous Materials*, of this EIR, Mitigation Measure MM 4.9-1 would require the project proponent/operator to prepare a Hazardous Materials Business Plan that would delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires. Therefore, potential impacts to stormwater quality from the accidental release of hazardous materials would be reduced to a less than significant level.

Implementation of Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2 would reduce impacts to a level less than significant.

Operation

The project would result in an increase in impervious surfaces on the site from development including the equipment foundations as well as the operation and maintenance (O&M) buildings, substations, and energy storage facilities. The access roads would not be paved. The improved roads would be constructed of compacted earthen or gravel materials that are pervious. The panels are not considered impervious surfaces; stormwater falling on the panels would run off and either infiltrate into the ground below or run off during larger storm events into constructed drainage basins. While portions of the site would remain undeveloped and permeable, which would allow natural drainage and groundwater infiltration to occur on-site. implementation of the proposed project may result in significant impacts.

While not anticipated, a soil palliative may be applied on portions of the site or on all of the site that would affect drainage of the site. Soil palliatives are substances applied to the ground surface during operation of the project to reduce airborne dust. It is assumed that palliatives would be reapplied every few years as needed depending on surface disturbances associated with weather and vehicular traffic. If used, the final permeability of the ground, inclusive of the palliative, will be included in the final hydrology study, as required by Mitigation Measure MM 4.10-2.

Operation of the proposed project would require limited use of certain hazardous materials for routine operations and maintenance, such as fuels, paints, coatings, lubricants, and transformer oil. Accidental

release of such materials on-site could result in stormwater quality degradation. However, as described above, Mitigation Measure MM 4.9-1 would require the implementation of a Hazardous Materials Business Plan that would ensure safe handling of hazardous materials on-site and provide the means for prompt cleanup in the event of an accidental hazardous material release.

Water quality could also be degraded by non-hazardous materials during operation activities. During dry periods, impervious surfaces (i.e., hardscape surfaces such panels and buildings) can collect greases, oils, and other vehicle-related pollutants. During storm events, these pollutants can mix with stormwater and degrade water quality. As mentioned above, a final hydrologic study and drainage plan would be conducted and submitted to the Kern County Public Works Department prior to the issuance of a grading permit that would evaluate the changes to hydrology on-site and recommend on-site control measures to minimize potential increases in runoff from the project site (refer to Mitigation MM 4.10-2). Recommended measures may include the development of on-site features, such as retention basins, to manage flow concentration so that erosion and sedimentation are minimized on-site during storm events during project operation. These measures would also prevent the off-site discharge of stormwater carrying other non-sediment pollutants. No connections to any off-site municipal storm drainage facilities are proposed and no new municipal drainage facilities are proposed on site.

Adherence to the requirements of the approved final hydrologic study and drainage plan would minimize operational impacts to water quality during operation. With implementation of Mitigation Measures MM 4.9-1 and MM 4.10-2, project operation would not violate water quality standards or waste discharge requirements, or otherwise degrade water quality.

Mitigation Measures

Implement Mitigation Measure MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*, for mitigation measure text).

MM 4.10-1 Prior to issuance of a grading permit, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) for review and approval by the Regional Water Quality Control Board—Lahontan Region. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving off-site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following:

a. Minimization of vegetation removal.

b. Implementing sediment controls, including silt fences as necessary.

c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas.

d. Properly containing and disposing of hazardous materials used for construction on-site.

e. Properly covering stockpiled soils to prevent wind erosion.

f. Proper protections and containment for fueling and maintenance of equipment and vehicles.

g. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter.

h. Cleanup of silt and mud on adjacent street due to construction activity.

i. Checking all lined and unlined ditches after each rainfall.

j. Restore all erosion control devices to working order to the satisfaction of the Lahontan Regional Water Quality Control Board after each rainfall runoff.

k. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise.

MM 4.10-2 Prior to the issuance of a grading permit, the project proponent/operator shall submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department. The final hydrologic study and drainage plan shall be designed to evaluate and minimize potential increases in runoff from the project site. The final hydrologic study and drainage plan shall include but not be limited to the following:

a. Numerical stormwater model for the project site and would evaluate existing and proposed (with project) drainage conditions during storm events ranging up to the 100- year event.

b. The study shall consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation.

c. The drainage plan would include engineering recommendations to be incorporated into the project and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on-site or off-site.

d. The final design of the solar arrays shall include 1-foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar module sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than 1-foot or as required by Kern County's Floodplain Ordinance.

e. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code, Kern County Development Standards, Kern County Hydrology Manual and Kern County Floodplain Ordinance, and approved by the Kern County Public Works Department prior to the issuance of grading permits.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*), MM 4.10-1, and MM 4.10-2, impacts would be less than significant.

Impact 4.10-2: The project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

The proposed project would source water from one or more of the following water sources: an on- or off-site groundwater well pumping water from the Antelope Valley Groundwater Basin, a local retailer source by AVEK, or pumped from an off-site groundwater well in the Harper Valley Groundwater Basin.

Construction

Water would be required during the construction phase for such activities as dust suppression, soil compaction, and grading. Water may also be used at points of ingress/egress to minimize the tracking of dirt off-site onto local roadways from construction vehicles. Water usage during construction, primarily for dust-suppression purposes, is not expected to exceed 410 acre-feet over the 12-18 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.

Water required during construction would be supplied via one or more of the following sources: an on-site or off-site groundwater well pumping water from the Antelope Valley Groundwater Basin, Harper Valley Groundwater Basin, and/or a local retailer sourced by AVEK. Potable water would be brought to the site via water trucks for drinking and domestic needs for construction workers.

Should the project use the existing wells for water use, it is assumed the amount of water used for the project would fall within the existing pumping allocation of that well. Should the project require installation of new wells on- or off-site for water supply, the project proponent/operator would be required to complete the necessary application required by the Antelope Valley or Harper Valley Watermaster and await Watermaster approval prior to installing any wells. Throughout the operation of any new wells, all required monitoring and reporting forms would be submitted to the Watermaster for review. By complying with the groundwater management regulations in place, the proposed project would not result in a significant impact related to the substantial depletion of groundwater supplies during construction. Therefore, impacts would be less than significant.

Operations

Water demand for panel washing and O&M domestic use (sinks, lavatories, landscape irrigation, drinking) is not expected to exceed 60 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 be obtained from on-site wells or delivered via truck or pipeline from an off-site source(s) within the project vicinity. If water is trucked into the site, it is anticipated that an available local water source would be selected to minimize truck trips/lengths in transporting water to/from the site. A small water treatment system may also be installed at each site to provide deionized water for panel washing if water is taken from on-site wells. As mentioned above, the project proponent/operator would be required to complete the necessary application paperwork required by the Antelope Valley or Harper Valley Watermaster and await Watermaster approval prior to installing any wells. Throughout the operation of any new wells, all required monitoring and reporting forms would be submitted to the Watermaster for review. By complying with the groundwater management regulations in place, the proposed project would not result in a significant impact related to the substantial depletion of groundwater supplies during construction.

As described under Impact 4.10-1, the project would result in an increase in impervious surfaces on the site from development including the equipment foundations as well as the O&M buildings, substations, and energy storage facilities. While not anticipated, a soil palliative may be applied on portions of the site or on all of the site that would affect drainage of the site. Soil palliatives are substances applied to the ground surface during operation of the project to reduce airborne dust. It is assumed that palliatives would be reapplied every few years as needed depending on surface disturbances associated with weather and vehicular traffic. If used, the final permeability of the ground, inclusive of the palliative, will be included in the final hydrology study, as required by Mitigation Measure MM 4.10-2.

Mitigation Measure MM 4.10-2 would require the preparation of a hydrologic study and drainage plan per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. The hydrologic study and drainage plan would evaluate the changes to hydrology on-site, including the effects of the soil palliative as described above, and recommend measures to minimize potential increases in runoff from the project site. Recommended measures may include the development of on-site features, such as retention basins, to manage flow concentrations and allow groundwater infiltration.

Adherence to the requirements of the approved final hydrologic study and drainage plan would minimize operational impacts to groundwater recharge during operation. With implementation of Mitigation Measure MM 4.10-2, project operations would have a less than significant impact on groundwater supplies or recharge.

Mitigation Measures

Implement Mitigation Measure MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.10-2, impacts would be less than significant.

Impact 4.10-3: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion and/or sedimentation on- or off-site.

Construction

The majority of the proposed project facilities and construction activities have been designed to avoid existing drainage areas so as to not to intercept or alter the conveyance of ephemeral/episodic flows through the project site during storm events.

During construction and decommissioning, ground disturbance (via activities such as grading and excavation) within drainage areas as well as in non-drainage areas may alter drainage patterns of the site. These changes could concentrate flows from storms and construction water usage, and thus result in increased erosion of existing soils on-site and sedimentation of water. Ground disturbance in drainage areas has a higher likelihood of resulting in erosion and sedimentation since water flow is more concentrated in these areas and has a higher erosive power. However, as described above in Impact 4.10-1, the project proponent/operator would develop and implement a SWPPP during project construction and decommissioning that would include various BMPs designed to prevent soil erosion and sedimentation from occurring on-site.

In addition, the project would comply with the Kern County Grading Ordinance, which requires implementation of dust control during all grading operations and the use of temporary drainage and erosion control measures on-site as needed. Furthermore, Mitigation Measure MM 4.10-2 would require the project to have a hydrologic study and drainage plan prepared per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. Per Mitigation Measure MM 4.10-1, construction-related ground disturbance within drainage areas would be minimized and timed to avoid the rainy season to the maximum extent possible. The proposed project would also maintain pervious surfaces on-site surrounding construction areas which would help increase the potential for waters to percolate into the ground prior causing major erosion or sedimentation. With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 as well as compliance with applicable regulations, the potential erosion and sedimentation both on-site and off-site that could occur from alterations to topography would be reduced during construction or decommissioning. Impacts would be less than significant.

Operation

The project has the potential to increase project site runoff due to the change from pervious to impervious cover for the construction of O&M buildings and other impervious features.. Because the proposed project would introduce impervious surfaces to the project site, the project has the potential to alter site drainage patterns such that erosion and sedimentation could result during storm events or panel washing. However, as described in Impact 4.10-1, Mitigation Measure MM 4.10-2 would require preparation of a hydrologic study and a drainage plan in accordance with the Kern County Development Standards and Kern County Code of Building Regulations that would evaluate the changes to hydrology on-site and recommend measures to minimize potential increases in runoff from the project site. Based on the findings of the hydrologic study, the drainage plan would recommend a design that would include post-construction BMPs such as a retention basin that would retain runoff during project operation, thereby preventing erosion and sedimentation on-site. With implementation of Mitigation Measure MM 4.10-2, impacts would be less than significant.

Mitigation Measures

Implement of Mitigation Measures MM 4.10-1 and MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, impacts would be less than significant.

Impact 4.10-4: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff which would result in flooding on- or off-site.

Construction

As shown in **Figure 3-5**, *FEMA Floodplain Zone Hazards*, the majority of Site 5 and the westernmost portion of Site 4 are located within the 100-year floodplain of the Twenty Mule Team Creek. The 100-year floodplain of an unnamed creek crosses Site 2. The majority of Site 4 is located within the 500-year floodplain. The alteration of surface topography via ground disturbance may have the potential to alter drainage patterns such that flooding could be exacerbated on-site during a rain event. Areas surrounding drainages are especially prone to flooding. However, the erosion control and sedimentation control BMPs required by the SWPPP and drainage control measures required by the Kern County Grading Ordinance would also help control flows on-site by maintaining existing vegetation or installing structures designed to slow and/or control flows. Further, implementation of Mitigation Measure MM 4.10-2 would require preparation of a hydrologic study and drainage plan. The drainage plan would recommend an on-site design that complies with County drainage design standards, including requirements for building within a FEMA floodplain. Per Mitigation Measure MM 4.10-1, construction-related ground disturbance required within drainage areas would be minimized and timed to avoid the rainy season when possible. Therefore, ground disturbance within a known floodplain and across existing drainage flow paths would be planned and scheduled, to the maximum extents practicable, to avoid potential exacerbated flooding at the project site.. Therefore, following compliance with applicable regulations and implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, flooding caused by construction of the proposed project is not expected to occur during construction or decommissioning. Impacts would be less than significant.

Operation

According to the FEMA FIRM map for Kern County, the project site is partially located in a 100-year flood area and partially located in a 500-year flood area (FEMA 2019). The two sources of flooding in the project area are the Twenty Mule Team Creek and an unnamed creek. Site 5 and a portion of Site 4 are located within the 100-year floodplain of Twenty Mule Team Creek. The flow rate in Twenty Mule Team Creek is 7,300 cfs. The 100-year floodplain from an unnamed creek runs through Site 2.

Given the location of Sites 2, 4, and 5 within a 100-year flood area, the proposed project has the potential to flood during storm events. Furthermore, as described under Impact 4.10-1, the project would result in an increase in impervious surfaces on the site from development including the equipment foundations as well

as the O&M buildings, substations, and energy storage facilities. As such, implementation of the project may result in an increase of flooding on- or off-site.

Since the project site is partially located in the 500- and 100- year flood plains, the project site would be subject to the special flood hazard designation which requires the project to comply with the County's Municipal Code for flood damage protection and regulations established in the County's Municipal Code Section 17.48 Floodplain Management. Per FEMA definitions, flood depth on Sites 2, 4, and 5 would range from 1–3 feet. The foundations and supports for the panels may be underwater in a 100-year flood and would need to be able to be designed to withstand flood flows. Mitigation Measure MM 4.10-2 would require preparation of a hydrologic study and a drainage plan in accordance with the Kern County Development Standards and Kern County Code of Building Regulations that would evaluate the changes to hydrology on-site and recommend measures to minimize potential increases in runoff from the project site. Based on the findings of the hydrologic study, the drainage plan would recommend a design that would include post-construction BMPs such as a retention basin that would retain runoff during project operation, thereby preventing flooding on- and off-site. Hydraulic analysis would verify that the project would not result in an impact to the floodplain from construction of the facilities. Therefore, with implementation of Mitigation Measure MM 4.10-2, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, impacts would be less than significant.

Impact 4.10-5: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

The project site does not contain any existing stormwater drainage systems on-site. There are no planned stormwater drainage systems for the site or surroundings. The site naturally drains via sheet flow and via existing natural drainages, and would do so during construction, operation, and decommissioning. Per Mitigation Measure MM 4.10-2, the proposed project would be required to design a drainage plan per the findings of a hydrologic study. Based specifically on-site characteristics, the drainage plan would recommend a project site designed to minimize flooding, and would require the implementation of any measures necessary, such as construction of a retention basin, to collect and retain any excessive runoff generated. Pollution of runoff would be avoided per the measures detailed above in Impact 4.10-1. There would be no impact related to exceedance of drainage system capacity, and impacts related to potentially polluted runoff would be less than significant, with Mitigation Measures MM 4.10-1 and MM 4.10-2.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, impacts would be less than significant.

Impact 4.10-6: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.

As previously mentioned above, the majority of Site 5 and the westernmost portion of Site 4 are located within the 100-year floodplain of the Twenty Mule Team Creek. The 100-year floodplain of an unnamed creek crosses Site 2. The majority of Site 4 is located within the 500-year floodplain. As such, the proposed project would introduce structures within flood zones.

Per Mitigation Measure MM 4.10-2, the drainage plan for the proposed project site would be designed to effectively control surface flows on-site, and project facilities would be designed to maintain one-foot of freeboard clearance above the calculated maximum flood depths. The proposed project would also maintain some existing pervious surfaces on-site and would be surrounded by pervious areas, which would help control any impeded or redirected flood flows. Therefore, with implementation of Mitigation Measure MM 4.10-2, the project would not substantially alter the existing drainage patterns of the site in a manner which would impede or redirect flood flows, and impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.10-2, impacts would be less than significant.

Impact 4.10-7: In flood hazard, tsunami, or seiche zones, the project would risk release of pollutants due to project inundation.

A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. A seiche is a standing wave in an oscillating body of water. The project site is located approximately 80 miles northwest of the Pacific Ocean and there are no enclosed bodies of water within the project vicinity; therefore, the risk for tsunami or seiche in the project area is very low and there would be little or no chance for an impact involving release of pollutants during such events. As discussed above, the majority of Site 5 and the westernmost portion of Site 4 are located within the 100-year floodplain of the Twenty Mule Team Creek. The 100-year floodplain of an unnamed creek crosses Site 2. The majority of Site 4 is located within the 500-year floodplain. The project's location within flood hazard areas and alteration of surface topography could alter drainage patterns such that flooding could be exacerbated onsite during a rain event. Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would help control flooding caused by construction of the project. Further, as noted in Section 4.9, *Hazards and Hazardous Materials*, of this EIR, Mitigation Measure MM 4.9-1 would require the project proponent/operator to prepare a Hazardous Materials Business Plan that would delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be

used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires.

As the project site is located well inland and far from the ocean or any enclosed or semi-enclosed water body such that there would be no potential threat form from tsunami or seiche waves. In this context, the project would not contribute to inundation by a flood hazard, tsunami, or seiche zones, that would increase the risk of pollutants release and a less than significant impact would be expected.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*), MM 4.10-1, and MM 4.10-2, impacts would be less than significant.

Impact 4.10-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

As noted above, the project site is located within the South Lahontan RWQCB and subject to the applicable requirements of the Water Quality Control Plan for the Lahontan Region (Basin Plan). The Basin Plan sets the water quality standards for the basin, identifies water quality problems and control measures, and identifies monitoring activities for waste discharge requirements. As described in Impact 4.10-1, Mitigation Measure MM 4.10-2 would require preparation of a hydrologic study and a drainage plan in accordance with the Kern County Development Standards and Kern County Code of Building Regulations that would evaluate the changes to hydrology on-site and recommend measures to minimize potential increases in runoff from the project site. Based on the findings of the hydrologic study, the drainage plan would recommend a design that would include post-construction BMPs such as a retention basin that would retain runoff during project operation, thereby preventing erosion and sedimentation. The project would include required BMPs and drainage control requirements that would be consistent with the Basin Plan. With implementation of Mitigation Measure MM 4.10-2, impacts would be less than significant. Water is anticipated to be obtained from on-site wells or delivered via truck or pipeline from an off-site source(s). Should the project use the existing wells for water use, it is assumed the amount of water used for the project would fall within the existing pumping allocation of that well. Should the project require installation of new wells on-site for water supply, the project proponent/operator would be required to complete the necessary application required by the Antelope Valley or Harper Valley Watermaster and await Watermaster approval prior to installing any wells. Throughout the operation of any new wells, all required monitoring and reporting forms would be submitted to the Watermaster for review. Through coordination with the Watermaster as required and adherence to the groundwater management regulations in place, the project would not conflict with the groundwater management of the area and impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.10-2, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts to hydrology and water quality generally occur as a result of incremental changes that degrade water quality. Cumulative impacts can also include individual projects which, taken together, adversely contribute to drainage flows or increase potential for flooding in a project area or watershed. As shown in **Table 3-3**, *Cumulative Projects List*, in Chapter 3, *Project Description*, of this EIR, approximately 26 projects are proposed for development (or have been completed) within the Antelope Valley region. The geographic scope used to identify projects listed in **Table 3-3**, *Cumulative Projects List*, is a somewhat smaller geographic scope than the Antelope Valley watershed and Antelope Valley Groundwater Basin, but this smaller area is likely experiencing development, particularly development of renewable energy, of a type and density that is representative of the hydrological unit as a whole.

Construction, operation, and decommissioning, of the proposed project has the potential to degrade water quality. The proposed project would avoid impacts to water quality and during construction and decommissioning following compliance with the Kern County NPDES Applicability Form (that requires SWPPP development) and the Kern County Grading Code. The proposed project would avoid impacts to water quality by developing a drainage plan based on a hydrologic study. Development of a Hazardous Materials Business Plan per Mitigation Measure MM 4.9-1 would avoid water quality impacts from hazardous materials during all project phases. Mitigation Measure MM 4.10-2 would recommend an on-site design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas and their water quality. The drainage plan would also recommend incorporation of measures, such as retention basins, to manage flow concentration so that erosion and sedimentation are minimized on-site during storm events during project operation. Mitigation Measure MM 4.10-1 would require that ground disturbance required within drainages is minimized and timed to avoid the rainy season where possible.

Additionally, the proposed project may require the installation of new groundwater wells on- or off-site, the installation of which could impact groundwater quality. The extraction of contaminated groundwater for subsequent use on the project site could also impact surface water quality. However, the project proponent/operator would be required to complete a water well application, including a water sample, for County review and approval for any new wells that are proposed. Other projects in the region may also be required to install groundwater wells, but would be subject to the same County well permitting requirements. Other projects within the region would be subject to Kern County Grading Code, hazardous materials business plan requirements, hydrologic study/drainage plan requirements, SWPPP requirements (when applicable), and County well permitting requirements that would help avoid significant impacts to water quality. Therefore, cumulative impacts to water quality would be less than significant.

With regard to impacts related to an aquifer deficit or substantial depletion of groundwater supplies, the proposed project would depend on the overdrafted Antelope Valley groundwater basin for water during construction, operation, and decommissioning. The project would either obtain water from an adjacent existing groundwater well or from new groundwater wells drilled on-site. Other projects within the region would also likely depend on the groundwater basin for their water supply. Following the recent adjudication of the groundwater basin, both the proposed project and other projects in the region would be required to

obtain water from existing wells that falls within the existing pumping allocations of these wells established by the Watermaster. Drilling of any new wells would require Watermaster approval. By complying with the provisions of the adjudication and the Watermaster, which were created to sustainably manage the Antelope Valley groundwater basin long-term, the proposed project would not result in significant cumulative impacts related to an aquifer deficit or a substantial depletion of groundwater supplies.

Ground-disturbing construction activities and the presence of impervious project facilities on-site during project operation would alter drainage paths of surface flows, which could result in erosion, sedimentation, and/or flooding. Erosion and sediment control BMPs implemented as part of the SWPPP and Kern County Grading Code during construction and decommissioning would help avoid erosion and sedimentation from occurring, and could also help control surface flows and runoff so as to avoid flooding. Further, Mitigation Measure MM 4.10-2 includes development of a drainage plan recommending an on-site design that complies with all channel setback requirements, ensures facilities are located in such a way to lessen their impact on drainage areas, and includes post-construction BMPs such as a retention basin that would retain runoff during project operation, thereby preventing erosion and sedimentation. The proposed project would also maintain pervious surfaces on-site surrounding project facilities, which would help prevent excess flooding.

Implementation of Mitigation Measure MM 4.10-1 would require the minimization of ground disturbance needed within drainages and avoidance of ground disturbance in drainages during the rainy season when possible. Other projects would also be subject to the requirements of the Kern County Grading Code, hydrologic study/drainage plan requirements, and SWPPP development (if applicable). Therefore, other projects would also implement measures to help reduce potential impacts related to erosion, sedimentation, and flooding. Cumulative impacts related to the alteration of drainage patterns and subsequent erosion, sedimentation, and flooding would be less than significant.

Given its relatively undeveloped nature, the majority of land in the region does not have existing stormwater drainage systems, and instead contains natural drainages. Per Mitigation Measure MM 4.10-2, the proposed project would be required to design a drainage plan per the findings of a hydrologic study. Based specifically on-site characteristics, the drainage plan would recommend an on-site design that complies with County drainage design standards, including requirements for building within a FEMA floodplain. The drainage plan would also require the implementation of any measures necessary, such as construction of a retention basin, to collect and retain any excessive runoff generated. The proposed project would also maintain pervious surfaces on-site surrounding project facilities, which would help prevent excess runoff. Pollution of runoff would be avoided per the measures described above related to reducing impacts to water quality. Other projects in the region would be subject to hydrologic study/drainage plan requirements and water quality degradation prevention measures. Cumulative impacts related to exceedance of drainage system capacity and polluted runoff would be less than significant.

The proposed project would be located within a 100-year and 500-year flood zones and would introduce structures within these flood zones. Per Mitigation Measure MM 4.10-2, the drainage plan for the proposed project site would be designed to effectively control surface flows on-site, and project facilities would be designed to maintain one-foot of freeboard clearance above the calculated maximum flood depths. The proposed project would also maintain some existing pervious surfaces on-site and would be surrounded by pervious areas, which would help control any impeded or redirected flood flows. Many other projects within the region would also be located within a 100-year flood zone, but would be subject to similar drainage plan and freeboard clearance requirements. Cumulative impacts related to the placement of structures within a 100-year flood hazard area would be less than significant.

Based on the conclusions above, the project's contribution to impacts to hydrology and water quality resulting would be less than cumulatively considerable. Continued implementation of the countywide drainage regulations and groundwater basin management programs would avoid significant cumulative impacts involving hydrology and water equality.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials)*, MM 4.10-1, and MM 4.10-2, cumulative impacts would be less than significant.

Section 4.11
Land Use and Planning

4.11.1 Introduction

This section describes the affected environment and regulatory setting of the proposed project for impacts that may affect land use and planning. It also describes the environmental and regulatory setting and discusses the need for mitigation measures where applicable. The information in this section is based primarily on a review of the project's consistency with the Kern County General Plan and Kern County Zoning Ordinance.

Following the initial circulation of the project NOP during the public scoping period beginning August 14, 2020, the project development acreage was revised, and a subsequent Notice of Preparation was circulated for the project; refer to Chapter 3, *Project Description*, for additional discussion. The revised project consists of a reduced project development footprint, also referred to as the CUP boundaries, since if approved, the project CUP would allow for project development within this boundary on the project property. As further detailed in Chapter 3, *Project Description*, the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from the initial project proposal of 2,672 acres to 2,317 acres. This development area would be located within the project property (i.e., project site), which in total consists of approximately 2,554 acres. Of this, approximately 1,934 acres will undergo a change in zone classification.

4.11.2 Environmental Setting

Onsite Land Uses

The project site is located in the Antelope Valley portion of the Mojave Desert, in the southeastern corner of unincorporated Kern County. The project site straddles State Route 58 between Gephart Road on the west and the San Bernardino County line on the east. The project site is in the vicinity of the unincorporated communities of Boron and Desert Lake and north and east of the boundaries of Edwards Air Force Base. The existing U.S. Borax open pit mine and refinery are located approximately two miles north of the project site.

The project site consists of five sites (Sites 1 through 5) on 22 privately-owned parcels, totaling approximately 2,554 acres, as shown on **Figure 3-2**, *Project Site Boundaries.* The project site consists largely of undeveloped lands comprised of privately owned parcels and numerous dirt roads typically associated with utility corridors. Site 5 is located adjacent to the north of State Route 58 (SR 58), while the remaining sites are located south of State Route 58, with Site 4 is adjacent to the south. A single line railroad track (Burlington Northern and Santa Fe Railway formerly Atchison, Topeka, and Santa Fe Railway) parallels Twenty Mule Team Road to the south along the southern boundary of Site 4, and to the north of Sites 2 and 3. A spur line of this railroad cuts through the northwestern corner of Site 2 and traverses southwesterly through Site 3 bisecting it into two areas. Adjacent to this spur line between the two sides of

Site 3 is an area approximately 15 acres in size. Near this area is a small transfer facility designed to convey bulk materials from trucks to railroad cars.

The project site is not located within the boundaries of an Airport Influence Area as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP). The closest airports to the proposed solar facilities are the California City Municipal Airport, a public airport approximately 18 miles northwest of the project site, and Edwards Air Force Base, approximately 5 miles to the southwest. The project site is not located within any safety or noise zones for the California City Municipal Airport or Edwards Air Force Base.

Multiple utilities including a water pipeline, electrical transmission and distribution lines and gas pipelines traverse the project area. The Antelope Valley East Kern Water Agency water pipeline and its associated right-of-way road form the northern boundary of Site 5 and traverses through the gen-tie route to the Holgate substation.

Two transmission lines parallel the north-south collector line between Site 4 and the gen-tie line to the Holgate substation. These include SCE's Edwards – Holgate – Southbase 115 kV line and the Kramer – Holgate 115 kV line. The Kramer to Holgate line and its associated right-of way road also traverses east-west through Sites 1, 2 and 3. A smaller SCE distribution line (Paxton 4 kV) is located along Boron Avenue along a portion of Site 1.

Multiple gas pipelines and their associated right-of-way roads pass through the project area. The Mojave Gas Pipeline and a Pacific Gas and Electric pipeline parallel one another east-west through the southern portion of Site 4 just north of Twenty Mule Team Road. The Mojave Gas Pipeline also passes through Sites 1, 2 and 3. Within Sites 1 and 2, the Mojave Gas Pipeline parallels another gas pipeline along the same utility corridor. Within Site 3 these pipelines diverge with the Mojave Gas pipeline turning to the north while the other pipeline continues traversing generally in an east-west direction.

As shown in **Figure 3-6**, *Existing General Plan and Specific Plan Land Use Designations - Kern County*, the project parcels are designated by the Kern County General Plan as Map Codes 7.1 (Light Industrial), 7.3 (Heavy Industrial), 8.3 (Extensive Agriculture, Min. 20 acre Parcel Size), 8.5 (Resource Management, Min. 20 Acre Parcel Size), and 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard Overlay). As shown in **Figure 3-8**, *Existing Zoning*, the project parcels have a zone classification of R-1 (Low-Density Residential), A-1 (Limited Agriculture), and M-1 (Light Industrial). Portions of Site 1 and Site 2 are south of the Boron Specific Plan boundaries.

Surrounding Land Uses

Existing land uses in the surrounding area are primarily undeveloped. The project site is north of the boundaries of Edwards Air Force Base, and the existing U.S. Borax open pit mine and refinery are located approximately two miles north of the project site. The Boron Sanitary Landfill is located in between Sites 1 and 2.

The sensitive receptors closest to the project site are single-family residences located approximately 520 feet north of the Site 3 CUP boundary across Twenty Mule Team Road in the community of Desert Lake. In Boron, the nearest sensitive receptors are single-family residences located approximately 0.3 miles (1,650 feet) north of the Site 2 CUP boundary across South Wesley Street. The closest school to the site is the West Boron Elementary School, located approximately 0.3 miles (1,650 feet) north of Site 3. The Desert Lake rural community is located north of Site 3 and east of Site 4, and consists predominantly of rural residential dwellings, and the community of Boron, a census-designated place, is located north of Site 1

and Site 2. Boron Park, a local park, is located approximately 0.5 miles (2,640 feet) northeast of the northeastern corner of Site 2.

A single line railroad track (Burlington Northern and Santa Fe Railway formerly Atchison, Topeka, and Santa Fe Railway) parallels Twenty Mule Team Road to the south along the northern boundary of Sites 2 and 3 and along the southern boundary of Site 4. **Table 4.11-1**, *Project Site and Surrounding Land Uses, General Plan Map Code Designations, and Zoning*, identifies the project site and surrounding land uses.

Surrounding land uses are classified 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 3.1, (Parks and Recreation Areas), 5.4, Maximum 4 Units/Net Acre, 1.1, (State or Federal Land), 8.5, Resource Management (Min 20 Acre), 3.4 (Solid Waste Disposal Facility), 3.4.1 (Solid Waste Disposal Facility Buffer), 3.3 (Other Facilities), 7.1 (Light Industrial), 7.2 (Service Industrial), 5.3 (Maximum 10 Units/Net Acre), 8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard), 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard), 4.1 (Accepted County Plan Areas), 6.2 (General Commercial), and 6.3 (Highway Commercial).

Surrounding land uses are located within the zoning designations of A (Exclusive Agriculture), A-1 (Limited Agriculture), R-1 (Low-Density Residential), R-2 (Medium-Density Residential), A-1 H (Limited Agriculture, Airport Approach Height), M-1 (Light Industrial), M-2 (Medium Industrial), CH (Highway Commercial), C-1 (Neighborhood Commercial), C-2 (General Commercial), and CH PD (Highway Commercial, Precise Development Combining).

Table 4.11-1. Project Sites and Surrounding Land Uses, General Plan Map Code Designations, and Zoning

Location		Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Site 1		Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)	A-1 (Limited Agriculture);
Surrounding Lands	North	Undeveloped, residential dwellings, Boron Recreation Park	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 3.1, (Parks and Recreation Areas) 5.4, Maximum 4 Units/Net Acre	A (Exclusive Agriculture) A-1 (Limited Agriculture) R-1 (Low-Density Residential)
	East	Undeveloped	San Bernardino County	San Bernardino County
	South	Undeveloped, Edwards Air Force Base	1.1, (State or Federal Land) 8.5, Resource Management (Min 20 Acre)	A-1 H, (Limited Agriculture, Airport Approach Height)
	West	Undeveloped, Boron Sanitary Landfill	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 8.5 (Resource Management) 3.4 (Solid Waste Disposal Facility) 3.4.1 (Solid Waste Disposal Facility Buffer)	A-1 (Limited Agriculture) A (Exclusive Agriculture) R-1 (Low-Density Residential)

Table 4.11-1, continued

Location		Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Site 2		Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)	A-1 (Limited Agriculture); R-1 (Low-Density Residential)
Surrounding Lands	**North**	Undeveloped, railroad, commercial	3.3 (Other Facilities) 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 7.1 (Light Industrial) 7.2 (Service Industrial)	A-1 (Limited Agriculture) R-1 (Low-Density Residential) M-1 (Light Industrial) M-2 (Medium Industrial)
	East	Undeveloped, residential dwellings	5.3 (Maximum 10 Units/Net Acre) 8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 8.5 (Resource Management)	R-2 (Medium-Density Residential) R-1 (Low-Density Residential) A-1 (Limited Agriculture)
	South	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land)	A-1-H (Limited Agriculture, Airport Approach Height)
	West	Undeveloped, railroad	7.1 (Light Industrial)	M-1 (Light Industrial)
Site 3		Undeveloped	7.1 (Light Industrial) 7.3 (Heavy Industrial)	M-1 (Light Industrial)
Surrounding Lands	**North**	Undeveloped, residential dwellings (Desert Lake community), railroad	7.1 (Light Industrial), 8.5 (Resource Management, Min. 20 Acre Parcel Size)	CH (Highway Commercial), C-1, Neighborhood Commercial C-2, General Commercial A-1 (Limited Agriculture) R-1 (Low Density Residential)
	East	Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)	A-1 (Limited Agriculture)
	South	Undeveloped, Edwards Air Force Base	1.1 (State or Federal Land)	A-1-H (Limited Agriculture, Airport Approach Height)
	West	Undeveloped, railroad	1.1 (State or Federal Land)	A-1 H (Limited Agriculture, Airport Approach Height)
Site 4		Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size) 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
Surrounding Lands	**North**	Undeveloped	8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard)8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard))	A-1 (Limited Agriculture)
	East	Residential dwellings (Desert Lake community)	4.1 (Accepted County Plan Areas) 5.3 (Maximum 10 Units/Net Acre) 6.2 (General Commercial) 7.1 (Light Industrial)	R-1 (Low Density Residential) C-1 (Neighborhood Commercial) C-2 (General Commercial)
	South	Undeveloped, railroad, Edwards Air Force Base	1.1 (State or Federal Land)	A-1-H (Limited Agriculture, Airport Approach Height)

Table 4.11-1, continued

Location		Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
	West	Undeveloped	6.3 (Highway Commercial)	CH PD (Highway Commercial, Precise Development Combining)
Site 5		Undeveloped	8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
Surrounding Lands	**North**	Undeveloped	8.5 (Resource Management)	A-1 (Limited Agriculture)
	East	Undeveloped	8.3/2.5 (Extensive Agriculture, Min. 20 Acre Parcel Size/ Flood Hazard)	A-1 (Limited Agriculture)
	South	Undeveloped	8.5 (Resource Management), 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)
	West	Undeveloped	6.3 (Highway Commercial)	CH PD (Highway Commercial, Precise Development Combining)

4.11.3 Regulatory Setting

Federal and State

The Desert Renewable Energy Conservation Plan

The DRECP is a comprehensive plan that provides for renewable energy and transmission development projects and for the conservation of sensitive species and ecosystems in California's Mojave and Colorado/Sonoran deserts. It was prepared by the California Energy Commission (CEC), the California Department of Fish and Wildlife (CDFW), BLM, and the U.S. Fish and Wildlife Service in September 2014. The Commission manages approximately 340,533 acres of school lands.

Phase I of the DRECP was approved in September of 2016; as part of Phase I, the BLM has prepared a Record of Decision (ROD) approving its Land Use Plan Amendment (LUPA) to the California Desert Conservation Area (CDCA) Plan, and Bishop and Bakersfield Resource Management Plans (RMPs). The LUPA represents the public-lands component of the DRECP, identifying areas appropriate for renewable energy development, as well as areas important for biological, environmental, cultural, recreation, social, and scenic conservation, consistent with the FLPMA multiple use and sustained yield requirements. The amendments have been designed to result in an efficient and effective biological conservation and mitigation program providing renewable energy project developers with permit streamlining and cost containment while at the same time conserving, restoring, and enhancing natural communities and related ecosystems.

Local

Land use and planning decisions within and adjacent to the project site are guided and regulated by the Kern County General Plan, Kern County Zoning Ordinance, and the Airport Land Use Compatibility Plan (ALUCP). The Kern County General Plan contains goals, objectives, and policies and provides an overall

foundation for establishing land use patterns. For this land use impact analysis, this section lists all relevant goals, objectives, and policies related to the proposed project. The Kern County Zoning Ordinance contains regulations through which the Kern County General Plan's provisions are implemented. The ALUCP establishes procedures and criteria by which the County can address compatibility issues when making planning decisions concerning airports and military aviation operations. The most relevant regulations pertaining to solar energy development are presented below.

Kern County General Plan

The Kern County General Plan is a policy document designed to provide long-range guidance for planning decisions that affect the growth and resources of unincorporated Kern County. Included in the Kern County General Plan is the Land Use, Open Space, and Conservation Element, which provides for a variety of land uses for future economic growth while also ensuring the conservation of Kern County's agricultural, natural, and resource attributes. Within the Land Use, Open Space and Conservation Element, policy areas are separated by overlay designations, known as "Map Codes," which are identified on the Kern County General Plan maps for each section of the County and include the following categories: (1) non-jurisdictional land (State and federal); (2) physical and environmental constraints overlay; (3) public facilities and services; (4) special treatment areas (accepted county plan areas, rural communities and specific plan required); (5) residential; (6) commercial; (7) industrial; and (8) resource. Each Map Code/overlay area contains specific goals, policies, and implementation measures to guide development within them.

The project parcels are designated by the Kern County General Plan as Map Codes 7.1 (Light Industrial), 8.3 (Extensive Agriculture, Min. 20 acre Parcel Size), 8.5 (Resource Management, Min. 20 Acre Parcel Size), and 8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard Overlay). Each map code/overlay area contains specific goals, policies, and implementation measures to guide development within them.

In addition to the Land Use, Open Space, and Conservation Element, the Kern County General Plan includes other elements related to circulation, noise, safety, and energy. Each element establishes goals, policies, and implementation measures that guide planning decisions in unincorporated Kern County. The goals, policies, and implementation measures relevant to the project are listed below.

Chapter 1. Land Use, Open Space and Conservation Element

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn

Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Policy 2: In order to minimize risk to Kern County residents and their property, new development will not be permitted in hazard areas in the absence of implementing ordinances and programs. These ordinances will establish conditions, criteria and standards for the approval of development in hazard areas.

Policy 3: Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.

Policy 10: The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.

Policy 11: Protect and maintain watershed integrity within Kern County.

Implementation Measures

Measure D: Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.4 Public Facilities and Services

Goal

Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.

Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Policy

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Policy 7: The County will ensure adequate police protection to all Kern County residents.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Implementation Measures

Measure B: Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the time of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 3: Ensure the development of resource areas to minimize effects on neighboring resource lands.

Goal 4: Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.

Policy 3: The County will support programs and policies that provide tax and economic incentives to ensure the long-term retention of agriculture, timber, and other resource lands.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Policy 16: The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.

Policy 19: Work with other agencies to define regulatory responsibility concerning energy-related issues.

1.10 General Provisions

Goals

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1 Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterizes the quality of upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that

the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would if the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment and disposal facilities.

1.10.2 Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:

a. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

b. The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control district on ministerial permits.

Policy 21: The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.

Implementation Measure

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.

d. Use of alternative fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces.

g. Provide bicycle lockers and shower facilities on site.

h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).

i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with the California Environmental Quality Act (CEQA).

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Measure: N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Measure O: On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

1.10.5 Threatened and Endangered Species

Policies

Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with state and federal laws.

Policy 28: County should work closely with state and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29: 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 31: Under the provisions of the California Environmental Quality Act, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document is prepared.

Policy 32: Riparian areas will be managed in accordance with United States Army Corps of Engineers, and the California Department of Fish and Game rules and regulations to enhance 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 the California Environmental Quality Act.

Measure R: Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to the California Environmental Quality Act.

1.10.6 Surface Water and Groundwater

Policies

Policy 34: Ensure that water quality standards are met for existing users and future development.

Policy 41: Review development proposals to ensure adequate water is available to accommodate projected growth.

Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act, to prevent the degradation of the watershed to the extent practical.

Implementation Measures

Measure Y: Promote efficient water use by utilizing measures such as:

a) Requiring water-conserving design and equipment in new construction.

b) Encouraging water-conserving landscaping and irrigation methods.

c) Encouraging the retrofitting of existing development with water conserving devices.

1.10.7 Light and Glare

Policies

Policy 47: Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48: Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Implementation Measures

Measure AA: The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

Chapter 2. Circulation Element

2.1 Introduction

Goals

Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.

Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County.

2.3.3 Highway Plan

Goals

Goal 5: Maintain a minimum Level of Service (LOS) D.

Policies:

Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and mid-section lines. This is because the road centerline can be determined by an existing survey.

Policy 3: This plan's road-width standards are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.

- Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;
- Arterial [Major Highway] Minimum 110-foot right-of-way;
- Collector [Secondary Highway] Minimum 90-foot right-of-way;

- Commercial-Industrial Street Minimum 60-foot right-of-way; and
- Local Street [Select Local Road] Minimum 60-foot right-of-way.

Implementation Measure

Measure A: The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.

2.3.4 Future Growth

Goals

Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20 year planning horizon.

Policies

Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below Level of Service (LOS) D. Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build offsite transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

Policy 5: When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.

Policy 6: The County may accept a developer's road into the county's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.

2.3.10 Congestion Management Programs

State law requires that urbanized counties (including Kern County) prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the congestion management program. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the Federal Transportation Improvement Program (FTIP), the regional transportation agency must keep current a Regional Transportation Program (RTP) that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures (TCMs) to attain, and maintain, the State air quality standard.

Goals

Goal 1: To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.

2.3.6 Vacation of Existing or Recorded Future Streets, Highways, or Public Easements

Goals

Goal 2: Kern County intends to set up a system maintaining and coordinating road vacation procedures in all elements of the General Plan and the incorporated cities general plans.

Policies

Policy 2: Provide a means for guiding decisions on vacating public roads. A study, prepared at the applicant's expense, shall accompany the road vacation application. The study should provide information that will aid in finding the importance of the entire length of the right-of-way. The study would include a review of existing and proposed land uses and localized traffic modeling. This will help Kern County decide what corresponding changes are needed to the Land Use, Open Space and Conservation Element, or affected specific plan. This also will help Kern County decide if additional public road services or other traffic management are required elsewhere.

Policy 3: If the road vacation applicant is a private entity, all costs for the public hearing shall be borne by the applicant. Also, costs associated with providing any necessary additional public road services or other traffic management caused by the road vacation shall be paid by the applicant.

Policy 4: The vacation of a road shall not take away legal access to adjacent properties or "land-lock" any legal lot or parcel of record. Legal access shall be determined through a report submitted with the application for road vacation.

Policy 5: If Kern County determines that the right-of-way is not needed for circulation in the general area, a road vacation may be authorized. An acceptable project shall be determined through a report submitted with the road vacation application and in keeping with traffic modeling parameters of this Plan.

Policy 6: A road vacation may be authorized if physical conditions such as natural, or manmade topography prevent rational extension of the facility. Physical conditions affecting roadways shall be determined through a report submitted with the road vacation application.

Policy 7: A road vacation shall only affect public, recorded rights-of-way or public service easements. The potential effects of a road vacation upon rights-of-way and easements are to be determined by a report submitted with the road vacation application. A vacation of private access or private service easement is not under County jurisdiction. Kern County considers these matters "civil" actions. These civil actions should be acted upon accordingly.

Policy 8: A road vacation may be authorized if the right-of-way is not improved or used for its original purpose. Existing improvements and facility use shall be determined by a report submitted with the road vacation application.

Policy 9: A road vacation may be authorized to remove excess right-of-way caused by relocation, or at the beginning of a general plan amendment proceeding. Excess right-of-way shall be determined through a report submitted with the road vacation application.

Policy 14: A summary vacation shall be consistent with State of California Streets and Highway Code. A summary vacation may be used when the right-of-way does not exist, is unused, or moved. A summary vacation may be used where right-of-way is impassable, unnecessary for present or prospective public use, or is excess or public service easement land.

2.5.1 Trucks and Highways

Goals

Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2: Reduce potential overweight trucks.

Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policies

Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.

2.5.2 Airport Land Use Compatibility Plan

Goal:

Goal 1: Plan for land uses that are compatible with public airport and military bases and mitigate encroachment issues.

Policy:

Policy 2: To the extent legally allowable, prevent encroachment on public airport and military base operations from incompatible, unmitigated land uses.

Implementation Measures:

Measure A: Review discretionary land use development applications within the airports influence area and the military base operating area as shown in the ALUCP for consistency.

Measure B: Coordinate and cooperate with airport operators, the County Department of Airports, the California Department of Transportation, Division of Aeronautics, affected cities, Edwards Air Force Base, NAWS China Lake and the Department of Defense on the ALUCP, review of land use applications, public education and encroachment issues.

2.5.4 Transportation of Hazardous Materials

Goals

Goal 1: Reduce risk to public health from transportation of hazardous materials.

Policies

Policy 1: The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Chapter 3. Noise Element

Goals:

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies:

Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

Policy 2: Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health.

Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 5: Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:

a. 65 db-Ldn or less in outdoor activity areas.

b. 45 db-Ldn or less within living spaces or other noise sensitive interior spaces.

Policy 7: Employ the best available methods of noise control.

Implementation Measures

Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess of 45 dB Ldn.

Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

a) Be the responsibility of the applicant

b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Measure I: Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Chapter 4. Safety Element

4.1 Introduction

Goal:

Goal 1: Minimize injuries and loss of life and reduce property damage.

Policies:

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 2: The County will encourage the promotion of public education about fire safety at home and in the workplace.

Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 5: Require that all roads in wildland fire areas are well marked, and that homes have addresses prominently displayed.

Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint

Implementation Measure:

Measure A: All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of a land use activity susceptible to such hazards.

Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency (FEMA), shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.3 Seismically Induced Surface Rupture, Ground-Shaking, and Ground Failure

Policy

Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measures

Measure B: Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.

4.5 Landslides, Subsidence, Seiche, and Liquefaction

Policies

Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

4.6 Wildland and Urban Fires

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

4.9 Hazardous Materials

Implementation Measures

Measure A: Facilities used to manufacture, store, and use hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.

Chapter 5. Energy Element

5.2 General Policies

Policies

Policy 8: The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

5.4 Electricity Resources and Generation

5.4.5 Solar Energy Development

Goal:

Goal 1: Encourage safe and orderly commercial solar development.

Policies:

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4: The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Policy 7: The processing of all discretionary energy project proposals shall comply with the State CEQA Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.

Policy 8: The County should work closely with local, State, and Federal agencies to ensure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts on fish, wildlife, and botanical resources, wherever practical.

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

5.4.7 Transmission Lines

Goal:

Goal 1: To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.

Policies:

Policy 1: The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.

Policy 2: The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.

Policy 3: In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.

Policy 4: The County should work with other agencies in establishing routes for proposed transmission lines.

Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

Policy 6: The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.

Kern County Zoning Ordinance

Title 19 of the Kern County Ordinance provides a description of permitted uses for the various zoning classifications within the County. The Zoning Ordinance consists of two primary parts: a Zoning Map that delineates the boundaries of zoning districts; and Zoning Ordinance that explains the purpose of the districts, specifies permitted and conditional uses, and establishes development and performance standards. The intent of the Zoning Ordinance is to protect public health, safety, and the general welfare of residents and visitors in the County. Together with the Zoning Map, the Zoning Ordinance identifies the particular uses permitted on each parcel of land in the County and sets forth regulations and standards for development to ensure that the policies, goals, and objectives of the General Plan are implemented. In addition to land use regulations, the Zoning Ordinance contains development standards that can lessen a new structure's impacts on a location or area. These standards control the height, setbacks, parking, lot coverage, gross floor area, etc. for new structures. The Zoning Ordinance also regulates which uses are permitted in each of the County's zoning districts to ensure compatibility between land uses. The following is a description of the zone districts currently designated within the project site properties, as shown on **Figure 3-8**, *Existing Zoning.*

R-1 (Low-Density Residential)

The purpose of the Low-density Residential (R-1) District is to designate areas which will be suitable for traditional smaller lot, single-family homes and compatible uses. Maximum density is limited to ten (10) dwelling units per net acre. Typically, the R-1 District will be characterized by the typical single-family subdivision. However, innovative low-intensity projects are allowed in combination with the Cluster (CL) Combining District.

A-1 (Limited Agriculture)

The purpose of the Limited Agriculture (A-1) District is to designate areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses. Final map residential subdivisions are not allowed in the A-1 District. Permitted land uses include agriculture, residential uses, commercial uses, utility and communication facilities, resource extraction, energy development, institutional uses, and miscellaneous accessory structures related to permitted uses.

M-1 (Light Industrial)

The purpose of the Light Industrial (M-1) District is to designate areas for wholesale commercial, storage, trucking, assembly-type manufacturing, and other similar industrial uses. Processing or fabrication will be limited to activities conducted within a building that does not emit fumes, odor, dust, smoke, or gas beyond the confines of the building within which the activities occur or produce significant levels of noise or

vibration. Pursuant to Section 19.36.030 of the Kern County Zoning Ordinance, solar facilities are permitted on land zoned Light Industrial (M-1) with approval of a CUP.

Section 19.104.040 Basis for Approval

The decision-making authority may approve or conditionally approve an application for a conditional use permit if it finds all of the following:

A. The proposed use is consistent with the goals and policies of the applicable General or Specific Plan.

B. The proposed use is consistent with the purpose of the applicable district or districts.

C. The proposed use is listed as a use subject to a conditional use permit in the applicable zoning district or districts or a use determined to be similar to a listed conditional use in accordance with the procedures set out in Sections 19.08.030 through 19.08.080 of this title.

D. The proposed use meets the minimum requirements of this title applicable to the use.

E. The proposed use will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.

Airport Land Use Compatibility Plan

The Kern County ALUCP establishes procedures and criteria by which the County can address compatibility issues when making planning decisions concerning airports and military aviation operations.

Military Aviation Operations

Section 4.17 of the ALUCP addresses land use policies and procedures relative to military aviation. Kern County has two military aviation installations, the China Lake Naval Air Weapons Station and Edwards AFB. Due to the military bases' required flying mission, aircraft commonly fly beyond the boundaries of the installations at supersonic speeds and sometimes as low as 200 feet above the ground. In order to minimize flight hazards to non-military aircraft, the military aircraft from these installations fly within restricted airspace known as the Joint Service Restricted R-2508 Complex. According to Figure 4-81 in the ALUCP, the project site is located within the geographical boundaries of the R-2508 complex (County of Kern 2012).

Because of the extreme flying capabilities and needs of military aircraft, military officials have concerns about land development that may compromise the mission of the installations. Section 4.17.2 of the ALUCP identifies the types of land development that require review by the military for compatibility. These include, but are not limited to, tall obstructions that penetrate into the airspace, and developments that can cause adverse environmental effects such as reduced visibility due to particulate matter emissions. Furthermore, per Section 3.5.5 of the ALUCP, certain land use characteristics such as glare, distracting lights, or light patterns which could be mistaken for airport lights, are also not permitted within the R-2508 Complex boundary. In addition, Section 4.17.3 of the ALUCP requires that the China Lake Naval Air Weapons Station and Edwards AFB be notified of development that falls within identified notification categories. The categories that are applicable to the proposed project include the following:

- Any structure within 75 miles of the R-2508 Complex that is greater than 50 feet tall;

- Any environmental document or discretionary project within 25 miles of the R-2508 Complex; and
- Any project within 25 miles of the centerline of any route/corridor.

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (COG) and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS) required by California's Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set Kern greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks at 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing needs and transportation planning. The 2018 RTP exceeds SB 375 reduction targets for the region and is consistent with the RHNA.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to: improve economic vitality; improve air quality; improve the health of communities; increase transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.

The 2018 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, State, and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to State and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future State bonding programs, and mileage based user fees (Kern COG 2018).

Solid Waste Management Plan

The Solid Waste Management Plan is a comprehensive guide for all solid waste management activities in the County. The plan identifies the existing solid waste generation and disposal facilities in Kern County, estimates future solid waste disposal demand, and identifies programs to meet this future need.

Kern County and Incorporated Cities Hazardous Waste Management Plan

The Kern County and Incorporated Cities Hazardous Waste Management Plan focuses on the siting of hazardous waste disposal facilities, the transport of hazardous waste in the County, protection of water resources from hazardous waste contamination, and public education concerning the use and disposal of hazardous waste.

4.11.4 Impacts and Mitigation Measures

Methodology

The potential impacts associated with the project are evaluated on a qualitative basis through a comparison of the existing land use and the proposed land uses, in consideration of the applicable planning goals identified above. Compliance with the aforementioned policies is illustrated in consistency tables provided in the project impact section, below. The change in the land use on the project site is significant if the effect described under the thresholds of significance below occurs as a result of the project. The evaluation of project impacts is based on professional judgment, analysis of the County's land use policies and the significance criteria established in Appendix G of the CEQA Guidelines, which the County has determined appropriate for this EIR.

Thresholds of Significance

As established in Appendix G of the CEQA Guidelines, the Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria to determine if a project could potentially have a significant adverse effect on land use.

A project would have a significant impact on land use if it would:

a. Physically divide an established community; or

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.

Project Impacts

Impact 4.11-1: The project would physically divide an established community.

As discussed in the NOP/IS (Appendix A of this EIR), the project site is located on undeveloped desert land. The Desert Lake rural community is located immediately north of Site 3 and east of Site 4 and consists predominantly of rural residential dwellings. Rural residential dwellings are also located immediately adjacent to Sites 1 and 2 in Boron. The proposed project would not physically divide or restrict access to these communities. The proposed project is not anticipated to physically divide an established community and impacts are considered to be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.11-2: The project would 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.

The Kern County General Plan, Kern County Zoning Ordinance, and ALUCP establish land use policies and regulations that are applicable to the proposed project. The following discussion evaluates the proposed project's conformity to these plans, policies and regulations. The proposed project would require approval of the following discretionary actions:

Changes in zone classifications for Zone Change Case (ZCC):

- No. 6, Map No. 192 – from A-1 to A for 696.69 acres
- Zone Change Case No. 3, Map No. 208-5 – From A-1 to A for 299.94 acres
- Zone Change Case No. 6, Map No. 208-6 – From A-1 to A for 228.87 acres and from R-1 to A for 79.6 acres
- Zone Change Case No. 1, Map No. 209-1 from A-1 to A for 635.20 acres

CUPs to allow for the construction and operation of the five solar facilities:

- Site 1: CUP No. 3, Map No. 208-5 for 299.94 acres;
- Site 2: CUP No. 7, Map No. 208-6 for 169.92 acres and CUP No. 1, Map No. 209-1 for 635.20 acres;
- Site 3: CUP No. 1, Map No. 209-2 for 620.26 acres;
- Site 4: CUP No. 16, Map No. 192 for 339.46 acres
- Site 5: CUP No. 17, Map No. 192 for 252.31 acres

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

- GPA No. 6, Map No. 192
- GPA No. 2, Map No. 192-35
- GPA No. 3, Map No. 208-5
- GPA No. 3, Map No. 208-6
- GPA No. 1, Map No. 209-1
- GPA No. 1, Map No. 209-2

Kern County General Plan

Table 4.11-2, *Consistency Analysis with Kern County General Plan*, presents an evaluation of the proposed project's consistency with the Kern County General Plan. The table lists the goals and policies identified above, and provides analysis on the proposed project's general consistency with overarching policies.

Additionally, the table provides goals and policies of issue areas that are presented in more detail in other sections of this EIR. As evaluated in detail in **Table 4.11-2**, *Consistency Analysis with Kern County General Plan,* at the end of this section, the proposed project is generally consistent with goals and policies of the Kern County General Plan.

General Plan Amendment – Removal of Road Reservations

The proposed project involves General Plan amendments to the Circulation Element of the Kern County General Plan to remove sections and midsection line road reservations, as shown in **Figure 3-7**, *Proposed Circulation Element Amendments,* in Chapter 3, *Project Description,* of this EIR. Implementation of these General Plan amendments would ensure consistency between the project and land use plan for the project area. This would allow solar panels to be placed throughout the Sites, and no setbacks from section and midsection lines future road reservations would be required. The proposed amendment would not affect property owner access to any other surrounding properties. Furthermore, it is unlikely that a road would ever be constructed once the project was in operation and would not impede traffic flow to and from the surrounding rural residential uses in the project vicinity. Therefore, implementation of the General Plan amendments to the Circulation Element would not result in conflict with the applicable land use plan for the project area, and impacts would be less than significant.

Kern County Zoning Ordinance

The Applicant is requesting a change in zone classifications for the project site parcels from R-1 (Low-Density Residential) and A-1 (Limited Agriculture) to A (Exclusive Agriculture). According to Kern County Zoning Ordinance 19.12.030 and 19.16.030, solar energy electrical facilities are permitted within the A (Exclusive Agriculture) Zone District and M-1 (Light Industrial) Zone District, respectively, with the approval of a CUP. This means that the conditional use, in this case the solar energy electric power generation facility, would be a use permitted in the A and M-1 zone districts with the conditioned requirements and standards specified in the permit. The project proponent is requesting five individual CUPs to allow flexibility in the construction and operation of the proposed project. Therefore, with the approval of the zone change classifications and CUPs, the proposed project would be a permitted use within the A and M-1 zone districts. With approval of the requested CUPs, the associated project conditions and standards, and zone change classifications, the proposed project would not have the potential to conflict with the Zoning Ordinance and therefore impacts would be less than significant.

Airport Land Use Compatibility Plan

The project site is not located within two miles of a public use airport and is not within an area covered by the ALUCP of Kern County. The Kern County Airport Land Use Compatibility Plan (ALUCP) covers operations at the Edwards Air Force Base, which borders the project site to the west and south; however, the project is approximately 5 miles from any runway facility at Edwards Air Force Base. The nearest public airport to the project site is the California City Municipal Airport located approximately 18 miles northwest of the project site. The project site is not located within any safety or noise zones for Edwards Air Force Base or the California City Municipal Airport. Due to the nature of the proposed land use, impacts from air traffic hazards or excessive aircraft noise are not anticipated to occur for people residing or working in the project area with respect to the project's proximity to a public airport. Therefore, implementation of the proposed project would not conflict with the Kern County ALUCP and no impact would occur.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, multiple projects, including utility-scale solar and wind energy production facilities, are proposed throughout Kern County. Many are located, like the project site, in the Mojave Desert. As shown in **Table 3-3**, *Cumulative Projects List*, 21 solar energy projects are presently under development in Eastern Kern County. The cumulative projects are (1) submitted for plan processing; (2) approved by the County of Kern; and/or (3) engaged in active construction programs. While the surrounding area is still relatively rural in nature, the proposed project would contribute to a cumulative influence on proposed land uses in and around the project site.

The anticipated impacts of the project in conjunction with cumulative development in the area of the project would increase urbanization and result in the loss of open space within the desert region of the County. Potential land use impacts require evaluation on a case-by-case basis because of the interactive effects of a specific development and its immediate environment. As described in **Table 4.11-2**, *Consistency Analysis with Kern County General Plan*, the project would be consistent with the goals and policies of the respective Kern County General Plan. In addition, with approval of all discretionary actions, including implementation of conditions of the CUPs, the project would be a permitted use that would not conflict with the land use designation or zoning classification for the site. Therefore, the project would not result in a cumulatively considerable impact regarding land use.

All related projects would be required to undergo environmental review, in accordance with the requirements of CEQA. Like the proposed project, each related project would also be required to demonstrate consistency with all applicable planning documents governing the project site, including the Kern County General Plan, applicable specific plans and the Kern County Zoning Ordinance. Should potential impacts be identified, appropriate mitigation would be prescribed in order to reduce potential impacts to less than significant levels.

With regard to cumulative effects of utility-sized solar power generation facilities, there is a potential for outside factors, such as the development of newer technology, change in State or federal policy, or other economic factors, to result in the abandonment of such facilities. Unlike other facilities that, once constructed, can be retrofitted and utilized for another specific use, solar power generation facilities have little opportunity for other uses should the site not be in operation. Due to the potential for cumulative effects and impacts on surrounding land uses caused by the abandonment of multiple solar facilities in Kern County, Mitigation Measure MM 4.11-1 relating to the decommissioning of solar facilities has been included to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. While it is the intent of Kern County to promote the use of an alternative to fossil-fuel-generated electrical power in areas of the County that are identified to have suitable characteristics for production of commercial quantities of solar PV-generated electrical power, it is necessary to protect surrounding landowners from potential impacts associated with the abandonment of such facilities. With

the implementation of Mitigation Measure MM 4.11-1, which requires a decommissioning plan and financial assurances, these cumulative land use impacts would be considered less than significant.

There is the potential that the future use of newer technology or equipment may contribute to unanticipated environmental impacts. Kern County has two military aviation installations, the China Lake Naval Air Weapons Station and Edwards Air Force Base. Each installation has unique flying operations, and their primary mission is to test military aircraft and weapon systems. The military has identified potential conflicts of users of the radio frequency spectrum located both on and off military installations as an area to be reviewed for compatibility issues. Operations of unmanned radio-controlled aircraft flights can have electronic interference from other sources of radio signals. Such interference problems could potentially occur throughout the desert areas where utility scale solar and other renewable energy projects are built, resulting in potentially significant cumulative impacts. Coordination of frequency and notification can mitigate this effect. Cumulative impacts involving such conflicts would be mitigated to a less than significant level with implementation of Mitigation Measure MM 4.11-2.

Mitigation Measures

MM 4.11-1 Prior to the issuance of any building permit, the project proponent/operator shall provide the Kern County Planning and Natural Resources Department with a Decommissioning Plan for review and approval. The plan shall be carried out by the proposed operator or a County-contracted consulting firm(s) at a cost to be borne by the project proponent/ operator.

a. The Decommissioning Plan shall include, but is not limited to, the following:

    1. Factor in the cost to remove the solar panels and support structures, replacement of any disturbed soil from the removal of support structures (including all underground equipment), and control of fugitive dust on the remaining undeveloped land.

    2. Salvage value for the solar panels and support structures shall be included in the financial assurance calculations.

    3. The assumption, when preparing the estimate, is that the project proponent/ operator is incapable of performing the work or has abandoned the solar facility, thereby resulting in the County hiring an independent contractor to perform the decommission work.

b. In addition to submittal of a Decommissioning Plan, the project proponent/operator shall post or establish and maintain with the County financial assurances related to the deconstruction of the site as identified on the approved Decommission Plan should at any point in time the project proponent/operator determine it is not in their best interest to operate the facility. The financial assurance required prior to issuance of any building permit shall be established using one of the following:

    1. An irrevocable letter of credit;

    2. A surety bond;

3. A trust fund in accordance with the approved financial assurances to guarantee the deconstruction work will be completed in accordance with the approved decommissioning plan; or

4. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department.

c. The financial assurances documents shall include the following verbiage, including any required verbiage through Kern County Planning and Natural Resources Department's consultation and review with Kern County Counsel:

1. Financial institution or Surety Company shall give the County a minimum of 120 days' notice of intent to terminate the letter of credit or bond.

2. Financial assurances shall be reviewed annually by the respective counties or County-contracted consulting firm(s) at a cost to be borne by the project proponent/operator to substantiate those adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved Decommissioning Plan.

3. Should the project proponent/operator deconstruct the site on their own, the County will not pursue forfeiture of the financial assurance.

4. Financial institution or Surety Company shall be licensed to conduct business in the state of California.

d. Once deconstruction has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted will be adjusted or returned accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project proponent/operator.

e. Should any portion of the solar field not be in operational condition for a consecutive period of twenty-four (24) months, that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project proponent/operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project proponent/operator may provide the County a written request and justification for an extension for an additional twelve (12) months. The Kern County Planning and Natural Resources Department Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance.

f. In no case shall a solar field which has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the solar facility was first deemed abandoned.

MM 4.11-2 Prior to the operation of the solar facility, the operator shall consult with the Department of Defense to identify the appropriate Frequency Management Office officials to coordinate the use of telemetry to avoid potential frequency conflicts with military operations.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.11-1 and MM 4.11-2, cumulative impacts would be less than significant.

Project Consistency with the Kern County General Plan

Table 4.11-2, *Consistency Analysis with Kern County General Plan*, summarizes the consistency of the project with all applicable goals and policies of the Kern County General Plan and relevant planning documents that are applicable to the project site.

Table 4.11-2. Consistency Analysis with Kern County General Plan

Goals/Policies	Consistency Determination	Project Consistency
Chapter 1, Land Use, Open Space, and Conservation Element		
1.3 Physical and Environmental Constraints		
Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.	Consistent, with implementation of Mitigation Measures MM 4.7-1 and MM 4.10-2.	Seismic hazards are described and analyzed in Section 4.7, *Geology and Soils*. Mitigation Measure MM 4.7-1, which requires implementation of recommendations from the Geotechnical Engineering Report for the proposed project, would ensure site stability to the maximum extent possible during project construction and operation. As discussed in Section 4.10, *Hydrology and Water Quality*, the majority of Site 5 and the westernmost portion of Site 4 are located within the 100-year floodplain of the Twenty Mule Team Creek. The 100-year floodplain of an unnamed creek crosses Site 2. The majority of Site 4 is located within the 500-year floodplain. However, implementation of Mitigation Measure MM 4.10-2 would require preparation of a drainage plan that would design project facilities to accommodate for flood conditions, including the provision of one-foot freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Additionally, per Mitigation Measure MM 4.10-2, grading for the project would be designed so that water surface elevations during flood events would not be increased by more than one foot. Further, the project would be developed in accordance with the General Plan and Floodplain Management Ordinance. Additionally, final review of the proposed project by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, State, and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.
Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.	Consistent	See 1.3, Physical and Environmental Constraints, Goal 1, above.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 2: In order to minimize risk to Kern County residents and their property, new development will not be permitted in hazard areas in the absence of implementing ordinances and programs. These ordinances will establish conditions, criteria and standards for the approval of development in hazard areas.	Consistent	See 1.3, Physical and Environmental Constraints, Goal 1, above.
Policy 3: Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.	Consistent	See 1.3, Physical and Environmental Constraints, Goal 1, above.
Policy 10: The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.	Consistent	See 1.3, Physical and Environmental Constraints, Goal 1, above.
Policy 11: Protect and maintain watershed integrity within Kern County.	Consistent	See 1.3, Physical and Environmental Constraints, Goal 1, above.
Measure D: Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.	Consistent, with implementation of Mitigation Measure MM 4.10-1.	As described in further detail in Section 4.10, *Hydrology and Water Quality* of this EIR, the project would be designed based on review of and in accordance with the County's Grading Ordinance, including where the facilities would be designed to minimize alterations to the topography and maintain soil stability as to minimize soil erosion. With implementation of Mitigation Measure MM 4.10-1, the proposed project would be consistent with this measure.
Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.	Consistent, with implementation of Mitigation Measure MM 4.10-1.	As described in further detail in Section 4.10, *Hydrology and Water Quality* of this EIR, the project involves soil disturbance activities, and is subject to compliance the Central Valley Region of the California Regional Water Quality Control Board Water Quality Order No. R5-2016-0040 (NPDES General Permit NO. CAS0085324) Waste Discharge Requirements General Permit for Discharges from Municipal Separate Storm Sewer Systems (MS4s) MS4 permit, which requires projects to comply with the State Water Resources Control Board's Construction General Permit. With implementation of Mitigation Measure MM 4.10-1, the proposed project would be consistent with this measure.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
1.4 Public Facilities and Services		
Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	As discussed in Section 4.13, *Public Services*, of this EIR, implementation of Mitigation Measure MM 4.13-2 would ensure that the project operator pay an annual fee assigned by the Kern County Planning and Natural Resources Department over the life of the proposed facility in order to mitigate any potential impacts to fire or police protection services resulting from the proposed project. With payment of the required mitigation fee as assessed by the Kern County Planning and Natural Resources Department, any additional fire or police protection services, facilities or personnel required as a result of the proposed project would be appropriately funded.
Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.	Consistent	As discussed in Section 4.16, *Utilities and Service Systems,* and evaluated in the project Water Supply Analysis (see Appendix M), the project water supply would be supplied via one or more of the following sources: an on-site or off-site groundwater well pumping water from the Antelope Valley Groundwater Basin, through a local retailer sourced by AVE, purchased from a local water utility (Boron CSD or Desert Lake CSD), or pumped from an off-site groundwater well in the Harper Valley Groundwater Basin. By having the options of obtaining water from multiple sources, impacts related to water supply would be less than significant. The project would be consistent with this goal.
Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	See 1.4, Public Facilities and Services, Goal 1, above.
Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.	Consistent	The project would follow the approved guidelines of the serving utility. The project would be consistent with this policy.
Policy 6: The County will ensure adequate fire protection to all Kern County residents.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	Fire protection services are analyzed in Section 4.13, *Public Services.* As discussed, Kern County Fire Department provides fire protection to the County residences. As analyzed, the project would result in less than significant impacts to public services, including fire protection services with implementation of Mitigation Measure MM 4.13-2, which requires the project to pay a required mitigation fee to fund fire and police protection services. With implementation of Mitigation Measure MM 13-2, the project would be consistent with this policy.
Policy 7: The County will ensure adequate police protection to all Kern County residents.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	Law enforcement services are analyzed in Section 4.13, *Public Services.* As discussed, Kern County Sheriff's Department provides law enforcement protection to the County residences. As analyzed, the project would result in less than significant impacts to public services, including law enforcement, with implementation of Mitigation Measure MM 4.13-2, which requires the project to pay a required mitigation fee to fund fire and police protection services. With implementation of Mitigation Measure MM 13-2, the project would be consistent with this policy.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.	Consistent	As part of the project CEQA review process, this EIR was prepared, which includes analysis of the project impacts to public services. The County shall also adopt the CEQA findings as part of the review process, prior to approval of any project discretionary permit for the project. The project is consistent with this policy.
Measure B: Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the time of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	See 1.4, Public Facilities and Services, Goal 1, above.
Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.	Consistent	Impacts to utilities are evaluated in Section 4.16, *Utilities and Service Systems*, of this EIR. This EIR serves to comply with this policy, and the project proponent/operator would coordinate with the applicable utility service providers if/when project construction/operation demands.
Measure D: Involve utility providers in the land use and zoning review process.	Consistent	The County provided the Notice of Preparation of a Draft EIR for this project to all utility providers for this area.
Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	See 1.4, Public Facilities and Services, Goal 1, above.
1.9 Resources		
Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.	Consistent	The project site is not within a mineral recovery area or within a designated mineral and petroleum resource site designated by the Kern County General Plan, nor is it identified as a mineral resource zone by the Department of Conservation's State Mining and Geology Board. The project site is not located within the County's NR (Natural Resources) or PE (Petroleum Extraction) Zone Districts. The project site is not designated by the California Department of Conservation (CDOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Sites 1, 2, 4, and 5 are designated as nonagricultural and natural vegetation. The majority of Site 3 is designated as nonagricultural and natural vegetation, with a portion that is designated as vacant or disturbed land.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Goal 3: Ensure the development of resource areas minimize effects on neighboring resource lands.	Consistent	The proposed project involves development of a solar facility to capture and utilize sunlight energy into usable electricity. As analyzed in the project Initial Study and this EIR, the project would not have significant impacts on mineral and petroleum resources (Initial Study) and agricultural resources (Section 4.2 of this EIR). The project is compatible with open space and other resource management land uses, and the placement of solar array at the project site may deter other urban and suburban land uses from being developed at the project site.
Goal 4: Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.	Consistent	Consistent with this policy, the proposed project is the development of solar PV power generating facility designed to produce up to 530 MW and 600 MW of energy storage. The project's adherence to the County's zoning ordinance and entitlement and environmental review provide the mechanisms to develop the project in a safe and orderly manner. The project would develop a clean energy source that would create fewer fossil fuel emissions thus protecting the environment. Final review of the proposed project by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, State and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.
Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.	Consistent	Consistent with this policy, the proposed project is the development of solar PV power generating facilities designed to produce up to 530 MW of solar power and 600 MW of energy storage. The project would develop a clean and alternative energy source that would create fewer fossil fuel emissions thus protecting the environment. This EIR fully evaluates the project's environmental impacts and proposes a number of mitigation measures to avoid or reduce impacts to less than significant levels.
Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.	Consistent	The project implements the General Plan policy of maximizing utilization of available solar resources.
Policy 3: The County will support programs and policies that provide tax and economic incentives to ensure the long-term retention of agriculture, timber, and other resource lands.	Consistent	The project does not involve removal or loss of agricultural, timber, and other resource lands, Placement of a solar PV power generating facility at the project site is compatible with open space and other resource management land uses and may deter urban and suburban encroachment on adjacent parcels. Development of the project would provide tax and other economic benefits to the County and the project area.
Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.	Consistent	The project does not propose development of areas designated for agricultural uses, including Class I and II and other enhanced agricultural soils with a water irrigation system. The project is consistent with this policy.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.	Consistent, with implementation of Mitigation Measure MM 4.10-1.	See 1.3, Physical and Environmental Constraints, Goal 1, above.
Policy 16: The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.	Consistent	The project proposes the development of a PV power generating facility designed to produce up to 530 MW of solar power and 600 MW of energy storage. Consistent with this policy, the proposed project would generate solar energy and offset an equivalent amount of fossil fuel-generated electrical power. The project is being designed to comply with all applicable design and building standards administered by the County.
Policy 19: Work with other agencies to define regulatory responsibility concerning energy-related issues.	Consistent	This project would not prevent the ability of the County to work with other agencies to define energy-related issues.
1.10 General Provisions		
Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.	Consistent, with implementation of Mitigation Measures MM 4.9-1 through 4.9-5, and MM 4.13-2.	Consistent with this goal, the proposed project would implement a solar PV generating facility, which would provide a long-term development in the region. The project has a low water demand and would result in little noise and air emissions. As discussed in Section 4.2, *Agricultural Resources*, and Section 4.7, *Geology and Soils*, of this EIR, the project is not located in an area of agricultural or mineral resources. The project is located between a landfill facility and contains a shooting range; . However, with implementation of Mitigation Measures MM 4.9-1 through 4.9-5, potential impacts with respect to hazardous materials would be less than significant. As discussed in Section 4.13, *Public Services*, of this EIR, implementation of Mitigation Measure MM 4.13-2 would ensure that the project operator pay an annual fee assigned by the Kern County Planning and Natural Resources Department over the life of the proposed facility in order to mitigate any potential impacts to fire or police protection services resulting from the proposed project. With implementation of the aforementioned mitigation measures, the project is consistent with this goal.
1.10.1 Public Services and Facilities		
Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	See 1.4, Public Facilities and Services, Goal 1, above.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	Project impacts to police and fire services would be less than significant, with fee payment required by Mitigation Measure 4.13-2.
Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.	Consistent, with implementation of Mitigation Measure MM 4.13-2.	See 1.4, Public Facilities and Services, Goal 1, above.
Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.	Consistent	Project impacts on utility service providers are analyzed in Section 4.16, *Utility Services.* As discussed, the project would require utility services for electricity, telecommunications, and potentially water. The project would be required to coordinate with each provider for the services to be provided. The project would be consistent with this implementation measure.
Measure D: Involve utility providers in the land use and zoning review process.	Consistent	As part of the project CEQA public review process, this project EIR is circulated to project stakeholders, which include utility providers. The project is consistent with this implementation measure.
Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterizes the quality of upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would if the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment and disposal facilities.	Consistent	Soil characteristics and percolation related to proposed on-site septic systems are addressed in Section 4.7, *Geology and* Soil, and water and wastewater impacts are evaluated in Section 4.10, *Hydrology and Water Quality*, and Section 4.17, *Utilities and Service Systems*, and s, of this EIR. The proposed project includes a private septic system(s) to be built within the O&M facility(ies) to dispose of wastewater generated by the estimated up to 25 full-time employees (up to 5 employees at each site). The septic system would be designed in accordance with soil percolation characteristics of the selected site, and would be constructed in accordance with Kern County Department of Public Health requirements. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed. Final review of the proposed project by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, State and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
1.10.2 Air Quality		
Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.	Consistent, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. As demonstrated in Section 4.3, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2, the project would not result in significant impacts to air quality during either construction or operation of the proposed project.
Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that: a. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and b. The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.	Consistent, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	See 1.10, *General Provisions*, Policy 18, above.
Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control district on ministerial permits.	Consistent, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	As discussed in Section 4.3, *Air Quality*, implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2 would reduce fugitive dust emissions during construction and operation, in compliance with the adopted rules and regulations of the Eastern Kern Air Pollution Control District.
Policy 21: The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.	Consistent, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	See 1.10, *General Provisions*, Policy 20, above.
Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.	Consistent, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	See 1.10, *General Provisions*, Policy 20, above.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment	Consistent	As part of the EIR process, the project NOP and EIR is circulated to the Kern County Air Pollution Control District for review.
Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to: a. Minimizing idling time. b. Electrical overnight plug-ins.	Consistent, with implementation of Mitigation Measure MM 4.3-1.	Project impacts to air quality and health risk, including the project diesel emissions are analyzed in Section 4.3, *Air Quality*, of this EIR. Based on the project Health Risk Assessment, the health risks associated with diesel particulate emissions during the project construction, operation, and decommissioning are expected to be less than significant. Further, the project would be required to comply with applicable State regulations, including the Airborne Toxic Control Measure (Title 13 CCR, Section 2485), which limits the idle time for diesel-fueled commercial motor vehicles. Additionally, as required by Mitigation Measure MM 4.3-1, the project would be required to used certified equipment, such as diesel-fueled portable generators, which would reduce diesel exhaust. With compliance with State regulations and implementation of Mitigation Measure MM 4.3-1, the project would be consistent with this measure.
Measure H: Discretionary projects may use one or more of the following to reduce air quality effects: a. Pave dirt roads within the development. b. Pave outside storage areas. c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans. d. Use of alternative fuel fleet vehicles or hybrid vehicles. e. Use of emission control devices on diesel equipment. f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces. g. Provide bicycle lockers and shower facilities on site. h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86). i. The use and development of park and ride facilities in outlying areas. j. Other strategies that may be recommended by the local Air Pollution Control Districts	Consistent, with implementation of Mitigation Measure MM 4.3-1.	Project impacts to air quality, including PM_{10}, are analyzed in Section 4.3, *Air Quality*, of this EIR. While the specified items under this measure are generally not applicable to a utility-scale solar project such as this project, the project would implement Item (j), other strategies that may be recommended by the local Air Pollution Control District. As identified in Mitigation Measure MM 4.3-1, the project would implement practices recommended by the EKAPCD for fugitive dust control, in accordance with EKAPCD Rule 402 measures. With implementation of Mitigation Measure MM 4.3-1, the project would be consistent with this measure.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.	Consistent, with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	Project impacts to air quality, including PM_{10}, are analyzed in Section 4.3, *Air Quality*, of this EIR. The project would control PM_{10} emissions through Mitigation Measures MM 4.3-1, which prescribes road speed, road and ground stabilization, watering, limitations on ground disturbance activities, haul truck requirements, etc., during onsite work activities; and MM 4.3-2, which limits worker roundtrips and thereby reduce PM_{10} emission from commuter vehicles. With implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2, the project would be consistent with this measure.
1.10.3 Archaeological, Paleontological, Cultural and Historical Preservation		
Policy 25: The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.	Consistent, with implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources*, of this EIR. The project would comply with this policy through the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5, all of which ensure the preservation of known and unknown cultural and historic resources.
Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.	Consistent, with implementation of Mitigation Measures MM 4.5-3 through MM 4.5-6.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources*, of this EIR. Consistent with this measure, copies of the reports will be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield, as indicated in Mitigation Measures MM 4.5-3 through MM 4.5-6.
Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with the California Environmental Quality Act (CEQA).	Consistent, with implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources*, of this EIR. Consistent with this measure, impacts to archaeological and historical resources are evaluated in accordance with CEQA. This EIR and associated measures serve to comply with this measure.
Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.	Consistent, with implementation of Mitigation Measures MM 4.7-3 through MM 4.7-6.	Paleontological resources are analyzed in Section 4.7, *Geology and Soils*, of this EIR. While no known paleontological resources have been identified at the project sites, portions of the project area have a high potential to contain paleontological resources. As a result, the project would implement Mitigation Measures MM 4.7-3 through MM 4.7-6, which require measures to train, monitor, protect, and evaluate potentially encountered fossils. With implementation of the mitigation measures, the project would be consistent with this measure.
Measure: N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.	Consistent	Tribal cultural resources are evaluated in Section 4.15, *Tribal Cultural Resources*, of this EIR. The County maintains a Master List of Native American Tribes, which included the NAHC's provided a contact list of Native American Tribes affiliated with the project site. On June 17, 2020, the County sent consultation notification letters via certified mail to Native American groups on the County's Master List pursuant to the requirements of AB 52 pertaining to government-to-government consultation. Consistent with this measure, notification regarding the proposed project would be conducted in accordance with the established procedures for discretionary projects and CEQA documents.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure O: On a project specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.	Consistent, with implementation of Mitigation Measures MM 4.5-1 and MM 4.5-2.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources*, of this EIR. This EIR serves to comply with this measure and includes Mitigation Measures MM 4.5-1 and MM 4.5-2, which would require Native American monitoring and consultation with the Native American monitor(s) to conduct a Cultural Resources Sensitivity Training for all personnel working on the proposed project.
1.10.5 Threatened and Endangered Species		
Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.	Consistent, with implementation of MM 4.4-1 through MM 4.4-22.	Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. This EIR serves to comply with this policy and reduce potential impacts with mitigation (see Section 4.4, *Biological Resources*, for details). Additionally, the proposed project would be developed and operated in accordance with all local, State and federal laws pertaining to the preservation of sensitive species.
Policy 28: County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.	Consistent, with implementation of MM 4.4-1 through MM 4.4-22.	Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. This EIR serves to comply with this policy and reduce potential impacts with mitigation. As part of the biological resources evaluation and habitat assessment conducted for the proposed project, relevant State and federal agencies were contacted to ensure that appropriate information about the project sites was being gathered. A NOP of this EIR was sent to State and federal agencies requesting their input on the biological resource evaluation. Similarly, this EIR will also be circulated to these agencies, and staff will have the opportunity to comment on the biological resources evaluation. Therefore, the County is complying with this policy for the proposed project.
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.		See 1.10.5, Threatened and Endangered Species, Policy 28, above.
Policy 31: Under the provisions of the California Environmental Quality Act, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document is prepared.	Consistent	See 1.10.5, Threatened and Endangered Species, Policy 28, above.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 32: Riparian areas will be managed in accordance with United States Army Corps of Engineers, and the California Department of Fish and Game rules and regulations to enhance drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.	Consistent, with implementation of MM 4.4-22.	As discussed further in Section 4.4, *Biological Resources*, of this EIR, due to the isolated nature of the waters within the Lahontan Region, features found on the project site are not considered "waters of the United States" and therefore are not subject to regulation under the federal Clean Water Act. Based on the project *Jurisdictional Waters and Wetlands Delineation* (Rincon 2019), drainages delineated within Sites 2, 4, and 5 are likely subject to CDFW jurisdiction; therefore, the project would implement MM 4.4-22 requiring a Section 1600 Streambed Alteration Agreement prior to ground disturbance activities on the project site that directly impact CDFW jurisdictional areas. The project activities would be consistent with this policy.
Measure Q: Discretionary projects shall consider effects to biological resources as required by the California Environmental Quality Act.	Consistent	As part of the project's discretionary review by the County, and as discussed in 1.10,5, *Threatened and Endangered Species*, Policy 27, above, the project impacts to biological resources are evaluated in Section 4.4, *Biological Resources*, of this EIR in accordance with the California Environmental Quality Act. The project is consistent with this policy.
Measure R: Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to the California Environmental Quality Act.	Consistent	See 1.10.5, Threatened and Endangered Species, Policy 28, above.
1.10.6 Surface Water and Groundwater		
Policy 34: Ensure that water quality standards are met for existing users and future development.	Consistent, with implementation of Mitigation Measures MM 4.10-1 and MM 4.9-1.	Water quality impacts are evaluated in Section 4.10, *Hydrology and Water Quality*. Consistent with this policy, the proposed project would implement a SWPPP with associated best management practices during construction to avoid impacts to water quality. As discussed in Section 4.9, *Hazards and Hazardous Materials*, the project would also implement a Hazardous Materials Business Plan to reduce mixing of pollutants with stormwater onsite, thereby maintaining the integrity of the watershed.
Policy 41: Review development proposals to ensure adequate water is available to accommodate projected growth.	Consistent	Refer to 1.4, Public Facilities and Services, Goal 5, above.
Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.	Consistent, with implementation of Mitigation Measure MM 4.10-2.	Drainage plans and associated impacts are discussed in Section 4.10, *Hydrology and Water Quality*, of this EIR. Consistent with this policy, final project design would be required to conform to the Kern County Development Standards and Grading Ordinance. This would be confirmed during final plot plan review by the Kern County Planning and Natural Resources Department.
Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act, to prevent the degradation of the watershed to the extent practical.	Consistent, with implementation of Mitigation Measures MM 4.10-1 and 4.10-2.	Section 4.10, *Hydrology and Water* Quality discusses impacts and mitigation for potential impacts to the watershed during construction from pollutants, alteration of flow patterns, and changes in impervious surfaces. Consistent with this policy, the project would not result in any significant unavoidable impacts to the watershed, pollutant release, and flow patterns during construction and operation.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure Y: Promote efficient water use by utilizing measures such as: a) Requiring water-conserving design and equipment in new construction. b) Encouraging water-conserving landscaping and irrigation methods. c) Encouraging the retrofitting of existing development with water conserving devices.	Consistent	The project involves renewable energy generation and storage through a process that consumes little water, and thus conserves more water compared with conventional energy facilities. Therefore, the project would implement a water-conserving design and equipment. The project is consistent with this implementation measure.
1.10.7 Light and Glare		
Policy 47: Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.	Consistent, with implementation of Mitigation Measures MM 4.1-3 through MM 4.1-5.	Aesthetic impacts are evaluated in Section 4.1, *Aesthetics*, of this EIR. Implementation of Mitigation Measures MM 4.1-3 through MM 4.1-5 would minimize light glare impacts to below a level of significance.
Policy 48: Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.	Consistent, with implementation of Mitigation Measures MM 4.1-3 through MM 4.1-5.	See 1.10.7, *Light and Glare*, Policy 47, above.
Measure AA: The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.	Consistent, with implementation of Mitigation Measures MM 4.1-3 through MM 4.1-5.	Light and glare impacts are evaluated in Section 4.1, *Aesthetics*, of this EIR. As discussed in Section 4.1, the project would implement the required provisions of the Zoning Ordinance to minimize the project lighting and glare on adjacent properties. Implementation of Mitigation Measures MM 4.1-3 through MM 4.1-5 would minimize light glare impacts to below a level of significance.
Chapter 2, Circulation Element		
2.1 Introduction		
Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.	Consistent	Refer to 1.3, Physical and Environmental Constraints, Goal 1, above.
Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County.	Consistent	Section 4.15, *Transportation*, of this EIR provides a discussion of the existing traffic conditions in the project area. As discussed, the existing volumes of three of the four SR 58 segments are operating at acceptable LOS C or better, and all 10 roadway segments and 11 intersections in the project area are operating at acceptable LOS D or better. As also discussed, the project is expected to generate fewer than 50 trips during the weekday AM and PM peak hours during operations, which is considered few enough per the County's guidelines to be considered less than significant. The project is would be consistent with this policy.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
2.3.3 Highways Plan		
Goal 5: Maintain a minimum Level of Service (LOS) D.		Refer to 2, *Introduction,* Goal 5 above.
Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and mid-section lines. This is because the road center line can be determined by an existing survey.	Consistent	Section 4.15, *Transportation,* of this EIR provides a discussion of County circulation consistency. The project involves a General Plan Amendment to the Circulation Element to remove sections and midsection line road reservations, as shown in **Figure 3-7**, *Proposed Circulation Element Amendments.* The removal of the road reservations within the project area would not affect circulation patterns in the surrounding properties. Therefore, even with the approved General Plan Amendments, the project would be consistent with this policy.
Policy 3: This plan's road-width standards are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis. • Expressway [Four Travel Lanes] Minimum 110-foot right-of-way; • Arterial [Major Highway] Minimum 110-foot right-of-way; • Collector [Secondary Highway] Minimum 90-foot right-of-way; • Commercial-Industrial Street Minimum 60-foot right-of-way; and • Local Street [Select Local Road] Minimum 60-foot right-of-way.	Consistent	As part of the project approval process for the project CUP, the project will be conditioned requirements which will consider required roads and road standards required by the Kern County Public Works Department, and as identified in the Kern County Land Division Ordinance and Zoning Ordinance. The project will comply with the conditions of approval, including road design standards and widths. The project is consistent with this policy.
Measure A: The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.	Consistent	Refer to 2.3.3, *Highway Plan,* Policy 3 above.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
2.3.4 Future Growth		
Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20 year planning horizon.		
Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below Level of Service (LOS) D. Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build offsite transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.		Refer to 2.1, *Introduction, Goal 5* above.
Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.		Refer to 2.3.3, *Highway Plan*, Policy 3 above.
Policy 5: When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.	Consistent	Consistent with this policy, the project proponent would fund improvements to driveways that provide access to any County, City, or State roads.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 6: The County may accept a developer's road into the county's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.		Refer to 2.3.3, *Highway Plan,* Policy 3 above.
2.3.10 Congestion Management Programs		
Goal 1: To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program	Consistent	The project traffic and transportation impacts are analyzed in Section 4.14, *Transportation*. As analyzed in Section 4.14, *Transportation*, the fully operational project would result in less than 22 trips a day and would have a less than significant impact on the performance of the CMP network. During construction, the estimated volumes of trucks and passenger vehicles generated by the project would not exceed the capacities of the affected roadways, and no significant impacts are anticipated.
2.5.1 Trucks and Highways		
Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.	Consistent	Traffic impacts are evaluated in Section 4.15, *Transportation,* of this EIR. Consistent with this policy, the proposed project would comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards, which would ensure the provision of heavy truck transportation resulting from project implementation, in the safest way possible.
Goal 2: Reduce potential overweight trucks.	Consistent	See 2.5.1, *Trucks and Highways,* Goal 1, above.
Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.	Consistent	See 2.5.1, *Trucks and Highways,* Goal 1, above.
Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.	Consistent	As discussed in Section 4.15, *Transportation* of this EIR, coordination and consultation with Caltrans is ongoing throughout the project's lifetime, consistent with this policy.
2.5.2 Airport Land Use Compatibility Plan		
Goal 1: Plan for land uses that are compatible with public airport and military bases and mitigate encroachment issues.	Consistent, with implementation of Mitigation Measure MM 4.9-2.	There is the potential that the future use of newer technology or equipment may contribute to unanticipated environmental impacts. Kern County has two military aviation installations—the China Lake Naval Air Weapons Station and Edwards Air Force Base—as well other military installations within the San Joaquin Valley. The military has identified potential conflicts of users of the radio frequency spectrum located both on and off military installations as an area to be reviewed for compatibility issues. Operations of unmanned radio-controlled aircraft flights can have electronic interference from other sources of radio signals. Coordination of frequency and notification can mitigate this impact. The project impacts are considered significant, but would be reduced to a less than significant level with implementation of Mitigation Measure MM 4.11-2.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 2: To the extent legally allowable, prevent encroachment on public airport and military base operations from incompatible, unmitigated land uses.	Consistent	See 2.5.2, Airport Land Use Compatibility Plan, Goal 1, above.
Measure A: Review discretionary land use development applications within the airports influence area and the military base operating area as shown in the ALUCP for consistency.	Consistent	See 2.5.2, Airport Land Use Compatibility Plan, Goal 1, above.
Measure B: Coordinate and cooperate with airport operators, the County Department of Airports, the California Department of Transportation, Division of Aeronautics, affected cities, Edwards Air Force Base, NAWS China Lake and the Department of Defense on the ALUCP, review of land use applications, public education and encroachment issues.	Consistent	See 2.5.2, Airport Land Use Compatibility Plan, Goal 1, above.
2.5.4 Transportation of Hazardous Materials		
Goal 1: Reduce risk to public health from transportation of hazardous materials.	Consistent, with implementation of Mitigation Measure MM 4.9-1.	Section 4.9, *Hazards and Hazardous Materials*, of this EIR provides a discussion of Hazardous Materials Transportation and existing regulatory requirements of the California Vehicle Code that pertain to transport of hazardous materials and wastes. Consistent with this policy, the project would not pose a significant risk to public health from transportation of hazardous materials with implementation of Mitigation Measure MM 4.9-1, which requires the preparation of a hazardous materials business plan that would describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill, would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to minimize exposure to maintenance workers and/or the public.
Policy 1: The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.	Consistent, with implementation of Mitigation Measure MM 4.9-1.	See 2.5.4, Transportation of Hazardous Materials, Goal 1, above.
Chapter 3, Noise Element		
Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.	Consistent, with implementation of Mitigation Measures MM 4.12-1 through MM 4.12-3.	Noise impacts, sensitive receptors and County thresholds are evaluated in Section 4.12, *Noise*, of this EIR. With implementation of Mitigation Measures MM 4.12-1 and MM 4.12-3, project-related noise would not exceed the County's thresholds, and the project would be consistent with this goal

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.	Consistent	The proposed solar power facility is not considered to be a noise sensitive land use and would be compatible with surrounding roadways, rail lines, landfill, and residential land uses.
Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.	Consistent	See Chapter 3.3, *Sensitive Noise Areas*, Goal 1, above.
Policy 2: Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health.	Consistent	See Chapter 3.3, *Sensitive Noise Areas*, Goal 1, above.
Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.	Consistent	See Chapter 3.3, *Sensitive Noise Areas*, Goal 2, above. Noise-sensitive land uses are evaluated in Section 4.12, *Noise*, of this EIR.
Policy 5: Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels: a. 65 db-Ldn or less in outdoor activity areas. b. 45 db-Ldn or less within living spaces or other noise sensitive interior spaces.	Consistent	See Chapter 3.3, *Sensitive Noise Areas*, Goal 1, above.
Policy 7: Employ the best available methods of noise control.	Consistent	See Chapter 3.3, *Sensitive Noise Areas*, Goal 1, above.
Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.	Consistent	The Kern County Title 19, Zoning Ordinance provides requirements and limitations on land uses by zone, in order to achieve noise compatible land use patterns. The project is neither a noise intense use nor a sensitive noise use and will comply with the County's zoning ordinance. The project is consistent with this implementation measure.
Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.	Consistent	Consistent with this measure, this EIR includes evaluation of the proposed project for conformance with the policies outlined in this element.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess of 45 dB Ldn.	Consistent	See 3.3, *Sensitive Noise Areas*, Goal 1 and Measure A, of the Kern County General Plan.
Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall: a) Be the responsibility of the applicant b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics. c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.	Consistent	Consistent with this measure, the project applicant prepared an acoustical analysis (Appendix K of this EIR) in accordance with the requirements of Chapter 3, *Noise Element*, Measure G, of the Kern County General Plan.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure I: Noise analyses shall include recommended mitigation, if required, and shall: a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions. b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element. c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.	Consistent	Consistent with this measure, a noise assessment was conducted for the proposed project and is referenced in Section 4.12, *Noise*, and provided in Appendix K of this EIR. In accordance with this measure, the noise assessment includes representative noise measurements, recommended best management practices, estimated noise levels, in terms of CNEL, and estimates of noise exposure.
Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.	Consistent	Consistent with this measure, the recommendations and requirements imposed pursuant to the findings of the acoustical analysis would be included with project implementation.
Chapter 4, Safety Element		
4.1 Introduction		
Goal 1: Minimize injuries and loss of life and reduce property damage.	Consistent, with implementation of Mitigation Measure MM 4.13-1.	Consistent with this goal, the proposed project would be required to comply with adopted safety regulations, such as the Fire Code, and related policies in the General Plan. Additionally, Mitigation Measure MM 4.13-1, would ensure that the project proponent/operator implement a fire safety plan for use during construction, operation and decommissioning of the project, thereby reducing the risk of impacts to workers, residents, and businesses in the unlikely event of an onsite fire.
Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.	Consistent	Impacts on emergency services and facilities as a result of the project have been analyzed and are discussed in Section 4.13, *Public Services*, of this EIR.
Policy 2: The County will encourage the promotion of public education about fire safety at home and in the workplace.	Consistent, with implementation of Mitigation Measure MM 4.13-1.	The proposed project would not interfere or prohibit the County's ability to meet this policy. Mitigation Measure MM 4.13-1, would ensure that the project proponent/operator implement a fire safety plan for use during construction, operation and decommissioning of the project, thereby reducing the risk of impacts to workers, residents, and businesses in the unlikely event of an onsite fire.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.	Consistent	See Chapter 4, *Safety Element*, Policy 2, above.
Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.	Consistent, with implementation of Mitigation Measure MM 4.14-1.	Transportation impacts, including emergency access, are analyzed in Section 4.14, *Transportation*, of this EIR. Per Mitigation Measure MM 4.14-1, the project would include the implementation of a Traffic Control Plan during construction of the PV solar facility, so that fire equipment and emergency services are able to access each site. During project operation, the proposed project would not affect emergency access to the project site or any other surrounding location nor would the proposed project require closures of public roads, which could inhibit access by emergency vehicles. Additionally, the project would not include any residential or associated development intended for permanent occupancy and, as such, would not inhibit the evacuation of residents in the unlikely event of an emergency at the project site (see Section 4.14 for details).
Policy 5: Require that all roads in wildland fire areas are well marked, and that homes have addresses prominently displayed.	Consistent. with implementation of Mitigation Measure MM 4.13-1.	The proposed project would not include development of housing or other habitable structures and would not include a site located in very high fire hazard severity zone. The project site is located within a Local Responsibility Area (LRA) and designated as LRA Moderate. Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. Additionally, the project operator would develop and implement a fire safety plan for use during construction and operation (Mitigation Measure MM 4.13-1). This plan would address the marking of roads. See Sections 4.9, *Hazards and Hazardous Materials*, and 4.13, *Public Services*, of this EIR.
Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.	Consistent	Consistent with this policy, the proposed project would be required to comply with the adopted Fire Code and the requirements of the Kern County Fire Department.
4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint		
Measure A: All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of a land use activity susceptible to such hazards.	Consistent	Section 4.7, *Geology and Soils*, of this EIR, discusses potential geologic hazards, Section 4.10, *Hydrology and Water Quality*, of this EIR, discusses potential flood hazards, and Section 4.18, *Wildfire*, of this EIR discusses potential fire hazards as a result of project implementation. Consistent with this measure, all hazards have been considered as part of this analysis.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency (FEMA), shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.	Consistent	Consistent with this measure, the California Multi-Hazard Mitigation Plan, as well as the Kern County Multi-Hazard Mitigation Plan were used as source documents and considered in the evaluation of hazards in this EIR. Refer to Section 4.9, *Hazards and Hazardous Materials*.
4.3. Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure		
Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.	Consistent, with implementation of MM 4.7-1.	Geologic hazards, including seismic hazards, are analyzed in Section 4.7, *Geology and Soils.* The nearest active major fault is the Helendale-South Lockhard fault, located approximately 9.2 miles northeast of the project site. The Kramer Hills Fault extends into the southwest portion of Site 3 and the most recent earthquake was in 2017 and registered a magnitude of 3.5. The USGS does not identify the fault as a significant fault. Further the project proposes Mitigation Measure MM 4.7-1 to prepare a final geotechnical study, which will be used to determine the final siting of project facilities. The project would be consistent with this policy with implementation of Mitigation Measure MM 4.7-1.
Measure B: Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.	Consistent	While not located in a significant geologic hazard area, geological and soils engineering investigations were performed for the project, which are described in more detail in Section 4.7, *Geology and Soils* of this EIR. The project is consistent with this measure.
Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.	Consistent	While not located within the project area, the fault zones designated in the Kern County Seismic Hazard Atlas are considered significant geologic hazard areas in this EIR. Refer to Section 4.7, *Geology and Soils* of this EIR for more detail. The project is consistent with this measure.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
4.5 Landslides, Subsidence, Seiche, and Liquefaction		
Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.	Consistent, with implementation of Mitigation Measure MM 4.7-1	As discussed in Section 4.7, *Geology and Soils*, conditions for landslides are also not present at the project sites, which are characterized by relatively flat, with a topographic gradient less than 2 percent. Grading would be subject to compliance with the NPDES General Construction Permit requirements and the implementation of required BMPs would have the ability to minimize the potential for erosion or loss of topsoil. Adherence to the requirements of the Kern County Building Code and the CBC and implementation of Mitigation Measure MM 4.7-1 would ensure that effects from seismic-related ground failure including liquefaction would be minimized. Shallow groundwater is not expected on the proposed project site and the site is not within an earthquake zone of required investigation for liquefaction. See Section 4.7, *Geology and Soils*.
4.6 Wildland and Urban Fire		
Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.	Consistent	Consistent with this policy, impacts on emergency services and facilities are discussed and evaluated in Section 4.13, *Public Services*, of this EIR.
Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.	Consistent, with implementation of Mitigation Measures MM 4.13-1 and MM 4.13-2.	The project would not interfere or prohibit the County's ability to meet this policy. Mitigation Measure MM 4.13-1 requires the proponent to develop a fire safety plan for use during construction and operational activities, and all onsite employees would be trained on fire safety and how to respond to onsite fires, should they occur. Additionally, Mitigation Measure MM 4.13-2 require impact fees for public services. See Sections 4.9, *Hazards and Hazardous Materials*, and 4.14, *Public Services*, and 4.18, *Wildfire*, of this EIR for further details.
Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.	Consistent, with implementation of Mitigation Measure MM 4.14-1.	Section 4.14, *Transportation*, of this EIR includes Mitigation Measure MM 4.14-1 would require the approval of a Construction Traffic Control Plan, encroachments and or other necessary permits by Caltrans and/or the Kern County Roads Dept. The project proponent would develop and implement a fire safety plan for use during construction and operation.
Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.	Consistent, with implementation of Mitigation Measure MM 4.13-1.	Consistent with this policy, the project would be required to comply with the adopted Fire Code and the requirements of the Kern County Fire Department, with implementation of Mitigation Measure MM 4.13-1.
Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.	Consistent, with implementation of Mitigation Measures MM 4.13-1 and MM 4.13-2.	Consistent with this measure, the proposed project would implement Mitigation Measure MM 4.13-1, which would require preparation and implementation of a fire safety plan to ensure the provision of appropriate access. Additionally, the project would implement Mitigation Measure MM 4.13-2, which prescribes project impact fees to compensate the county for public services resulting from project construction and operation.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
4.9 Hazardous Materials		
Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.	Consistent, with implementation of Mitigation Measure MM 4.13-1.	See 4.6, *Wildland and Urban Fire*, Policy 6, above.
Chapter 5, Energy Element		
5.2 General Policies		
Policy 8: The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.	Consistent	See 1.10.5, Threatened and Endangered Species, Policy 28, above.
Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	Consistent	See 3.3, *Sensitive Noise Areas*, Goal 1, above.
5.4.5 Solar Energy Development		
Goal 1: Encourage safe and orderly commercial solar development.	Consistent	Consistent with this goal, the proposed project would develop a solar PV facility that would generate 530 MW of solar energy and 600 MW of energy storage and offset an equivalent amount of fossil fuel-generated electrical power. The site is on privately owned land, which has been previously disturbed. The proposed project would be designed in compliance with all applicable regulations and requirements (i.e., Zoning Ordinance, Grading Ordinance, and Floodplain Management Ordinance) to ensure a safe and orderly development of the solar facility.
Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.	Consistent	Consistent with this policy, the proposed project would develop a solar PV facility capable of generating 530 MW of solar energy and 600 MW of energy storage which could offset an equivalent amount of fossil fuel-generated electrical power currently produced elsewhere in the region or elsewhere in the state. Due to displacement of fossil fuel generated electrical power facilities, the proposed project would improve air quality within the area of the displaced facility.
Policy 4: The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.	Consistent, with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-22.	As discussed in Section 4.4, *Biological Resources*, potential impacts to biological resources could be reduced to less-than-significant levels with implementation of Mitigation Measures MM 4.4-1 through 4.4-22.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 7: The processing of all discretionary energy project proposals shall comply with the State CEQA Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.	Consistent	As demonstrated throughout this EIR, the project's potential impacts on the environment have been analyzed under CEQA, and the project's approval will be at the discretion of the Lead Agency, the Kern County Planning and Natural Resources Department, pursuant to CEQA.
Policy 8: The County should work closely with local, State, and Federal agencies to ensure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts on fish, wildlife, and botanical resources, wherever practical.	Consistent	See 5.4.5, Solar Energy Development, Policy 4.
Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	Consistent	See Chapter 3.3, *Sensitive Noise Areas*, Goal 1.
5.4.7 Transmission Lines		
Goal 1: To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.	Consistent	Final review of the proposed project by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, State and federal regulations, would ensure that the proposed project's transmission lines would not pose significant environmental or public health and safety hazards.
Policy 1: The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.	Consistent	The proposed project is the development of a PV facility that would access the County's solar resource. The project substations and gen-tie line routes have been reviewed as part of this EIR, and potentially significant impacts are subjected to mitigation measures to reduce effects to less than significant levels. Additionally, adherence to all applicable local, State and federal regulations, would ensure that the proposed transmission lines and substations would not pose significant environmental or public health and safety hazards.
Policy 2: The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.	Consistent	See 5.4.7, *Transmission Lines*, Policy 1, above.
Policy 3: In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.	Consistent	See .7, *Transmission Lines*, Policy 1, above.
Policy 4: The County should work with other agencies in establishing routes for proposed transmission lines.	Consistent	Consistent with this policy, the County and project proponent are coordinating with Southern California Edison to connect into existing SCE electrical transmission facilities.

Table 4.11-2, continued

Goals/Policies	Consistency Determination	Project Consistency
Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.	Consistent	Aesthetics impacts are evaluated in Section 4.1, *Aesthetics*. As described in Section 4.1, the introduction of the solar fields and above-ground collector and transmission lines would contribute to the project's alterations to the visual character of the project site and surroundings. However, the visual prominence of these lines would be less than the solar panel arrays and the most visible segment of the gen-tie line would be near other existing above-ground transmission lines.
Policy 6: The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.	Consistent, with implementation of Mitigation Measure MM 4.4-21.	Project impacts to biological resources, including raptor safety and transmission lines, are analyzed in Section 4.4, *Biological Resources.* Mitigation Measure MM 4.4-21 requires avian safety specifications to be incorporated into the transmission facility design. With implementation of Mitigation Measure MM 4.4-21, the project would be consistent with this policy.

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Section 4.12
Noise

4.12.1 Introduction

This section of the EIR describes the affected environment and regulatory setting relating to noise and groundborne vibration for the proposed project. It also describes the impacts associated with noise and groundborne vibration that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable. The information and analysis in this section is largely based on the *Aratina Solar Project Noise Study* prepared by Rincon Consultants, Inc. (November 2020) located in Appendix K of this EIR.

Since the preparation of the *Noise Study*, the development footprint has been reduced by approximately 15 percent from approximately 2,672 acres to approximately 2,317 acres. The 15-percent reduction in development footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction. Furthermore, the reduced footprint creates a larger setback from the nearby communities of Boron and Desert Lake, which reduces the project's localized noise impacts on nearby sensitive receptors. Therefore, the following discussion that is based on the previous, larger footprint represents the worst-case potential impacts related to air quality, while the new project footprint would result in lower noise levels at the nearest parts of those communities.

Noise Fundamentals

An understanding of the physical characteristics of sound is useful for evaluating environmental noise. The methods and metrics used to quantify noise exposure, human response, and relative judgment of loudness are also discussed, and noise levels of common noise environments are presented.

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and interferes with or disrupts normal activities. The effects of noise on people can be grouped into four general categories:

- Subjective effects (dissatisfaction, annoyance);
- Interference effects (communication and sleep interference, learning);
- Physiological effects (startle response); and
- Physical effects (hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical (i.e., to the body itself) and physiological (i.e., to body functions) effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. The subjective responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, its appropriateness to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, and telephone conversations, and interference with sleep. Sleep interference effects can include both awakening from sleep and arousal to a lesser state of sleep.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure (loudness). Because the range of sound pressures that occurs in the environment is extremely large, it is convenient to express these pressures on a logarithmic scale that compresses the wide range of pressures into a more useful range of numbers. The standard unit of sound measurement is the decibel (dB). Hz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a given number of times per second. If the drum vibrates 100 times per second, it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the healthy human ear.

Sound levels are expressed by reference to a specified national/international standard. The sound pressure level is used to describe sound pressure (loudness) and is specified at a given distance or specific receptor location. In expressing sound pressure level on a logarithmic scale, sound pressure (dB) is referenced to a value of 20 micropascals (µPa). Sound pressure level depends not only on the power of the source but also on the distance from the source to the receiver and the acoustical characteristics of the sound propagation path (absorption, reflection, etc.).

Outdoor sound levels decrease logarithmically as the distance from the source increases. This decrease is due to wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound waves travel away from the source, the sound energy is dispersed over a greater area, decreasing the sound pressure of the wave. Spherical spreading of the sound wave from a point source reduces the noise level at a rate of 6 dB per doubling of distance.

Atmospheric absorption also influences the sound levels received by an observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest (i.e., sound carries farther) at high humidity and high temperatures, and lower frequencies are less readily absorbed (i.e., sound carries farther) than higher frequencies. Over long distances, lower frequencies become dominant as the higher frequencies are more rapidly attenuated. Turbulence, gradients of wind, and other atmospheric phenomena also play a significant role in determining the degree of attenuation. For example, certain conditions, such as temperature inversions, can channel or focus the sound waves, resulting in higher noise levels than would result from simple spherical spreading.

Sound from a tuning fork contains a single frequency (a pure tone), but most sounds in the environment do not consist of a single frequency. Instead, they are a broad band of many frequencies differing in sound level. Because of the broad range of audible frequencies, methods have been developed to quantify these values into a single number representative of human hearing. The most common method used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system

that is reflective of human hearing characteristics. Human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This process is termed "A weighting," and the resulting dB level is termed the "A-weighted" decibel (dBA).

Because A-weighting is designed to emulate the frequency response characteristics of the human ear and reflect the way people perceive sounds, it is widely used in local noise ordinances and State and federal guidelines, including those of the State of California and Kern County. Unless specifically noted, the use of A-weighting is always assumed with respect to environmental sound and community noise, even if the notation does not include the "A."

In terms of human perception, a sound level of 0 dBA is the threshold of human hearing and is barely audible by a healthy ear under extremely quiet listening conditions. This threshold is the reference level against which the amplitude of other sounds is compared. Normal speech has a sound level of 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort, progressing to pain at still higher levels. Humans are much better at discerning relative sound levels than absolute sound levels. The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 3 dBA. A 3 to 5 dBA change is readily perceived. An increase (or decrease) in sound level of about 10 dBA is usually perceived by the average person as a doubling (or halving) of the sound's loudness.

Because of the logarithmic nature of the decibel, sound levels cannot be added or subtracted directly. However, some simple rules are useful in dealing with sound levels. First, if a sound's acoustical energy is doubled, the sound level increases by 3 dBA, regardless of the initial sound level (e.g., 60 dBA + 60 dB = 63 dBA; 80 dBA + 80 dBA = 83 dBA). However, an increase of 10 dBA is required to double the perceived loudness of a sound, and a doubling or halving of the acoustical energy (a 3 dBA difference) is at the lower limit of readily perceived change.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most ambient environmental noise includes a mixture of noise from nearby and distant sources that creates an ebb and flow of sound, including some identifiable sources plus a relatively steady background noise in which no particular source is identifiable. A single descriptor, termed the equivalent sound level (L_{eq}), is used to describe sound that is constant or changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the "equivalent" sound level produced by a given constant source equal to the acoustic energy contained in the fluctuating sound level measured during the interval. In addition to the energy-average level, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum instantaneous (L_{max}) and minimum instantaneous (L_{min}) noise level indicators that represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{10}, L_{50}, and L_{90} may be used, which represent the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the measured time interval, respectively. Sound levels associated with L_{10} typically describe transient or short-term events, L_{50} represents the median sound level during the measurement interval, and L_{90} levels are typically used to describe background noise conditions.

The Day-Night Average Sound Level (L_{dn} or DNL) represents the average sound level for a 24-hour day and is calculated by adding a 10 dBA penalty to sound levels during the night period (10:00 p.m. to 7:00 a.m.). The L_{dn} is the descriptor of choice and used by nearly all federal, State, and local agencies throughout the United States to define acceptable land use compatibility with respect to noise. Within

California, the Community Noise Equivalent Level (CNEL) is sometimes used. CNEL is very similar to L_{dn}, except that an additional 5 dBA penalty is applied to the evening hours (7:00 p.m. to 10:00 p.m.). Because of the time-of-day penalties associated with the L_{dn} and CNEL descriptors, the L_{dn} or CNEL dBA value for a continuously operating sound source during a 24-hour period will be numerically greater than the dBA value of the 24-hour L_{eq}. Thus, for a continuously operating noise source producing a constant noise level operating for periods of 24 hours or more, the L_{dn} will be 6 dBA higher than the 24-hour L_{eq} value. For convenience, a summary of common noise metrics is provided in **Table 4.12-1**, *Common Noise Metrics*. To provide a frame of reference, common sound levels are presented in **Figure 4.12-1**, *Effects of Noise on People*.

Table 4.12-1. Common Noise Metrics

Unit of Measure		Description
dB	Decibel	Decibels, which are units for measuring the volume of sound, are measured on a logarithmic scale, representing points on a sharply rising curve. For example, 10 dB sounds are 10 times more intense than 1 dB sounds, and 20 dB sounds are 100 times more intense. A 10 dB increase in sound level is perceived by the human ear as a doubling of the loudness of the sound.
dBA	A-Weighted Decibel	A sound pressure level that has been weighted to quantitatively reduce the effect of high- and low-frequency noise. It was designed to approximate the response of the human ear to sound.
CNEL	Community Noise Equivalent Level	A metric representing the 24-hour average sound level that includes a 5 dBA penalty during relaxation hours (7:00 p.m. to 10:00 p.m.) and a 10 dBA penalty for sleeping hours (10:00 p.m. to 7:00 a.m.).
L_{dn}	Day-Night Average Noise	The 24-hour average sound level, expressed in a single decibel rating, for the period from midnight to midnight obtained after the addition of a 10 dBA penalty to sound levels for the periods between 10:00 p.m. and 7:00 a.m.
L_{eq}	Equivalent Noise Level	The average acoustic energy content of noise for a stated period of time. The L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.
L_{max}	Maximum Noise Level	L_{max} represents the maximum instantaneous noise level experienced during a given period of time. It reflects peak operating conditions and addresses the annoying aspects of intermittent noise.
L_{min}	Minimum Noise Level	L_{min} represents the minimum instantaneous noise level experienced during a given period of time. It reflects baseline operating conditions and is commonly referenced as the noise floor.
L_1, L_{10}, L_{50}, L_{90}	Percentile Noise Exceedance Levels	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period.

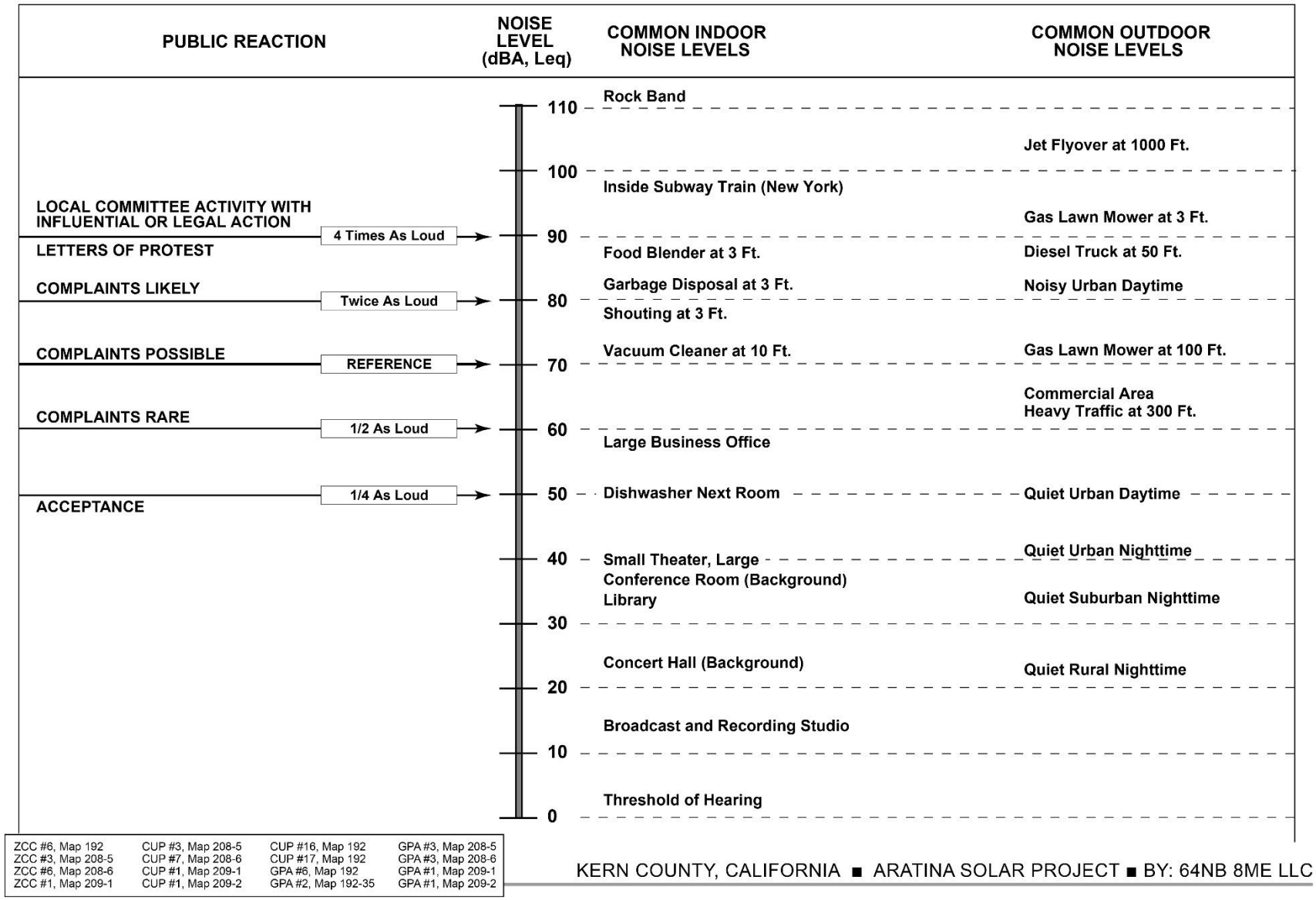


FIGURE 4.12-1. EFFECTS OF NOISE ON PEOPLE

Vibration Fundamentals

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads.

Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA 2018). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings.

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 inches per second [in/sec] PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA 2018).

4.12.2 Environmental Setting

Existing Noise Levels

The project site is located in a rural desert environment with scattered rural residential and commercial uses. Ambient noise levels in this area are low, especially during the evening and nighttime hours. In the California desert environment, ambient noise levels are typically less than 30 dBA in the absence of human activities (United States National Park Service 2017). The primary ambient sources of noise on-site and in the surrounding area include motor vehicles, wind, and fauna (birds, small mammals, etc.). Primary noise sources during the day include local passenger and heavy-duty truck traffic along State Route (SR) 58 and Twenty Mule Team Road, trains, and occasional jets associated with nearby Edwards Air Force Base.

To determine existing noise levels in the area, ten 15-minute noise measurements (L_{eq} [15] dBA) were taken on and adjacent to the project site on March 4, 2019, during weekday daytime hours, using an ANSI Type II integrating sound level meter. **Figure 4.12-2**, *Noise Measurement Locations*, shows the locations of noise measurements. The ten noise measurement locations were chosen to provide a representative range of ambient noise levels across the project site, especially near existing noise-sensitive residences and roadways. **Table 4.12-2**, *Noise Monitoring Results in the Project Site Vicinity*, summarizes the existing noise level results.

Measured noise levels ranged from 33.0 dBA L_{eq} to 73.0 dBA L_{eq}. The quietest measurement, 33.0 dBA L_{eq}, was located near Site 2 along Wesley Road and approximately 500 feet south of Twenty Mule Team Road. This noise level is generally consistent with typical background ambient noise levels of less than 30 dBA in Californian desert environments, in the absence of human activities. The loudest measurement, 73.0 dBA L_{eq}, was located adjacent to SR 58, a highway which carries the highest average daily traffic (ADT) volume near the project site.

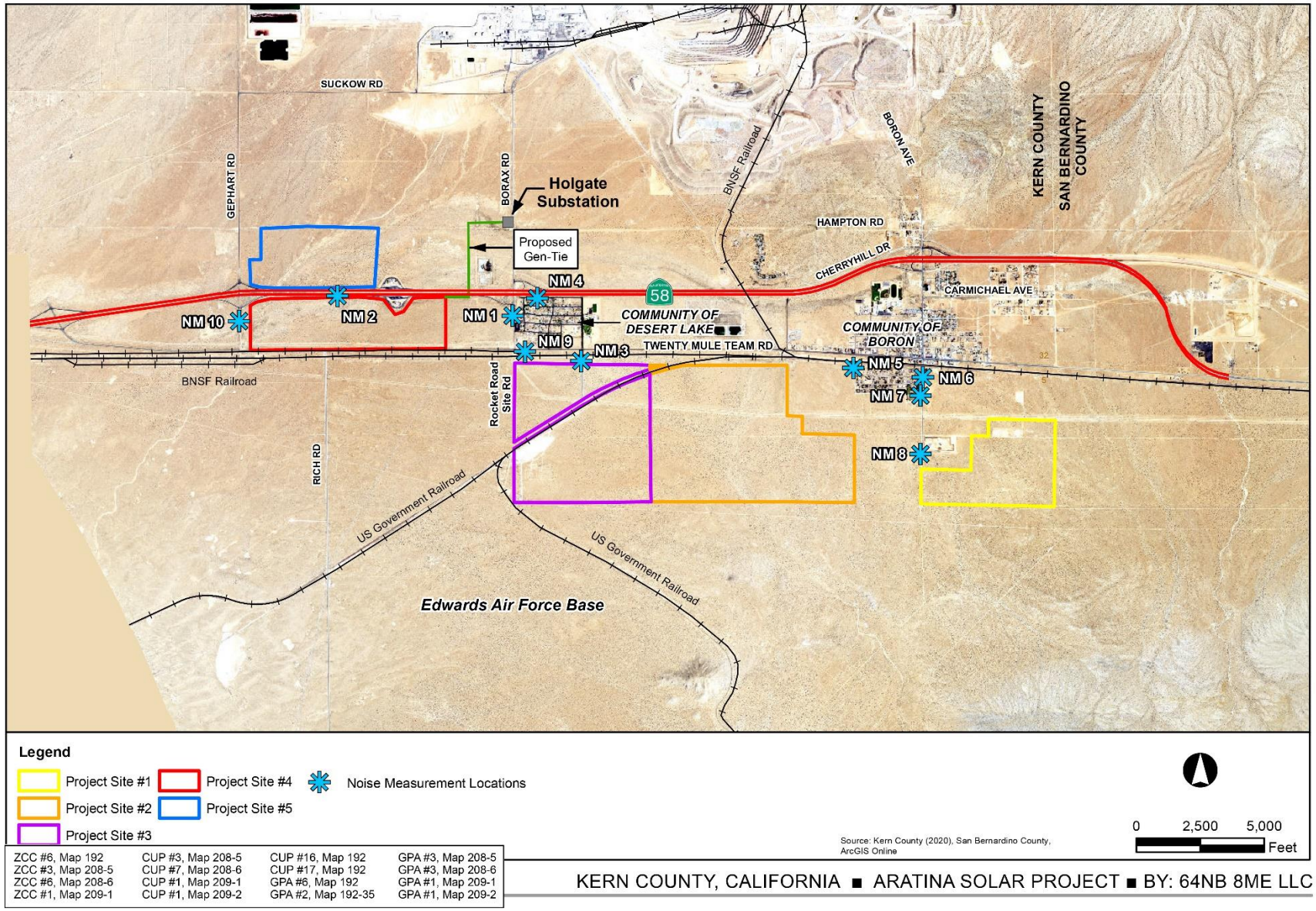


FIGURE 4.12-2. NOISE MEASUREMENT LOCATIONS

Table 4.12-2. Noise Monitoring Results in the Project Site Vicinity

Measurement	Measurement Location	Sample Time	Approximate Distance to Primary Noise Source	Noise Level (L_{eq} [15] dBA)[1]
NM1	Site 4 – Along Borax Rd. between SR 58 and 20 Mule Team Rd.	1:03 PM – 1:18 PM	25 feet from centerline of Borax Rd.	55.6
NM2	Sites 4 and 5 – Along SR 58 between Gephart Rd. and Borax Rd.	2:24 PM – 2:39 PM	80 feet from center of SR 58 median	73.0
NM3	Site 3 – Near Intersection of Del Oro St. and Twenty Mule Team Rd.	12:11 PM – 12:26 PM	470 feet from centerline of Twenty Mule Team Rd.	36.9
NM4	Site 4 – Along Juniper Ave. between Sierra View St. and Mirage St.	1:29 PM – 1:44 PM	160 feet from center of SR 58 median	62.5
NM5	Site 2 – Intersection of Wesley St. and Jessie St.	11:36 AM – 11:51 AM	55 feet from centerline of Wesley St.	33.0
NM6	Site 1 – Along Boron Ave. between Nichols St. and Jessie St.	11:09 AM – 11:24 AM	30 feet from centerline of Boron Ave.	49.2
NM7	Site 1 – Along Boron Ave. near Boron Park	10:38 AM – 10:53 AM	1,100 feet from train tracks north of Jessie St.	48.0
NM8	Site 1 – Along Boron Ave. near landfill	10:16 AM – 10:31 AM	3,300 feet from train tracks north of Jessie St.	36.9
NM9	Sites 3 and 4 – Near intersection of Twenty Mule Team Rd. and Borax Rd.	12:37 PM – 12:52 PM	20 feet from centerline of Twenty Mule Team Rd.	61.1
NM10	Site 4 – Along Gephart Rd. between SR 58 and Twenty Mule Team Rd.	2:02 PM – 2:17 PM	30 feet from centerline of Gephart Rd.	43.9

Notes:
[1]The equivalent noise level (L_{eq}) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). For these measurements, the L_{eq} was over a 15-minute period.
Source: Rincon 2020; see Appendix K.

Sensitive Receptors

Land uses deemed sensitive by the State of California include schools, hospitals, rest homes, and long-term care and mental care facilities, which are considered to be more sensitive to ambient noise levels than others. Many jurisdictions also consider residential uses particularly noise-sensitive because families and individuals expect to use time in the home for rest and relaxation, and noise can interfere with those activities. Some jurisdictions may also identify other noise-sensitive uses such as churches, libraries, and parks. Furthermore, sensitive noise receptors may include threatened or endangered biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Land uses that are generally not considered to be noise-sensitive receptors include office, commercial, and retail developments.

The sensitive receptors with the highest potential to be affected by the project include residential land uses located in the surrounding communities of Desert Lake and Boron. **Figure 4.12-3**, *Location of Noise-Sensitive Receptors Closest to Project Site*, shows the general locations of noise-sensitive receptors in the project area. The sensitive receptors closest to each site are described below:

- Site 1 – Boron Park, located approximately 2,400 feet northwest of Site 1 along Boron Avenue. In addition, residential properties are located north of Boron Park along Boron Avenue, approximately 2,860 feet northwest of Site 1.
- Site 2 – Residences east of Wesley Street, with outdoor activity areas as close as 85 feet from Site 2.
- Site 3 – Desert Lake Apartments complex, with outdoor activity areas and residences located approximately 520 feet north of Site 3 across Twenty Mule Team Road.
- Site 4 – Residences located approximately 280 feet to the east along Sierra View Street.
- Site 5 – Residences along Sierra View Street approximately 1.1 miles east of Site 5.
- Gen-tie – The gen-tie route alternative on the north side of SR 58 and west of Borax Road would be located approximately 1,720 feet northwest of residences along Sierra View Street in Desert Lake.

Airports

The project site is not located within an area covered by the Kern County Airport Land Use Compatibility Plan. The nearest public airport to the project site is the California City Municipal Airport, located approximately 18 miles northwest of the project site.

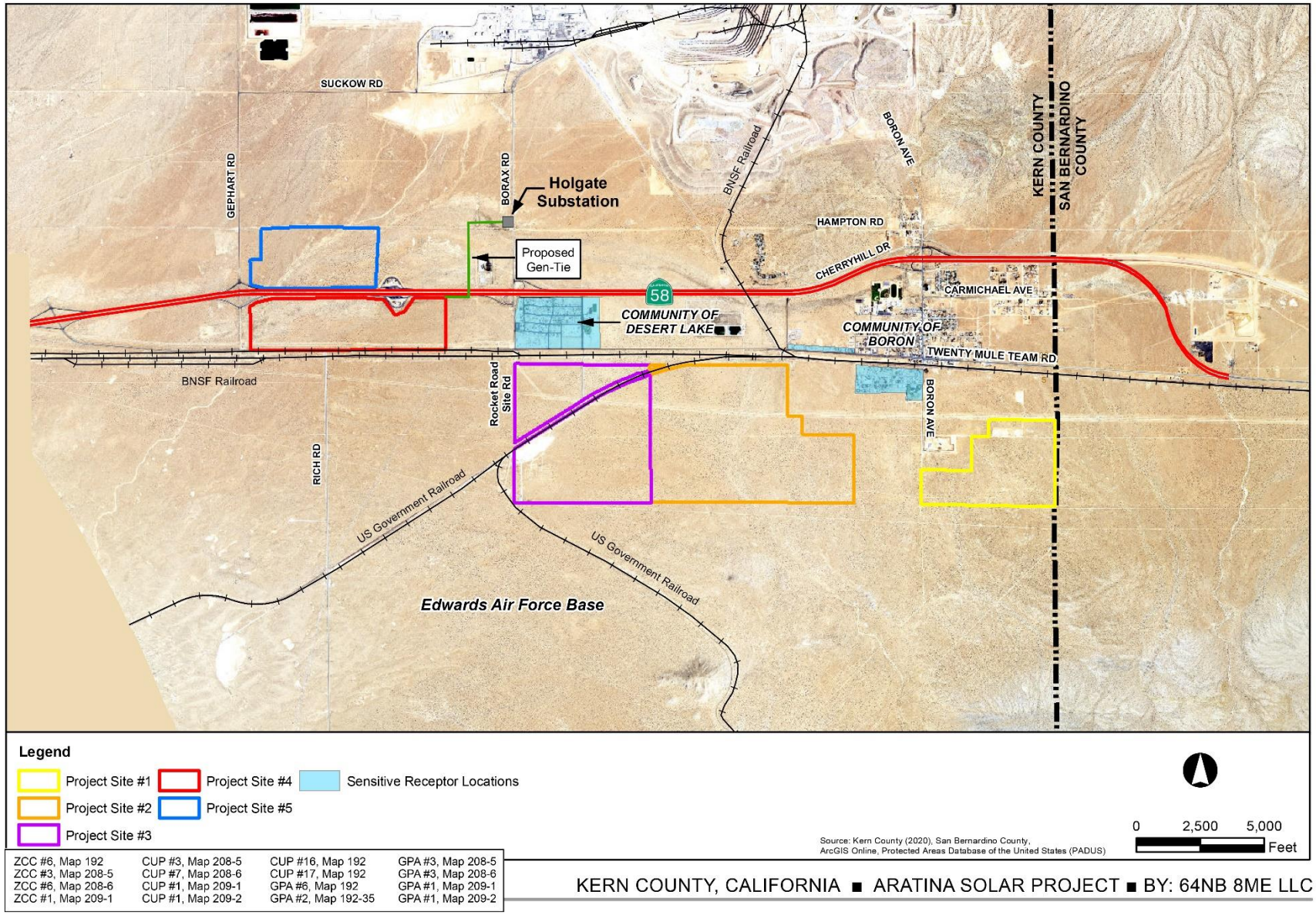


FIGURE 4.12-3. LOCATION OF NOISE-SENSITIVE RECEPTORS CLOSEST TO PROJECT SITE

4.12.3 Regulatory Setting

Federal

Noise Control Act of 1972 (42 USC 4910)

This act establishes a national policy to promote an environment for all Americans to be free from noise that jeopardizes their health and welfare. To accomplish this, the act establishes a means for the coordination of federal research and activities in noise control, authorizes the establishment of federal noise emissions standards for products distributed in commerce, and provides information to the public with respect to the noise-emission and noise-reduction characteristics of such products.

EPA Recommendations in "Information on Levels of Environmental Noise Requisite to Project Health and Welfare with an Adequate Margin of Safety" (NTIS 550\9-74-004, EPA, Washington, D.C., March 1974)

In response to a federal mandate, the United States Environmental Protection Agency (EPA) provided guidance in this document, commonly referenced as the "Levels Document," that establishes an L_{dn} of 55 dBA as the requisite level, with an adequate margin of safety, for areas of outdoor uses, including residences and recreation areas. This document does not constitute EPA regulations or standards but identifies safe levels of environmental noise exposure without consideration of costs for achieving these levels or other potentially relevant considerations. It is intended to "provide State and local governments as well as the federal government and the private sector with an informational point of departure for the purpose of decision-making." The agency is careful to stress that the recommendations contain a factor of safety and do not consider technical or economic feasibility issues and therefore should not be construed as standards or regulations.

Federal Energy Regulatory Commission Guidelines on Noise Emissions from Compressor Stations, Substations, and Transmission Lines (18 CFR 157.206[d]5)

These guidelines require that the noise attributable to any new compressor stations, compression added to an existing station, or any modification, upgrade, or update of an existing station must not exceed a L_{dn} of 55 dBA at any preexisting noise-sensitive area (such as schools, hospitals, or residences). This policy was adopted based on the EPA-identified level of significance of 55 L_{dn} dBA.

Federal Highway Administration Noise Abatement Procedures (23 CFR Part 772)

The purpose of 23 CFR Part 772 is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, supply noise abatement criteria, and establish requirements for information to be given to local officials for use in the planning and design of highways. It establishes five categories of noise-sensitive receptors and prescribes the use of the hourly L_{eq} as the criterion metric for evaluating traffic noise impacts.

Department of Housing and Urban Development Environmental Standards (24 CFR Part 51)

The Department of Housing and Urban Development (HUD) regulations set forth the following exterior noise standards for new home construction assisted or supported by HUD:

- 65 dBA L_{dn} or less – Acceptable
- 65 dBA L_{dn} to less than 75 dBA L_{dn} – Normally unacceptable, appropriate sound attenuation measures must be provided
- 75 dBA L_{dn} or more – Unacceptable

HUD regulations do not contain standards for interior noise levels. Rather, a goal of 45 dBA is set forth, and attenuation requirements are geared to achieve that goal.

Occupational Safety and Health Administration Occupational Noise Exposure; Hearing Conservation Amendment (Federal Register 48 [46], 9738-9785, 1983)

The standard stipulates that protection against the effects of noise exposure shall be provided for employees when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to within acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a Hearing Conservation Program must be instituted by the employers whenever employee noise exposure equals or exceeds the action level of an 8-hour time-weighted average sound level of 85 dBA. The Hearing Conservation Program requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record keeping.

State

The California Department of Health Services studied the correlation of noise levels and their effects on various land uses and established guidelines for evaluating the compatibility of various land uses, for the noise elements of local general plans, as a function of community noise exposure. The guidelines are the basis for most noise element land use compatibility guidelines in California.

The State requires all municipalities to prepare and adopt a comprehensive long-range general plan. General plans must contain a noise element (California Government Code Section 65302(f) and Section 46050.1 of the Health Safety Code). The requirements for the noise element of the general plan include describing the noise environment quantitatively using a cumulative noise metric such as CNEL or L_{dn}, establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining land use compatibility. Noise elements should address all major noise sources in the community, including mobile and stationary noise sources. In California, most cities and counties have also adopted noise ordinances which serve as enforcement mechanisms for controlling noise.

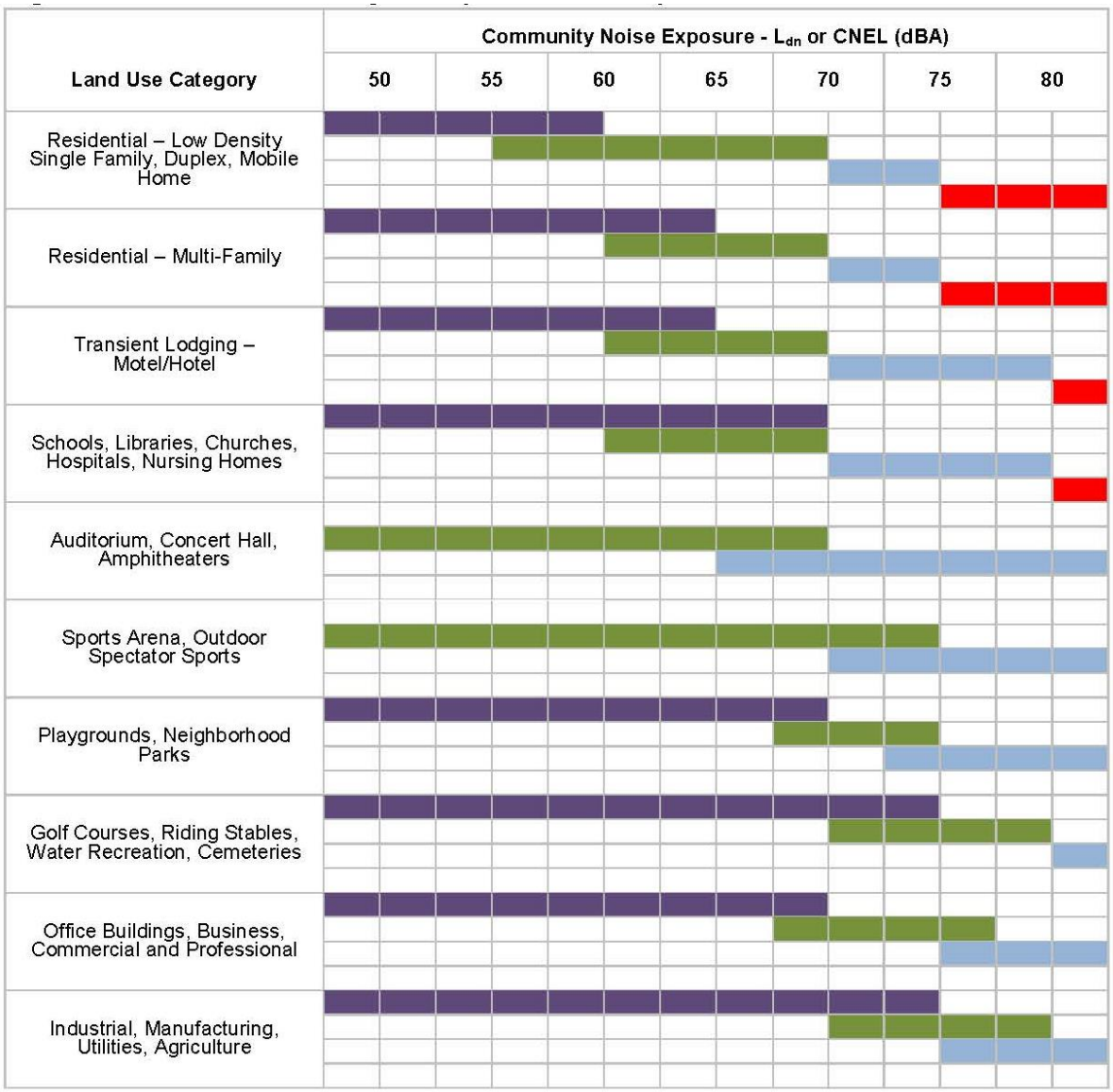
The land use compatibility for community noise environment chart identifies the normally acceptable range for several different land uses, as shown in **Figure 4.12-4**, *Land Use Compatibility for Community Noise Environment*. Persons in low-density residential settings are most sensitive to noise intrusion, with noise

levels of 60 dBA CNEL and below are considered "acceptable." For land uses such as schools, libraries, churches, hospitals, and parks, acceptable noise levels are up to 70 dBA CNEL.

CEQA Guidelines (PRC Section 21000 et seq.) requires the identification of "significant" environmental impacts and their feasible mitigation. Section XIII of Appendix G to the CEQA Guidelines (CCR Title 14, Appendix G) lists some indicators of potentially significant impacts, which are included below under the heading "Thresholds of Significance."

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL or L_{dn} in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA CNEL or L_{dn}. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

The State also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA at 15 meters. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by State and local law enforcement officials.



	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

Source: State of California, Governor's Office of Planning and Research, 2003.

FIGURE 4.12-4. LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENT

Local

Kern County General Plan

The Noise Element of the General Plan is a mandatory element as required by California Government Code Section 65302(f). The State requires that local jurisdictions prepare statements of policy indicating their intentions regarding noise and noise sources, establish desired maximum noise levels according to land use categories, set standards for noise emission from transportation and fixed-point sources, and prepare implementation measures to control noise.

The Kern County General Plan Noise Element identifies noise-sensitive land uses and noise sources, defines areas of noise impact, and establishes goals, policies, and programs to ensure that County residents are protected from excessive noise, and to develop an implementation program which could effectively mitigate potential noise problems. The implementation measures have been designed so that they will not subject residential or other sensitive noise land uses to exterior noise levels in excess of 65 dBA L_{dn}, and interior noise levels in excess of 45 dBA L_{dn}.

In addition, in the Energy Element of the General Plan, Policy 10, the County may also require the preparation of an acoustical analysis for energy project proposals that might impact sensitive and highly sensitive uses.

Applicable goals, policies, and implementation measures from these elements of the County's General Plan, relevant to the proposed project, are summarized below.

Chapter 3. Noise Element

3.3 Sensitive Noise Areas

Goals

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.

Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 7: Employ the best available methods of noise control.

Implementation Measures

Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

- Be the responsibility of the applicant.
- Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
- Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Measure I: Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

b) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

c) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Chapter 5. Energy Element

Policy

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

Kern County Code of Ordinances

The Kern County Code of Ordinances, Chapter 8.36 (Noise Control), includes acceptable hours of construction, and limitations on construction related noise impacts on adjacent sensitive receptors.

Section 8.36.020 – Prohibited sounds

It is unlawful for any person to do, or cause to be done, any of the following acts within the unincorporated areas of the county:

H. To create noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:

1. The resource management director or a designated representative may for good cause exempt some construction work for a limited time.

2. Emergency work is exempt from this section.

Groundborne Vibration

There are currently no federal, State, or local regulatory standards for groundborne vibration. However, the California Department of Transportation (Caltrans) has developed vibration criteria based on potential structural damage risks and human annoyance. While the proposed project would not be subject to Caltrans oversight, guidance by the agency nonetheless provides groundborne vibration criteria that are useful in establishing thresholds of impact. Caltrans' threshold criteria pertaining to building damage and human annoyance for continuous and transient events are summarized in **Table 4.12-3**, *Vibration Criteria for Structural Damage*, and **Table 4.12-4**, *Vibration Criteria for Human Annoyance*, respectively below.

As indicated in **Table 4.12-3**, *Vibration Criteria for Structural Damage*, the structural damage threshold, at which there is a risk to normal structures from continuous or frequent vibration sources, is 0.3 in/sec PPV for older residential structures and 0.5 in/sec PPV for newer building construction. The 0.5 in/sec PPV threshold also represents the structural damage threshold applied to older structures for transient vibration sources. With regard to human perception (refer to **Table 4.12-4**, *Vibration Criteria for Human Annoyance*), vibration levels would begin to become distinctly perceptible at levels of 0.04 in/sec PPV for continuous or frequent vibration sources and 0.25 in/sec PPV for transient vibration sources. Continuous vibration levels are considered annoying for people in buildings at levels of 0.2 in/sec PPV.

Table 4.12-3. Vibration Criteria for Structural Damage

Structure and Condition	Vibration Level (in/sec PPV)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
Newer residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2013.

Notes:

Transient sources create a single isolated vibration event, such as blasting or ball drops. Traffic, train, and most construction vibrations are considered continuous.

in/sec ppv = inches per second peak particle velocity

Table 4.12-4. Vibration Criteria for Human Annoyance

Human Response	Vibration Level (in/sec PPV)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.1
Annoying to people in buildings	—	0.2
Severe	2.0	0.4

Source: Caltrans 2013.

Notes:

Transient sources create a single isolated vibration event, such as blasting or ball drops. Traffic, train, and most construction vibrations are considered continuous.

in/sec ppv = inches per second peak particle velocity

— = not available.

4.12.4 Impacts and Mitigation Measures

Methodology

Noise impacts associated with the proposed project were assessed in this section based on the *Aratina Solar Noise Study* prepared for the project (Rincon 2020) located in Appendix K of this EIR. To assess the potential for temporary construction and long-term operational noise impacts, noise-sensitive receptors closest to the project site were identified. **Figure 4.12-3**, *Location of Noise-Sensitive Receptors Closest to Project Site*, shows the general locations of noise-sensitive receptors in the project area.

Potential significant impacts associated with the project were evaluated on a quantitative and qualitative basis through a review of existing literature and available information, and by using professional judgment in comparing the anticipated proposed project effects on noise with existing conditions. The evaluation of proposed project impacts is based on significance criteria established by Appendix G of the CEQA Guidelines, which the Lead Agency has determined to be appropriate criteria for this EIR.

On-Site Construction and Decommissioning Noise

Construction and decommissioning of the project would involve the use of noise-generating equipment during various phases, including transport of personnel and materials to the site, heavy machinery used in

grading and clearing the site, pneumatic post drivers to install foundation supports for solar array modules, as well as equipment used during construction of the proposed solar arrays, infrastructure improvements, and related structures. Emergency diesel generators may be used during construction activities.

Table 4.12-5, *Typical Construction Noise Levels*, shows the noise levels associated with heavy construction equipment at a reference distance of 50 feet from the source, which will be used as a basis for estimating construction noise at the distances of sensitive receptors near the project sites and the gen-tie. As shown in this table, noise levels at this distance can range from about 74 to 85 dBA, depending upon the types of equipment in operation at any given time and phase of construction (FHWA 2006). The highest noise levels during construction would result from pneumatic post-driving of foundation support posts (similar to steel posts used in highway guard rails) for the solar array modules and from the use of augur drill rigs and scrapers.

The FHWA's software program Roadway Construction Noise Model (RCNM) was used to estimate construction noise at nearby sensitive receptors. The types of construction equipment that would be used on-site were provided by 8minute Solar Energy. RCNM provides reference noise levels at the standard distance of 50 feet and estimates noise levels at nearby sensitive receivers based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise such as construction equipment). Although construction activity would typically take place in the interior of the sites (Sites 1 through 5), the analysis conservatively assumes that equipment may be used along the boundaries of the sites facing the nearest noise-sensitive receptors. The average noise levels (L_{eq}) from all combined equipment were modeled at the nearest noise-sensitive receptors. Noise levels were modeled from the use of equipment at individual sites and the gen-tie corridor, as well as from multiple sites simultaneously under construction. To determine the cumulative impacts of construction noise at two or more sites on nearby sensitive receptors, an online decibel calculator was used.

Table 4.12-5. Typical Construction Equipment Noise Levels

Equipment	Acoustical Usage Factor (%)[1]	Measured L_{eq} (dBA at 50 feet)
Augur Drill Rig	20	84
Backhoe	40	78
Compactor (ground)	20	83
Concrete Mixer Truck	40	85
Crane	16	85
Dozer	40	82
Dump Truck	40	76
Excavator	40	81
Flat Bed Truck	40	74
Front End Loader	40	79
Generator	50	81
Grader	40	83
Pickup Truck	40	75
Pneumatic Tools	50	85
Roller	20	80
Scraper	40	84
Warning Horn	5	83
Welder/Torch	40	74

Source: FHWA 2006; Monterey County 2014

1. The average fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

On-site construction noise would cause a significant impact if it occurs outside of the County's permitted hours of 6:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends, within 1,000 feet of

an occupied residential dwelling, unless the applicant obtains an exemption to prohibited nighttime construction noise pursuant to Chapter 8.36 of the Kern County Code and implements a noise control plan to reduce nighttime construction noise. In addition, a significant impact may occur if daytime construction activity results in extremely high noise levels that could be detrimental to the health and safety of nearby residents.

At the end of the project's useful life (anticipated to be 30-40 years), the proposed solar facility and associated infrastructure may be decommissioned in accordance with then-current decommissioning practices. At this time, it is not possible to quantitatively evaluate potential noise that would result from project decommissioning, due to the uncertainty of when decommissioning would occur and the technology or construction practices that would be available at that time. Therefore, based on current decommissioning practices and as a reasonable worst-case scenario, this analysis assumes that noise impacts generated during future decommissioning would be similar to noise impacts generated during the construction phase of the project.

Construction Traffic Noise

Noise levels from existing traffic and with-construction traffic along SR 58, Borax Road, Boron Avenue, and Twenty Mule Team Road were estimated in terms of peak-hour L_{eq} using the Traffic Noise Model, Version 2.5 (TNM 2.5) (FHWA 2004). The model calculations are based on estimates of existing vehicle trips and additional vehicle trips generated by construction activity, contained in the *Aratina Solar Project Traffic Impact Analysis* (TIA) prepared by Environment Planning Development Solutions, Inc. (EPD Solutions 2019) located in Appendix L-1 of this EIR.

Estimated daily construction trips were divided by 10 to estimate additional peak-hour traffic (a standard conversion rate between peak-hour and daily traffic). Traffic speeds were assumed to be 65 miles per hour for passenger cars and medium trucks on SR 58; 55 miles per hour for heavy trucks on SR 58, and for vehicles on Borax Road and the segments of Twenty Mule Team Road outside the town of Boron; and 35 miles per hour on Borax Road and the segment of Twenty Mule Team Road in the town of Boron. The modal split of construction trips was assumed to be 89 percent passenger cars and 11 percent trucks.

This analysis assumes that vehicle trips associated with construction activity on all sites and the gen-tie corridor would occur simultaneously. This is a conservative assumption because it is likely that construction activities would be more intensive in specific parts of the project site at any given time.

For traffic-related noise, impacts are considered potentially significant if project-generated traffic would result in exposure of sensitive receptors to an unacceptable increase in noise levels during construction and/or operational activities. Recommendations in the *FTA's Transit Noise and Vibration Impact Assessment Manual* were used to determine whether increases in traffic noise would be unacceptable (FTA 2018). Under these FTA criteria, as existing ambient noise increases, the "allowable" increase in noise exposure due to a project is reduced. **Table 4.12-6**, *Significance of Changes in Roadway Noise Exposure*, shows the FTA criteria considered when evaluating traffic noise generated by this project. If sensitive receptors would be exposed to long-term traffic noise increases exceeding these criteria, impacts may be considered significant.

Table 4.12-6. Significance of Changes in Roadway Noise Exposure

Existing Noise Exposure (dBA L_{dn} or L_{eq})	Allowable Noise Exposure Increase (dBA L_{dn} or L_{eq})
40-45	10
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0
Source: FTA 2018.	

On-Site Operational Noise

Long-term noise from operational point sources (including PV solar arrays, transformers, inverters, substations, the switching station, collector lines, and the operations and maintenance facility) was estimated using a similar methodology to the analysis of on-site construction noise. Reference noise levels for expected stationary equipment were assumed to attenuate at the standard rate of 6 dBA per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). On-site operational noise would result in a significant impact if it would exceed Kern County's standard of 65 dBA L_{dn} for exterior noise at the nearest noise-sensitive receptors.

Operational Traffic Noise

The project's effect on traffic noise levels was estimated by completing a screening analysis. The existing traffic volumes on SR 58, Boron Avenue, Twenty Mule Team Road, and Borax Road – the nearest access roads to the proposed sites that travel near noise-sensitive receptors – were collected. These traffic volumes were compared with the expected increase in traffic volumes after construction of the project. Modeling of traffic noise indicates that, in general, a 10 percent increase in traffic volume would raise traffic noise by approximately 0.4 dBA, a 20 percent increase would raise traffic noise by about 0.8 dBA, a 30 percent increase would result in an approximately 1.1 dBA increase in traffic noise, and a 40 percent increase would increase traffic noise by about 1.5 dBA. The significance of the project's increase in traffic noise was determined using the FTA criteria shown in **Table 4.12-6,** *Significance of Changes in Roadway Noise Exposure.*

Groundborne Vibration

Groundborne vibration levels associated with construction-related activities were evaluated utilizing typical groundborne vibration levels rates associated with construction equipment, obtained from the FTA's Transit Noise and Vibration Impact Assessment Manual (FTA 2018). Groundborne vibration impacts related to structural damage and human annoyance were evaluated taking into account the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance (refer to **Table 4.12-7**, *Vibration Criteria for Structural Damage*, and **Table 4.12-8**, *Vibration Criteria for Human Annoyance*). Caltrans vibration guidance provides the following equation to calculate PPV at sensitive receptors:

$$PPV\ Impact\ Pile\ Driver = PPV_{Ref}\ (25/D)^{n}\ x\ (E_{equip}/E_{Ref})^{0.5}\ (in./sec.)$$

Where:

PPV_{Ref} = 0.65 in/sec for a reference pile driver at 25 feet

D = distance from pile driver to the receiver in feet

n = 1.1 is a value related to the vibration attenuation rate through ground

E_{equip} is rated energy of impact pile driver in ft-lbs

E_{Ref} is 36,000 ft-lb (rated energy of reference pile driver)

Table 4.12-7. Vibration Criteria for Structural Damage

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans 2013

Notes:

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity; in/sec = inches per second

Table 4.12-8. Vibration Criteria for Human Annoyance

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Severe	0.04	0.01
Strongly perceptible	0.25	0.04
Distinctly perceptible	0.9	0.10
Barely perceptible	2.0	0.4

Source: Caltrans 2013

Notes:

Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

PPV = peak particle velocity; in/sec = inches per second

Since operation of the proposed project would involve minor operational traffic, including O&M staff and regular maintenance trucks, and panel washing activity (not measurable), project-related vibration impacts would not have any measurable effect on the adjacent off-site sensitive receptors.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant noise-related adverse effect.

A project could have a significant noise-related adverse effect if it would result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

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; or

d. For a project located within the Kern County Airport Land Use Compatibility Plan, expose people residing or working in the project area to excessive noise levels.

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in **Appendix A** of this EIR, that the proposed project would not result in significant impacts to some of these environmental issue areas; these issue areas are thus scoped out of this EIR. It was determined that the project would not:

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.

The Kern County Airport Land Use Compatibility Plan (ALUCP) covers operations at the Edwards Air Force Base, which borders the project site to the west and south. The nearest public airport to the project site is the California City Municipal Airport located approximately 18 miles northwest of the project site. The project site is not located within any safety or noise zones for the California City Municipal Airport. Noise from occasional aircraft flyovers would not have a significant effect on the small workforce on-site, who would normally be working indoors, except when outdoor maintenance or repair activities are required. The proposed PV solar project would not generate any impacts that could worsen the levels of aircraft noise. Impacts would be less than significant and no further analysis of this issue is warranted in the EIR.

Substantial Temporary or Permanent Ambient Noise Increase in Excess of Standards

Kern County regulates noise levels per the requirements of Chapter 8.36 (Noise Control) of the Kern County Code of Ordinances, which establishes hours of construction and limitations on construction-related noise impacts on adjacent sensitive receptors. Specifically, construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends. However, as previously stipulated, the following exceptions are permitted: (1) The resource management director or a designated representative may for good cause exempt some construction work for a limited time, and (2) Emergency work is exempt from this section. Given that a 5 dBA change in the community noise environment is considered to be readily perceptible by the human ear, construction activities occurring outside of the acceptable construction hours established by the County that increases the ambient noise levels at a noise-sensitive land use by 5 dBA or more is considered to be a violation of the County's construction noise regulations.

For operational noise, the Kern County General Plan Noise Element requires that proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess

of 45 dB L_{dn}. As such, operational noise impacts from stationary equipment are assessed by determining if the proposed project would result in a substantial increase in ambient noise levels that would exceed the applicable County noise standards at the outdoor activity area of the nearest noise-sensitive land use.

Generation of Excessive Groundborne Vibration

For the purposes of assessing potential groundborne vibration impacts associated with the proposed project, Caltrans's vibration criteria for potential structural damage risks and human annoyance was used in this analysis. Accordingly, groundborne vibration levels would be considered significant if predicted short-term construction or long-term operational groundborne vibration levels attributable to the proposed project would exceed the recommended criteria for structural damage or human annoyance (i.e., 0.25 and 0.1 in/sec PPV, respectively) at the nearest off-site existing structure (refer to **Table 4.12-7**, *Vibration Criteria for Structural Damage*, and **Table 4.12-8**, *Vibration Criteria for Human Annoyance*). These thresholds are considered to represent a conservative level at which construction-related activities would result in either structural damage or human annoyance. The proposed project would not result in the use of equipment or processes that would result in long-term or permanent increases in groundborne vibration.

Project Impacts

Impact 4.12-1: The project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

On-Site Construction Noise

Construction and decommissioning of the project would involve the use of noise-generating equipment during various phases, including transport of personnel and materials to the project site, heavy machinery used in grading and clearing the site, pneumatic post drivers to install foundation supports for solar array modules, as well as equipment used during construction of the proposed solar arrays, infrastructure improvements, and related structures. Emergency diesel generators may be used during construction activities.

Noise levels associated with heavy construction equipment at a reference distance of 50 feet from the source ranges from about 74 to 85 dBA, depending upon the types of equipment in operation at any given time and phase of construction. The highest noise levels during construction would result from pneumatic post-driving of foundation support posts for the solar array modules and from the use of auger drill rigs and scrapers.

Project components at all sites (Sites 1 through 5) and the gen-tie would be constructed over a 12- to 18-month period. This analysis makes a conservative assumption that all construction at all sites and the gen-tie would occur simultaneously. In practice, however, grading and site preparation would take place sequentially at the sites. When these activities are completed at one site, post driving would start in that area while grading equipment would begin operating at another site.

Construction activities would be subject to Kern County General Plan and County Code policies and regulations. Heavy construction activities would normally occur on-site between the hours of 6:00 a.m. and 5:00 p.m., which is between the acceptable hours for construction listed in Section 8.36.020(H) of the Kern

County Code. However, additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. As a result, some construction activities may be required to continue 24 hours per day, seven days per week. Activities that generate relatively low amounts of noise, such as refueling equipment, staging material for the following day's construction activities, quality assurance/control, and commissioning, may potentially occur between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and the hours of 9:00 p.m. and 8:00 a.m. on weekends. Per Section 8.36.020 of the Kern County Code, these activities would require approval from the resource management director or his or her designated representative if audible to a person with average hearing ability at a distance of 150 feet from a construction site, if the site is within 1,000 feet of an occupied residential dwelling.

Noise-sensitive uses near the project site include residences in the communities of Desert Lake and Boron. These land uses would experience a temporary increase in noise during construction of the project. **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction,* highlights the construction noise levels at the nearest sensitive receptor to each individual construction site, including the gen-tie construction. Furthermore, the following subsections detail the impacts to noise-sensitive receptors in proximity to each site and the gen-tie line.

Table 4.12-9. Typical Noise Levels at Various Distances from Construction

Receptor	Distance from Construction (feet)	Noise Level at Receptor (dBA L_{eq})[1]
Reference distance	50	89
Site 1 – Bleachers at Boron Park	2,400	55
Site 1 – Residences on Boron Avenue	2,860	54
Site 2 – Residences east of Wesley Street	85	84
Site 3 – Desert Lake Apartments	520	69
Site 4 – Residences on Sierra View Street	280	74
Site 5 – Residences on Sierra View Street	5,800	48
Gen-Tie – Residences on Sierra View Street	1,720	54

Source: Rincon 2020; see Appendix K.

1. Noise levels at receptors (dBA L_{eq}) are based on a standard noise attenuation rate of 6 dBA per doubling of distance for point sources of noise and as modeled within RCNM.

Site 1

The sensitive receptor closest to Site 1 is Boron Park, located approximately 2,400 feet northwest of Site 1 along Boron Avenue. The outfields of baseball fields at Boron Park are adjacent to the north of Site 1, on the west side of Boron Avenue. Bleachers for spectators of baseball games are located as close as approximately 100 feet from Site 1. Although it is assumed that active recreational users, such as baseball players, would not be noise-sensitive receptors, spectators may be sensitive to off-site noise that distracts from athletic events. People using other passive recreational areas at Boron Park also may be sensitive to noise. In addition, outdoor activity areas at the nearest residential properties, on Boron Avenue, are located approximately 2,860 feet northwest of Site 1.

Table 4.12-9, *Typical Noise Levels at Various Distances from Construction*, shows the estimated average noise level from construction at the bleachers at Boron Park, based on a standard noise attenuation rate of 6 dBA per doubling of distance for point sources of noise. As shown in **Table 4.12-9**, at 2,400 feet from the Site 1 boundary, simultaneous heavy equipment use at the project site during construction would generate a combined average noise level of approximately 55 dBA L_{eq}. The loudest construction activity at Site 1 would involve the use of pneumatic post drivers to install solar panels. It is estimated that the average noise level from the use of individual pneumatic post driving equipment would approach 48 dBA L_{eq} at Boron Park. At residences located 2,860 feet from Site 1, combined construction noise would reach an

estimated 54 dBA L_{eq}. Most construction activities would occur in the body of Site 1, farther from nearby noise-sensitive receptors, and would therefore result in substantially lower noise levels, especially in later construction phases when the loudest equipment, such as pneumatic tools and graders, would no longer be used. Heavy construction activity involving pneumatic tools and graders also would not occur during nighttime hours.

Because the nearest sensitive receptor is more than 1,000 feet away from Site 1, nighttime construction activities outside of permitted hours would not require approval from the development services agency direction or designated representative. Therefore, construction noise generated at Site 1 would not have a significant impact. Nevertheless, implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 (discussed below) would further reduce construction noise to the extent feasible.

Site 2

The sensitive receptors closest to Site 2 are residences east of Wesley Street, with outdoor activity areas as close as 85 feet from Site 2. These residences would experience a temporary increase in noise during construction of the project. As shown in **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction*, at 85 feet from the Site 2 boundary, simultaneous heavy equipment use at the project site during construction would generate a combined noise level of up to 84 dBA L_{eq}. The loudest phase of construction would be the installation of solar panels, when pneumatic post driving activities would occur. The use of pneumatic tools alone can generate noise levels reaching approximately 78 dBA L_{eq} at a distance of 85 feet. Due to the revised CUP boundaries for the solar facility that include an approximate half-mile setback from the communities of Desert Lake and Boron, most construction activities would occur farther from nearby noise receptors and would therefore result in lower noise levels, especially in later construction phases when equipment with the loudest equipment, such as pneumatic tools and graders, would no longer be used. Heavy construction activity involving pneumatic tools and graders also would not occur during nighttime hours.

Since the Kern County General Plan and Noise Ordinance does not set a noise level limit for temporary construction activities, project construction-generated noise levels would not conflict with noise standards established in local land use plans. However, the Kern County Noise Control Ordinance includes hourly restrictions for noise-generating construction activities that are audible at 150 feet from the construction site, or that occur within 1,000 feet of an occupied residential dwelling. In such instances and with the exception of emergency work or County-approved work, construction activities would be prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and between 9:00 p.m. to 8:00 a.m. on weekends. These hourly limitations would apply to the proposed project and compliance with these hourly restrictions would substantially decrease levels of annoyance and potential sleep disruption to occupants of nearby residential dwellings.

Per Section 8.36.020 of the Kern County Code, construction activities outside of acceptable hours would require approval from the resource management director or designated representative if audible to a person with average hearing ability at a distance of 150 feet from a construction site, if the site is within 1,000 feet of an occupied residential dwelling. Because the nearest occupied residence is approximately 85 feet away from Site 2, County approval and implementation of a noise control plan would be required unless specific nighttime construction activities proposed within 1,000 feet of an occupied dwelling generates construction-activity related noise that is determined to be inaudible to a person with average hearing ability at a distance greater than 150 feet. Therefore, construction noise from Site 2 would have a potentially significant temporary impact.

Mitigation Measure MM 4.12-1 would minimize noise effects generated by the project by limiting and/or reducing potential construction noise that may temporarily exceed County thresholds during construction. It would also require the project proponent/operator to obtain approval from the resource management director or designated representative for project construction activities occurring between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, for proposed nighttime construction activities that would be located within 1,000 feet of an occupied residential building, if such proposed nighttime construction activities would be audible to a person with average hearing ability at a distance of 150 feet from a construction site. Mitigation Measure MM 4.12-2 would require the project proponent/operator to provide notice to nearby residents of construction activities and a contact number for noise complaints. Mitigation Measure MM 4.12-3 would require pre-construction notifications to residences within 1,000 feet of a proposed construction area, posting of signs regarding pending construction activities, and information to facilitate filing of noise-related complaints with a construction noise coordinator. Implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 would reduce impacts to a less than significant level.

Site 3

The sensitive receptor closest to Site 3 is the Desert Lake Apartments complex, with outdoor activity areas and residences located approximately 520 feet north of Site 3 across Twenty Mule Team Road. Residents at this apartment complex and other nearby residences in the Desert Lake community would experience a temporary increase in noise during construction of the project. **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction***,** provides estimates of noise levels from construction activity at a reference distance of 50 feet and at 520 feet, based on a standard noise attenuation rate of 6 dBA per doubling of distance for point sources of noise.

As shown in **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction*, at 520 feet from the Site 3 boundary, simultaneous heavy equipment use at the project site during construction would generate a combined noise level of up to 69 dBA L_{eq}. The loudest phase of construction would be the installation of solar panels, when pneumatic post driving activities would occur. The use of pneumatic tools alone can generate noise levels reaching approximately 51 dBA L_{eq} at a distance of 520 feet. Due to the revised CUP boundaries for the solar facility that include an approximate half-mile setback from the communities of Desert Lake and Boron, most construction activities would occur farther from nearby noise receptors, and would therefore result in substantially lower noise levels, especially in later construction phases when the loudest equipment, such as pneumatic tools and graders, would no longer be used. Heavy construction activity involving pneumatic tools and graders also would not occur during nighttime hours.

If specific nighttime construction activities at Site 3 would occur within 1,000 feet of a noise-sensitive receptor, County approval and implementation of a noise control plan would be required unless nighttime construction noise is inaudible to a person with average hearing ability at a distance greater than 150 feet. Therefore, construction noise from Site 3 would have a potentially significant temporary impact. However, implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 would reduce impacts to a less than significant level.

Site 4

The sensitive receptors closest to Site 4 are residences located approximately 280 feet to the east along Sierra View Street. These residences would experience a temporary increase in noise during construction of the project. **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction,* provides

estimates of noise levels from construction activity at a reference distance of 50 feet and at 280 feet, based on a standard noise attenuation rate of 6 dBA per doubling of distance for point sources of noise.

As shown in **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction*, at 280 feet from the Site 4 boundary, simultaneous heavy equipment use at the project site during construction would generate a combined noise level of up to 74 dBA L_{eq}. The loudest phase of construction would be the installation of solar panels, when pneumatic post driving activities would occur. The use of pneumatic tools alone can generate noise levels reaching approximately 67 dBA L_{eq} at a distance of 280 feet. Due to the revised CUP boundaries for the solar facility that include an approximate half-mile setback from the communities of Desert Lake and Boron, most construction activities would occur farther from nearby noise receptors, and would therefore result in substantially lower noise levels, especially in later construction phases when the loudest equipment, such as pneumatic tools and graders, would no longer be used. Heavy construction activity involving pneumatic tools and graders also would not occur during nighttime hours.

If specific nighttime construction at Site 4 would occur within 1,000 feet of a noise-sensitive receptor, County approval and implementation of a noise control plan would be required unless nighttime construction noise is inaudible to a person with average hearing ability at a distance greater than 150 feet. Therefore, construction noise from Site 4 would have a potentially significant temporary impact. However, implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 would reduce impacts to a less than significant level.

Site 5

The sensitive receptors closest to Site 5 are residences along Sierra View Street approximately 1.1 miles (5,800 feet) east of Site 5. These residences would experience a temporary increase in noise during construction of the project. **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction*, shows construction noise levels at various distances from construction activity, including those of the nearest noise-sensitive receptors, based on a standard noise attenuation rate of 6 dBA per doubling of distance for point sources of noise.

As shown in **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction*, at 5,800 feet from the Site 5 boundary, simultaneous heavy equipment use at the project site during construction would generate a combined noise level of up to 48 dBA L_{eq}. The loudest phase of construction would the installation of solar panels, when pneumatic post driving activities would occur. The use of pneumatic tools alone can generate noise levels reaching approximately 41 dBA L_{eq} at a distance of 5,800 feet. Most construction activities would occur farther from nearby noise receptors, and would therefore result in substantially lower noise levels, especially in later construction phases when the loudest equipment, such as pneumatic tools and graders, would no longer be used. Heavy construction activity involving pneumatic tools and graders also would not occur during nighttime hours.

Because the nearest sensitive receptor is more than 1,000 feet away from Site 5, nighttime construction activities outside of permitted hours would not require approval from the development services agency direction or designated representative. Therefore, construction noise generated at Site 5 would not have a significant impact. Nevertheless, implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 would further reduce construction noise to the extent feasible.

Gen-Tie

None of the gen-tie route options are located adjacent to noise-sensitive receptors. At its closest point, the gen-tie route option on the north side of SR 58 and west of Borax Road would be located approximately 1,720 feet northwest of residences along Sierra View Street in Desert Lake. These are the nearest sensitive receptors to any of the gen-tie route alternatives, and they would experience a temporary increase in noise during construction of the project. Construction of the gen-tie would involve the use of auger rigs and grouting or direct driving, among other equipment. **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction***,** shows construction noise levels at various distances from construction activity, including those of the nearest noise-sensitive receptors, based on a standard noise attenuation rate of 6 dBA per doubling of distance for point sources of noise.

As shown in **Table 4.12-9**, *Typical Noise Levels at Various Distances from Construction*, simultaneous heavy equipment use at the gen-tie route alternative north of SR 58 and west of Borax Avenue would generate a combined noise level of up to 54 dBA L_{eq} at the nearest residences located 1,720 feet away. Most construction activities would occur farther from nearby noise receptors, and would therefore result in substantially lower noise levels, especially in later construction phases when the loudest equipment, such as cranes and concrete mixer trucks, would no longer be used. Heavy construction activity involving cranes and concrete mixer trucks also would not occur during nighttime hours.

Because the nearest sensitive receptor is more than 1,000 feet away from the gen-tie options, nighttime construction activities outside of permitted hours would not require approval from the resource management director or designated representative. Therefore, construction noise generated at the gen-tie alternatives would not have a significant impact. Nevertheless, implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 would further reduce construction noise to the extent feasible.

Project Decommissioning Noise

As stated in above, at the end of the project's useful life (anticipated to be 30-40 years), the solar facility and associated infrastructure may be decommissioned in accordance with then-current decommissioning practices. Given the project's operating life cycle and distant timeframe for decommissioning activities, it is too speculative to quantify the potential noise impacts that could occur during decommissioning activities. It is assumed, decommissioning would be similar to project construction and be completed in 12 to 18 months. Assuming that the facility would be torn down and the materials present recycled or disposed, temporary noise associated with such actions are assumed to be generally similar to the noise levels that would result from project construction. Similar to the noise generated during construction of the project, decommissioning activities would be conducted in accordance with all applicable requirements in effect at the time of project termination. Potential future environmental effects associated with project decommissioning would be addressed at the time decommissioning is proposed consistent with regulations in effect at that time. A final decommissioning plan, based on then-current technology, site conditions, and regulations, would be prepared prior to actual decommissioning.

Cumulative On-Site Construction Noise

Project components at all sites would be constructed over a 12- to 18-month period. This analysis makes a conservative assumption that construction at all sites and the gen-tie would occur simultaneously. Concurrent construction activity at more than one site and the gen-tie line may expose nearby residences to cumulative noise impacts. This analysis of cumulative effects focuses on the effects of concurrent

construction activities for the worst-case scenario (i.e., the closest residences which would be exposed to construction activities at multiple sites).

As analyzed, the residences located within Desert Lake Apartments complex across Twenty Mule Team Road in Boron would be exposed to construction noise at Sites 3 and 4. Because of their close proximity to the sites, these residences are representative of a reasonable worst-case scenario for cumulative construction noise impacts, assuming concurrent construction near the property lines facing residences at Sites 3 and 4. **Table 4.12-10**, *Cumulative Construction Noise Levels for Worst-Case Scenario*, estimates the cumulative construction noise levels for this scenario, which could reach approximately 72 dBA L_{eq}.

Table 4.12-10. Cumulative Construction Noise Levels for Worst-Case Scenario

Site	Distance from Construction (feet)	Noise Level at Receptor (dBA L_{eq})
Site 3	520	69
Site 4	490	69
Cumulative Noise Level	--	72
Source: Rincon 2020; see Appendix K.		

Because sensitive receptors are less than 1,000 feet away from Sites 3 and 4, County approval and implementation of a noise control plan would be required unless nighttime construction noise is inaudible to a person with average hearing ability at a distance greater than 150 feet. Also note that the proposed project has increased the separation between the solar facility area in Site 2 and the community of Desert Lake to approximately one-half mile; thus, noise levels would be lower than indicated in **Table 4.12-7**. In addition, daytime construction noise levels in excess of 70 dBA L_{eq} could disturb nearby residents. Therefore, cumulative construction noise would have a potentially significant temporary impact. However, implementation of Mitigation Measures MM 4.12-1, MM 4.12-2, and MM 4.12-3 would reduce impacts to a less than significant level.

Construction Traffic Noise

Construction of the project would increase traffic noise off-site from commuting construction workers and from haul trucks bringing materials to and from the project site. As mentioned previously, project components would be constructed simultaneously over a 12- to 18-month period. Residences in the communities of Desert Lake and Boron would be exposed to traffic noise from vehicles traveling to and from all sites and the gen-tie corridor. **Table 4.12-11**, *Cumulative Construction Traffic Noise*, shows modeled traffic noise at the nearest receivers under existing traffic conditions and with added cumulative construction traffic.

Construction traffic would temporarily increase traffic noise levels at the nearest receptors by up to 3.5 dBA L_{eq} above existing conditions (at Boron Park). The increases in traffic noise shown in **Table 4.12-11** would not exceed the applicable thresholds listed in **Table 4.12-6**, *Significance of Changes in Roadway Noise Exposure*. Therefore, the short-term increase in traffic noise from all construction trips would be less than significant. Furthermore, this effect would be temporary, ceasing within 18 months of the start of construction.

Table 4.12-11. Cumulative Construction Traffic Noise

Sensitive Receptor	Existing Traffic Noise (dBA L_{eq})	With Construction Traffic Noise (dBA L_{eq})	Change in Traffic Noise (dBA L_{eq})	Applicable FTA Criteria (dBA L_{eq})
Boron Park Bleachers (near Site 1)	42.9	46.5	+3.6	10
Desert Lake Apartments (near Sites 3 and 4)	50.4	52.7	+2.3	5
Ferguson St. residences (near Site 2)	43.3	44.2	+0.9	10
Sierra Vista St northern residences (near Site 4)	66.8	67.1	+0.3	1
Sierra Vista St southern residences (Site 4)	51.1	53.9	+2.8	5
Source: Rincon 2020; see Appendix K.				

On-Site Operational Noise

The project would operate continuously, seven days a week, until the anticipated repowering or decommissioning of the project in 30 to 40 years. Stationary noise sources during operation would include PV solar arrays with associated electrical equipment (such as transformers and inverters), energy storage systems (including HVAC systems), substations, collector lines, and the operations and maintenance facility. Electrical equipment produces a discrete low-frequency humming noise. The noise from transformers is produced by alternating current flux in the core, which causes it to vibrate.

Transformers would be located within the inverters, which would lie within an enclosed or canopied metal structure. Within enclosures, inverters typically produce a noise level of 58 dBA L_{eq} at the source (Monterey County 2014). However, a fully enclosed metal structure would attenuate noise from inverter stations more effectively than would a canopy structure with open walls. It is unknown at this time whether the inverters/transformers would be enclosed or open. This would be determined during design once the inverter/transformer manufacturer has been selected. Open inverters would generate a noise level of approximately 52 dBA at a distance of 75 feet (San Luis Obispo County 2011). If the inverters are enclosed, each inverter enclosure may also include heating, ventilation, and air conditioning (HVAC) systems mounted on the exterior of the inverter enclosure, which would be more audible than the inverters themselves.

Table 4.12-12, *Estimated Noise Rating for Equipment Utilized During Project Operations*, lists acoustic assessments of equipment used for similar solar projects that are assumed to be used on the project site. It is expected that the loudest noise generated by on-site solar operations would come from the HVAC systems (whether they are associated with inverters or ESS), at 60 dBA L_{eq} at a distance of 50 feet from the source. As the enclosed inverter would generate a higher noise level than an open inverter due to the inclusion of HVAC units, the enclosed inverters are conservatively used for this analysis.

Table 4.12-12. Estimated Noise Rating for Equipment Utilized During Project Operations

Equipment Type	Reference Noise Level (dBA L_{eq})	Distance from Source (feet)
Gen-Tie	20	50
PV Panel	44	50
500+ kW Inverter (unenclosed)	52	75
Transformer	57	50
Inverter (or ESS) HVAC System	60	50
Source: Rincon 2020; see Appendix K.		

Site 1

The loudest on-site operational equipment at Site 1 would be part of inverter stations, which would generally be located near the center of each PV solar block. This equipment would include inverters, transformers, and HVAC systems. It is conservatively assumed that inverter equipment would be placed as close as 2,400 feet from potentially noise-sensitive receptors (i.e., bleachers at Boron Park). The loudest piece of equipment, HVAC equipment, would be approximately 26.4 dBA L_{eq} at this distance, based on an attenuation rate of 6 dBA per doubling distance for stationary point sources. This would not exceed the existing ambient noise level of approximately 48.0 dBA L_{eq} in the vicinity of the park (NM 7).

For HVAC equipment operating on a continuous basis (associated with inverters or ESS), an average noise level of 26.4 dBA L_{eq} would translate to a 24-hour weighted noise level of 32.8 dBA L_{dn}. As such, operational noise attributable to equipment at Site 1 would not approach the County's standard of 65 dBA L_{dn} at the nearest potentially noise-sensitive receptors. It is also expected that on-site operational equipment would be placed in the interior of the project sites, resulting in substantially lower noise exposure than estimated at off-site noise-sensitive receptors. In addition, Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, on-site operational noise from Site 1 would not have a significant effect on noise-sensitive receptors.

Site 2

The closest sensitive receptors to Site 2 are residences east of Wesley Street, with outdoor activity areas as close as 85 feet from the site. This analysis makes the conservative assumption that an inverter station on Site 2 could be located adjacent to the property line facing Wesley Street. At a distance of 85 feet to the nearest noise-sensitive receptors, the anticipated noise level from the loudest on-site equipment would be approximately 55.4 dBA L_{eq}. This noise level would exceed the existing measured daytime ambient noise level of 33.0 dBA L_{eq} in the vicinity of Site 2 (NM 5). For HVAC equipment operating on a continuous basis, an average noise level of 55.4 dBA L_{eq} would translate to a 24-hour weighted noise level of 61.8 dBA L_{dn}. Due to the revised CUP boundaries for the solar facility that include an approximate half-mile setback from the community of Boron, operational noise levels at the nearest homes would actually be lower. Despite the increase in ambient noise, operational noise attributable to equipment at Site 2 would not exceed the County's standard of 65 dBA L_{dn} at the nearest residences, even if an inverter station were placed at the property line facing residences. In reality, it is expected that on-site operational equipment would be placed in the interior of the project sites, resulting in substantially lower noise exposure than estimated at offsite noise-sensitive receptors. Furthermore, Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, on-site operational noise from Site 2 would not have a significant effect on noise-sensitive receptors.

Site 3

At a distance of 520 feet to the nearest noise-sensitive receptors (Desert Lake Apartments complex), the anticipated noise level from the loudest on-site equipment would be approximately 37.9 dBA L_{eq}. This operational noise level would not exceed the existing measured daytime ambient noise level of 61.1 dBA L_{eq} in the vicinity of Site 3 (NM 9). An average noise level of 37.9 dBA L_{eq} would translate to a 24-hour

weighted noise level of 44.6 dBA L_{dn}. As such, exterior noise from on-site equipment at Site 3 would not approach the County's standard of 65 dBA L_{dn} at the nearest residence. Additionally, Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, on-site operational noise from Site 3 would not have a significant effect on noise-sensitive receptors.

Site 4

At a distance of 280 feet to the nearest noise-sensitive receptors (residences located along Sierra View Street), the anticipated noise level from the loudest on-site equipment would be approximately 45.0 dBA L_{eq}. This operational noise level would not exceed the existing measured daytime ambient noise level of 55.6 dBA L_{eq} in the vicinity of Site 4 along Borax Road (NM 1). An average noise level of 45.0 dBA L_{eq} would translate to a 24-hour weighted noise level of 51.4 dBA $L_{dn.}$ Due to the revised CUP boundaries for the solar facility that include an approximate half-mile setback from the community of Desert Lake, operational noise levels at the nearest homes would actually be lower. Thus, exterior noise from on-site equipment at Site 4 would not approach the County's standard of 65 dBA L_{dn} at the nearest residence. Furthermore, Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, the project would not expose persons to or generation of noise levels more than established standards during operation or create a substantial increase in ambient noise levels at the nearest offsite sensitive receptor, and impacts would be less than significant.

Site 5

At a distance of 1.1 miles (5,800 feet) to the nearest noise-sensitive receptors (residences along Sierra View Street), the anticipated noise level from the loudest on-site equipment would be approximately 18.9 dBA L_{eq}. This operational noise level would not exceed the existing measured daytime ambient noise level of 55.6 dBA L_{eq} in the vicinity of these residences (NM 1). An average noise level of 18.9 dBA L_{eq} would translate to a 24-hour weighted noise level of 25.3 dBA $L_{dn.}$ Furthermore, this noise level would be imperceptible relative to noise generated by traffic on SR 58, which is adjacent to the north end of Sierra View Street. Traffic noise from SR 58 was measured at approximately 73.0 dBA L_{eq} at a distance of approximately 80 feet from the center of the median (NM 2). Operational noise attributable to equipment at Site 5 also would not exceed the County's standard of 65 dBA L_{dn} at the nearest residences. Furthermore, Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, on-site operational noise from Site 5 would not have a significant effect on noise-sensitive receptors.

Gen-Tie

None of these route alternatives are located adjacent to noise-sensitive receptors. At its closest point, the gen-tie route alternative on the north side of SR 58 and west of Borax Road would be located approximately 1,720 feet northwest of residences along Sierra View Street. These are the nearest sensitive receptors to any of the gen-tie route alternatives.

At this distance, the transmission line would generate an estimated noise level of 4.6 dBA L_{eq}, assuming an attenuation rate of 3 dBA per doubling of distance from a line source. This noise level would not be perceptible, and exterior noise from on-site equipment at the gen-tie would not approach the County's standard of 65 dBA L_{dn} at the nearest residences. Therefore, on-site operational noise from the gen-tie would have a less than significant impact on noise-sensitive receptors.

Cumulative On-Site Operational Noise

As mentioned previously, project components at all sites would operate continuously, seven days per week over the life of the facility. This could expose nearby residences to cumulative noise from operational activities at more than one site and/or the gen-tie. This analysis of cumulative effects focuses on the effects of concurrent operational activities for the worst-case scenario (i.e., the closest residences which would be exposed to operational activities at multiple sites).

The residences located within Desert Lake Apartments complex across Twenty Mule Team Road in Boron would be exposed to operational noise at Site 3 and Site 4. Because of their close proximity to the sites, these residences are representative of a reasonable worst-case scenario for cumulative on-site operational noise impacts. **Table 4.12-13**, *Cumulative On-site Operational Noise Levels for Worst-Case Scenario,* shows the calculations for the cumulative operational noise levels for the worst-case scenario.

Table 4.12-13. Cumulative On-Site Operational Noise Levels for Worst-Case Scenario

Site	Distance from Site Boundary (feet)	Noise Level at Receptor (dBA L_{eq})
Site 3	520	37.9
Site 4	490	38.4
Cumulative Noise Level	-	41.2
Source: Rincon 2020; see Appendix K.		

As shown in **Table 4.12-13**,, the cumulative noise level from operational activities at Site 3 and Site 4 at the closest residences would be an estimated 41.2 dBA L_{eq}. For equipment operating continuously, an average noise level of 41.2 dBA L_{eq} would translate to a 24-hour weighted noise level of 47.6 dBA L_{dn}, which would not exceed Kern County's 65 dBA L_{dn} exterior noise standard. Due to the revised CUP boundaries for the solar facility that include an approximate half-mile setback for Site 2 from the community of Desert Lake, operational noise levels at the nearest homes would actually be lower. Furthermore, Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, the project would not expose persons to or generation of noise levels more than established standards during operation or create a substantial increase in ambient noise levels at the nearest offsite sensitive receptor. Therefore, cumulative on-site operational noise would have a less than significant impact on noise-sensitive receptors.

Operational Traffic Noise

Once the project is complete, vehicle trips to the project site would be associated with operations and maintenance of the solar facility. In addition, the project would require occasional nighttime activities, including deliveries, repairs, maintenance, office and administrative activities, security personnel, and emergency response. Once operational, it is assumed that the project would have a total of five full-time employees per Site. Project operation would be anticipated to generate up to 110 total vehicle trips per day.

In the vicinity of the project site, operational vehicle trips would occur mainly on SR 58, Boron Avenue, Twenty Mule Team Road, and Borax Road, the primary access routes serving the sites and gen-tie corridor. This analysis makes the conservative assumption that each of these roadways would include up to 22 vehicle trips per day generated by operation of the project, as project trips would be distributed within the surrounding roadway network. Although operational trips may also occur along Gephart Road, no noise-sensitive receptors are located along Gephart Road, so noise increases on this roadway due to operational traffic would not result in a significant impact.

Table 4.12-14, *Anticipated Increase in Roadway Traffic During Project Operations*, summarizes existing traffic along the studied roadways and the projected increase in ADT associated with project operation.

Table 4.12-14. Anticipated Increase in Roadway Traffic During Project Operations

Roadway	Existing Traffic Volume (ADT)	Percentage Increase with Project Operation
SR 58 west of Boron Avenue	15,350	0.7
SR 58 east of Boron Avenue	15,400	0.7
Boron Avenue north of 20 Mule Team Road	1,240	8.9
Boron Avenue south of 20 Mule Team Road	606	18.2
20 Mule Team Road east of Borax Road	1,815	6.1
Borax Road south of SR 58	592	18.6
Source: Rincon 2020; see Appendix K.		

Existing roadway noise was measured at 73.0 dBA L_{eq} along SR 58 (NM 2), 49.2 dBA L_{eq} along Boron Avenue (NM 6), 61.1 dBA L_{eq} along Twenty Mule Team Road (NM 9), and 55.6 dBA L_{eq} along Borax Road (NM 1). Pursuant to the FTA criteria described in **Table 4.12-6**, *Significance of Changes in Roadway Noise Exposure*, a significant noise impact would occur if roadway noise would increase by 1 dBA along SR 58, 7 dBA along Boron Avenue, 2 dBA along Twenty Mule Team Road, and 3 dBA along Borax Road. As shown in **Table 4.12-14**, *Anticipated Increase in Roadway Traffic During Project Operations***,** it is anticipated that vehicle trips generated by operation of the project would increase traffic volumes on these roadways by no greater than 18.6 percent. An 18.6 percent increase in traffic volume would raise traffic noise by approximately 0.7 dBA. This increase in traffic noise would be imperceptible to nearby residents and would not exceed applicable FTA criteria (**Table 4.12-6**, *Significance of Changes in Roadway Noise Exposure*). Therefore, noise from traffic caused by operation of the project would have a less than significant impact.

Mitigation Measures

MM 4.12-1 To reduce temporary construction-related noise impacts, the following shall be implemented by the project proponent/operator:

a. In the event a noise-sensitive receptor is located within 1,000 feet of the project site:

- Equipment staging and laydown areas shall be located at the furthest practical distance from nearby residential land uses. To the extent possible, staging and laydown areas should be located at least 500 feet of existing residential dwellings.

- The project contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise-sensitive receptor, where feasible.

b. Haul trucks shall not be allowed to idle for periods greater than five minutes, except as needed to perform a specified function (e.g., concrete mixing).

c. Construction equipment shall be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer. On-site vehicle speeds shall be limited to 15 miles per hour, or less (except in cases of emergency).

d. Back-up beepers for all construction equipment and vehicles shall be broadband sound alarms or adjusted to the lowest noise levels possible, provided that the Occupational Safety and Health Administration and California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters shall be employed.

e. The construction contractor shall establish a Noise Disturbance Coordinator for the proposed project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground disturbing activities.

   During all construction or decommissioning phases of the proposed project, the construction contractor shall limit all onsite noise-producing activities to the hours of 6:00 a.m. to 9:00 p.m., Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturdays and Sunday or as required through the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36.020).

   If construction-related activities must occur outside of permitted hours per Section 8.36.020 of the Kern County Code, the project proponent/operator shall obtain approval from the development services agency director or designated representative for project construction activities occurring between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, within 1,000 feet of an occupied residential building, if audible to a person with average hearing ability at a distance of 150 feet from a construction site. If construction activity is proposed outside of permitted hours, the project proponent/operator shall implement a noise control plan including appropriate noise-reduction measures to the satisfaction of the development services agency director or designated representative, which may include the measures listed above. In addition, the noise control plan may include a requirement to restrict the

duration of construction activities outside of permitted hours within 1,000 feet of an occupied residential building.

MM 4.12-2 The construction contractor shall establish a Noise Disturbance Coordinator for the project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground disturbing activities.

MM 4.13-3 Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), the project proponent/operator shall provide written notice to the public through mailing a notice, which shall include:

a. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include the construction schedule and a telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator.

b. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site, or adjacent to the nearest public access to the main construction entrance, throughout construction activities that shall provide the construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator.

c. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.

MM 4.12-4 Adequate noise shielding shall be provided to the project's onsite transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.

Level of Significance after Mitigation

With the incorporation of Mitigation Measures MM 4.12-1 through MM 4.12-4, impacts would be less than significant.

Impact 4.12-2: The project would generate excessive groundborne vibration or groundborne noise levels.

Vibration associated with construction of the project has the potential to be an annoyance to nearby land uses. Kern County does not have adopted limits for determining significance of vibration impacts on structures or persons. Caltrans has developed limits for the assessment of vibrations from transportation and construction sources. The Caltrans vibration limits are reflective of standard practice for analyzing vibration impacts on structures from continuous and intermittent sources. The Caltrans Transportation and

Construction Vibration Guidance Manual (Caltrans 2013b) identifies two impact criteria for buildings and humans: **Table 4.12-7**, *Vibration Criteria for Structural Damage*, presents the impact criteria for buildings, and **Table 4.12-8**, *Vibration Criteria for Human Annoyance*, presents the impact criteria for humans. For this analysis, these criteria are used for vibration impact analysis in Kern County.

Construction of the project may require post driving and vibratory rollers and has the potential to result in temporary vibration impacts on structures and humans. Based on a worse-case analysis of the potential site locations, post driving activities could occur within 85 feet of the nearest off-site residential structure (Site 2) in Kern County. However, impacts would be less then analyzed due the half-mile setbacks proposed by the project. As impact pile drivers have higher vibration levels than vibratory pile drivers, the potential vibration impact calculations assume that impact pile drivers would be used. Other construction activities are less intensive than pile driving and would have lower PPV than pile driving. Therefore, vibration levels from pile driving are considered worst case for construction within the project sites.

Assuming 2,400 ft-lb rated energy for the post driver, the PPV at the nearest Kern County residential structure would be 0.10 in/sec PPV, which would be below the Caltrans continuous/frequent intermittent sources threshold for damage potential to older residential structures of 0.3 in/sec PPV and would not exceed the distinctly perceptible human annoyance threshold of 0.10 in/sec PPV. In addition, heavy construction activity involving pneumatic tools and graders also would not occur during nighttime hours. Therefore, vibration impacts associated with construction of the proposed project would be less than significant.

Once constructed, the proposed PV solar facility would not have any components that would generate vibration levels. Thus, operation of the proposed project would not result in any vibration and impacts would be less than significant.

Decommissioning

At such time the Aratina Solar Project is decommissioned, equipment operation and site restoration activities would create temporary vibration in the immediate vicinity. Given the fact that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to the project's construction activities. Therefore, decommissioning of the project would result in unnoticeable vibration levels at off-site receptors.

Therefore, groundborne vibration impacts resulting from project construction and operation would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.12-3: The project would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

As discussed under Impact 4.12-1, project operational noise levels would result in a less than significant impact with the implementation of Mitigation Measure MM 4.12-4. At Site 1, the noise level from project operation would be approximately 26.4 dBA L_{eq} at the nearest sensitive receptor, which would be lower than the existing ambient noise level of approximately 48.0 dBA L_{eq} (NM 7). At Site 2, the noise level from project operation would be approximately 55.4 dBA L_{eq} at the nearest sensitive receptor, which would be higher than the existing ambient noise level of approximately 33.0 dBA L_{eq} (NM 5). However, Mitigation Measure 4.12-4 would reduce operational noise level such that the existing ambient noise level would not be exceeded by more than 5 dBA. At Site 3, the noise level from project operation would be approximately 37.9 dBA L_{eq} at the nearest sensitive receptor, which would be lower than the existing ambient noise level of approximately 61.1 dBA L_{eq} (NM 9). At Site 4, the noise level from project operation would be approximately 45.0 dBA L_{eq} at the nearest sensitive receptor, which would be lower than the existing ambient noise level of approximately 55.6 dBA L_{eq} (NM 1). At Site 5, the noise level from project operation would be approximately 18.9 dBA L_{eq} at the nearest sensitive receptor, which would be lower than the existing ambient noise level of approximately 55.6 dBA L_{eq} (NM 1). Furthermore, noise levels from project operation would not exceed the County's standard of 65 dBA L_{dn}. The proposed gen-tie line would result in noise that would not be perceptible above background noise levels at the nearest sensitive receptors. Operational traffic noise levels increase from operation of the project would be at most 0.7 dBA and therefore, the noise level increase would be substantially below the perceptible level of a 3 dBA increase threshold. Therefore, with implementation of Mitigation Measure MM 4.12-4, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.12-4.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.12-4, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, multiple projects, including several utility-scale solar energy production facilities, are proposed or are operational in the same general area of the Antelope Valley. Many are located, like the project site, in the Mojave Desert. As shown in **Table 3-3**, *Cumulative Project List*, 26 solar energy projects are presently proposed, under construction, or operational in the same general area of the Antelope Valley. Additionally, other related projects in the surrounding areas have been included that were: (1) submitted for plan processing; (2) approved by the County of Kern; and/or (3) engaged in active construction programs.

Cumulative Construction Noise and Vibration

Due to the localized nature of noise impacts, cumulative impacts would be largely limited to areas within the general vicinity (i.e. within approximately 1,000 feet) of the project site. Construction activities

associated with other projects in proximity to the project site could occur at the same time as the proposed project. Of the cumulative projects located within the 6-mile radius of the project site, there are no projects located within 1 mile of the project site. As a result, construction of the proposed project would not result in a cumulatively considerable contribution to noise impacts at residences located within approximately 1,000 feet of the project site. At receptor locations farther than 1,000 feet from the project site, project-generated construction noise would diminish to near ambient levels and would not result in a cumulatively considerable contribution to construction noise levels associated with other construction projects.

In addition, these related projects would also be subject to Kern County noise standards and established thresholds pertaining to increased noise at the locations of sensitive receptors, as well as similar mitigation measures. Given the remote nature of the project site, and the distance from sensitive receptors, project-related noise impacts would be less than significant. Additionally, no other concurrent construction projects are anticipated adjacent to the project site. With the implementation of Mitigation Measures MM 4.12-1 through MM 4.12-3, no significant cumulative noise impact is anticipated to occur. Therefore, construction noise impacts of past, present, and reasonably foreseeable projects would have a less than significant cumulative impact.

Cumulative construction may also result in the exposure of people to or the generation of excessive groundborne vibration. The same receptor as identified for construction noise would be the closest to be impacted by all projects with respect to construction related vibration as well. Due to these distances, and the rapid attenuation of groundborne vibration, the project and the nearest related project are not in close enough proximity to this sensitive receptor such that it would be exposed to substantial groundborne vibration levels. Construction of the gen-tie line, and decommissioning activities would result in similar noise and vibration levels identified for the construction of the proposed project. Therefore, cumulative impact in terms of groundborne vibration would be less than significant.

Cumulative Operational Noise

The proposed project is estimated to generate 110 daily trips. As seen in **Table 4.12-14**, *Anticipated Increase in Roadway Traffic During Project Operations* project operations would not exceed the FTA criteria (**Table 4.12-6**, *Significance of Changes in Roadway Noise Exposure*) for mobile noise levels even with the assumption that all 110 daily trips would occur along each individual roadway. Individual projects listed in **Table 3-3,** *Cumulative Projects List,* would be required to analyze potential operational noise and mitigate any significant impacts. As a result, long-term operation of the proposed project would not result in a cumulatively considerable contribution to noise impacts at residences located within approximately 1,000 feet of the project site. Furthermore, as discussed above, the long-term noise impacts associated with operation and maintenance of the project would not result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Additionally, the project would incorporate Mitigation Measure MM 4.12-4. Mitigation Measure MM 4.12-4 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, operational noise from the proposed project would not be cumulatively considerable and would not contribute to a long-term cumulative noise impact.

Mitigation Measures

Implement Mitigation Measures MM 4.12-1 through MM 4.12-4.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.12-1 through MM 4.12-4, cumulative impacts would be less than significant.

Section 4.13
Public Services

4.13.1 Introduction

This section of the EIR describes the affected environment and regulatory setting relating to public services, including fire and police protection services for the proposed project. This section also addresses the potential impacts on public services that would result from implementation of the proposed project and the mitigation measures to reduce these potential impacts.

4.13.2 Environmental Setting

Fire Protection

The Kern County Fire Department (KCFD) would provide fire suppression and emergency medical services to the project area. The proposed project would be served by Fire Station #17, located at 26965 Cote Street in Boron. The Fire Station is located approximately 0.5 miles north of Site 2.

The Kern County Fire Department (KCFD) provides primary fire protection services, fire prevention, emergency medical, and rescue services to more than 800,000 people in unincorporated areas of Kern County and nine incorporated cities (i.e., the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco). KCFD operates 47 full-time fire stations within 7 battalions and is equipped with 55 fire engines, 4 ladder trucks, 41 patrol vehicles, 25 command vehicles, 21 reserve engines and patrols, 6 dozers, 2 helicopters, 2 hazardous material response teams, and other ancillary vehicles and equipment. KCFD is staffed with 625 permanent employees, which includes 546 uniformed firefighters (KCFD 2020). KCFD has experienced several budget and staffing cuts in recent years but was approved for a new budget by the Kern Board of Supervisors on August 25, 2020, granting the fire department funds to continue protecting the community (23ABC News 2020a). Additionally, KCFD was awarded 2.9 million dollars by the Federal Emergency Management Agency (FEMA) from the Assistance to Firefighters Grant for critically needed equipment (23ABC News 2020b).

The project consists of five sites, each of which would contain solar arrays and energy storage facilities, and together comprise the project site. The project site is located within Battalion 1, Central Mountains/Desert, which includes the southeastern portion of Kern County and is divided by State Route (SR) 58 that runs east/west and by SR-14 that runs north/south. Battalion 1 consists of nine stations (KCFD 2018) and covers 951,600 acres of which 351,276 acres is State Responsibility Area (SRA) land area, which the California Department of Forestry and Fire Protection (CAL FIRE) has a legal responsibility to provide fire protection for this SRA land area. The SRA land area is bounded by the Mojave Desert on the east, the Tehachapi Mountains in the center, and the Central Valley to the west (KCFD 2009). According to the CAL FIRE, California Fire Hazard Severity Zones Viewer, the project site and surrounding area is not within a SRA and the project site is within an unincorporated Local Responsibility Area (LRA) and is designated as LRA Moderate fire hazard severity zone (CAL FIRE 2020a) (See **Figure 4.17-1**, *Fire Hazard*

Severity Zones for Local Responsibility Areas, and **Figure 4.17-2**, *Fire Hazard Severity Zones for State Responsibility Areas*, located in Section 4.17, *Wildfire*, of this EIR).

Fire Station No. 17 (Boron), located at 26965 Cote Street, Boron, is located within the community of Boron and is less than 1 mile from the project site areas and would be the primary responder to a fire or emergency at the project sites. In the event of a major fire or when short-staffed, other stations would be called on to respond, as necessary, including Fire Station No. 14 (Mojave), located at 1953 State Highway 58 in the community of Mojave, Fire Station No. 15 (Rosamond), located at 3219 35th West Street in the community Rosamond, and Fire Station Camp 8 (Monolith), located at 20569 Eumatilla Street. Information on the three closest fire stations to the project site is included in **Table 4.13-1**, *List of Nearby Fire Stations*. The table identifies each type of facility, the name and address of the facility, and the approximate distance from the project site. In remote County areas like the project site, the average response time is approximately 21 minutes (CPSM 2017).

Table 4.13-1. List of Nearby Fire Stations

Agency	Facility	Address	Approximate Distance from Project Site
KCFD	Station No. 17	26965 Cote Street, Boron 93516	Less than 1 mile, within Boron Community
KCFD	Station No. 14	1953 State Highway 58 Mojave, CA 93501	33 miles west of project site
KCFD	Station No. 15	3219 35th West Street Rosamond, CA 93560	49 miles west of project site
KCFD	Camp 8	20569 Eumatilla Street, Tehachapi, CA	47 miles west of project site

Source: KCFD n.d; Google Earth 2021.

Kern County has 14 mutual-aid agreements with neighboring fire suppression organizations to further strengthen the emergency services (KCFD 2018). The KCFD has a mutual aid agreement with the California City Fire Department (CCFD) and San Bernardino County Fire Department in the event that KCFD is unable to be the primary responder to an emergency. The CCFD headquarters are located at 20890 Hacienda Boulevard, California City, approximately 26 miles northwest of the project site (CCFD 2021). The San Bernardino County Fire Department provides services through 63 fire stations located throughout six fire protection districts. The project site is located closest to the San Bernardino County Fire Department's High Desert Division. The nearest fire station to the project site is Station No. 4, located at 27089 Helendale Road, in Helendale, approximately 34 miles to the southeast (SBCFD 2021). The project site is not within an area of high or very high fire hazard, as determined by the County (KCFD 2009) and CAL FIRE (CAL FIRE 2020a).

Kern County applies and utilizes the National Fire Code set forth by the National Fire Protection Association, the California Fire Code, the California Building Code, and the Kern County Ordinance Code to regulate fire safety.

The Kern County Emergency Medical Services Division (EMS) is the lead agency for the emergency medical services system in Kern County and is responsible for coordinating all system participants in the County, which include the public, fire departments, ambulance companies, other emergency service providers, hospitals, and Emergency Medical Technician (EMT) training programs throughout the County. The EMS includes a system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to a hospital setting. EMS covers day to day emergencies, disaster medical response planning and preparation, and preventative health care. The department also provides certification and recertification for EMTs, paramedics, specialized nurses, and specialized dispatchers (Kern County Public Health Services Department 2020). The nearest medical facilities are the East Kern Health Care District, which has four facilities located in California City,

approximately 27 miles northwest of the project site. Additionally, the Delano Regional Medical Center, located at 2041 Belshaw Street, in the community of Mojave, is approximately 32 miles northwest of the project site and the Rosamond Urgent Care located at 2559 W Rosamond Boulevard, in Rosamond, is approximately 45 miles to the southwest..

The Kern County Fiscal Year 2020-21 Recommended Budget (Kern County 2020b) shows on-going deficiencies in funding for staffing and a $60 million backlog for capital equipment costs for the Fire Department. While the adopted Budget provides a transfer from the General Fund reserves, the County Administrative Office (CAO) report confirms this is not sustainable.

Police Protection

Kern County Sheriff's Office

The Kern County Sheriff's Office (KCSO) provides basic law enforcement services within the project area. The KCSO enforces local, State, and federal laws and is responsible for crime prevention, field patrol (ground and air), crime investigation, the apprehension of offenders, regulation of noncriminal activity, and related support services such as patrolling off-highway vehicle recreation areas in the desert and mountainous areas of the County. Traffic and parking control functions are also provided along with some investigation of property damage reports and traffic accidents. Complete investigations are conducted for injury, fatal, intoxication-related, and hit and run accidents.

The KCSO has a total of 1,202 employees including 567 authorized deputy sheriff positions, 338 detention deputy positions, and 297 sheriff's professional support staff (KCSO 2020a). The project site would be served by the Boron Substation at 26949 Cote Street. The Boron Substation is located approximately 0.5 miles north of Site 2. The Boron Substation response area is approximately 421 square miles. This response area encompasses the communities of Boron, Desert Lake, North Edwards, Aerial Acres, and the sprawling military complex of Edwards Air Force Base (KCSO 2020b).

The KCSO strives to respond to calls as quickly as possible. Life-threatening calls that involve a danger to someone's personal safety are given first priority. Response time is defined as the time required to respond to a call for service, measured from the time a call is received until the time a patrol car arrives at the scene. Response times naturally vary depending on the severity of the call, available staff, and location of patrol car. Average response time for the KCSO is five minutes or less for an emergency or immediate-response incident (e.g., a crime that is in progress and/or a life-or-death situation) and 8 to 10 minutes for routine calls (e.g., a crime that has already occurred and/or an incident that is not life-threatening). In 2018, the KCSO reported that the County's fiscal emergencies have impacted and affected staffing and have created a number of shortages in the East Kern area, including Mojave. This could mean potential delays in response times due to a limited budget, and consequently, less staff. (Barnwell 2018).

Response time to an emergency at or near the project site would vary depending on the level of demand at the substation at the time of the call. If demand is high, the response time would be longer than the average times given above. The response time for a nonemergency call could be eight minutes or more, depending on staffing and the number of other calls for service. In some areas, response may not occur at all for nonemergency calls due to funding deficiencies.

The Kern County Fiscal Year 2020-21 Recommended Budget (Kern County 2020b) shows on-going deficiencies in funding for staffing, training and equipment. While the adopted Budget provides a transfer

from the General Fund reserves to prioritize law enforcement, the CAO report confirms this is not sustainable.

Off-Highway Vehicle (OHV) Enforcement Team

In 2000, the KCSO created the Off-Highway Vehicle (OHV) Enforcement Team that can be deployed to off road riding areas and adjacent communities in Kern County, as needed. The goal of the OHV Enforcement Team is to provide a safe and secure environment for the OHV community and nearby residents, and to help protect sensitive natural resources. Kern County attracts over 800,000 visitors a year to the local OHV riding areas and approximately 500,000 visitors in east Kern area. The OHV Enforcement Team patrols numerous off road riding areas in Kern County, including a popular riding area near a portion of the Pacific Crest Trail that runs through Rosamond, Mojave, and Tehachapi. The OHV Enforcement Team works closely with officers from the Bureau of Land Management (BLM), California State Parks, and other local law enforcement agencies (KCSO 2020d).

California Highway Patrol

As a major statewide law enforcement agency, the California Highway Patrol (CHP) is responsible for managing and regulating traffic for the safe, lawful, and efficient use of California highways. The CHP patrols State highways and all County roadways, enforces traffic regulations, responds to traffic and emergency incidents on California highways, and provides service and assistance to disabled vehicles. The CHP has a mutual aid agreement with KCSO. The CHP is divided into eight divisions to service California.

CHP officers patrol 380,000 miles of roadway and implement the CHP's other law enforcement activities (e.g., drug interception, vehicle theft investigation and prevention, vehicle inspections, accident investigations, and public awareness campaigns) with the support of the non-uniformed personnel assigned to area and division offices.

The project site is within the jurisdiction of the Inland Division which has 12 offices and 3 communications and dispatch centers. The nearest Inland Division office to the project site is located in the unincorporated community of Mojave, approximately 24 miles west of the project site.

Schools/Parks/Other Public Facilities

The project site is located within the Muroc Joint Unified School District (MJUSD), which consists of Boron Junior-Senior High School, Desert Junior-Senior High School, West Boron Elementary, Branch Elementary, and Lynch Learning Center. The closest school to the project site is West Boron Elementary School, which is approximately 0.3 mile north of the project Site 3. Additionally, Boron Junior-Senior High School is approximately 1 mile from the project Site 2 development area (CUP boundaries).

The Kern County Parks and Recreation Department manages an extensive system of large regional parks designed to serve the entire countywide population, and small neighborhood and community parks intended primarily to meet the recreational needs of nearby residents in unincorporated communities. Kern County Parks & Recreation manages 8 regional parks, 40 neighborhood parks, and 25 public buildings, supervises three golf courses and landscapes 76 county buildings (Kern County 2020).

Other public facilities include library facilities, post office facilities, and courthouses. The Kern County Library has 24 branches and 2 mobile libraries, which serve 850,000 residents within the County, including

incorporated municipalities (Kern County Library 2020). Additionally, there are currently 37 post offices that serve the County (United States Postal Service [USPS] 2020). Furthermore, there are currently 12 facilities serving the Superior Court of California in Kern County (Superior Court of California 2020).

The Kern County Fiscal Year 2020-21 Recommended Budget (Kern County 2020b) shows on-going deficiencies in funding libraries and parks with closings and lack of maintenance for facilities.

4.13.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

2019 California Fire Code

The 2019 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of buildings and structures throughout California. The Fire Code includes regulations regarding fire resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

California Department of Forestry and Fire Protection (CALFIRE)

Under Title 14 of the California Code of Regulations, CALFIRE has the primary responsibility for implementing wildfire planning and protection for State Responsibility Areas (SRAs). CALFIRE develops regulations and issues fire-safe clearances for land within a fire district of the SRA. More than 31 million acres of California's privately owned wildlands are under CALFIRE's jurisdiction.

California law requires CALFIRE to identify areas based on the severity of fire hazard that is expected to prevail there. These areas, or "zones," are based on factors such as fuel, slope and fire weather. There are three zones, based on increasing fire hazard: medium, high, and very high. CAL FIRE adopted Fire Hazard Severity Zone maps for SRAs in November 2007 (CALFIRE 2007).

According to the Fire Hazard Severity Zones map published by CAL FIRE, the project site is not located within or near an SRA or lands classified as very high fire hazard severity zones. The project site is outside of areas identified by CALFIRE as having substantial or very high risk of wildfires. The project site is located within a Local Responsibility Area (LRA) and designated as LRA Moderate. Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior (CALFIRE 2018).

Local

Construction and operation of the project would be subject to applicable policies and regulations including those contained in the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to public services. The policies, goals, and implementation measures in the Kern County General Plan related to public services that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Chapter 1. Land Use, Open Space, and Conservation Element

1.4 Public Facilities and Services

Policies

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Policy 7: The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Measure A: Continue to administer the Capital Improvement Program (CIP) and coordinate with public utility providers listing the necessary improvements to Kern County's public services and facilities in collaboration with key service providing agencies and the County Administrative Office as a first step toward the preparation of a long-term Public Services Plan for Kern County. This plan addresses the projected demand for public services throughout the County in comparison with projected revenues and identifies long-term financial trends for the major public service providers. The CIP and General Plan can assure compliance with the provisions of Government Code Sections 65401 and 65402 which require review of all capital facility decisions for consistency with this General Plan.

Measure J: Ensure that the Superintendent of Schools and the respective school districts are informed of development proposals and are afforded the opportunity of evaluating their potential effect on the physical capacity of school facilities.

Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.10 General Provisions

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving viable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1 Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure that it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to ensure the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Chapter 4. Safety Element

4.6 Wildland and Urban Fire

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2019 California Fire Code and the 2018 International Fire Code with some amendments. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release, and/or explosion due to handling of dangerous and hazardous materials; conditions hazardous to life or property in the occupancy and use of buildings and premises; the operation, installation, construction, and location of attendant equipment; the installation and maintenance of adequate means of egress; and providing for the issuance of permits and collection of fees therefore.

Kern County Fire Department Wildland Fire Management Plan

The Kern County Fire Department (KCFD) Wildland Fire Management Plan adopted in 2009 assesses the wildland fire situation throughout the SRA within the County. The plan includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local area. The plan systematically assesses the existing levels of wildland protection services and identifies high-risk and high-value areas, which are potential locations for costly and damaging wildfires. The plan also ranks the areas in terms of priority needs and prescribes what can be done to reduce future costs and losses. The project site is located within a moderate fire hazard severity zone (KCFD 2009).

Kern County Fire Department Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March 2018, is the current document that assesses the wildland fire situation throughout the SRA within the County. Similar to other plans, this document includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local area. The plan provides for a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. The plan gives an overview of KCFD battalions and ranks these areas in terms of priority needs as well as identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within an SRA. The County is broken up into six different fuel management areas: Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley. The project site is located within Battalion 1 (Tehachapi) which is within a moderate fire hazard severity zone within the Tehachapi fire plan management area (KCFD 2018).

Kern County Fire Department Hazards Mitigation Plan

The purpose of the KCFD Hazards Mitigation Plan is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in Kern County. The plan includes specific recommendations for actions that can mitigate future disaster losses, as well as a review of the County's current capabilities to reduce hazards impacts. This multi-jurisdictional plan includes Kern County, and the incorporated municipalities Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The plan also covers 53 special districts that include school, recreation and park, water, community service and other districts. The plan has been formally adopted by each participating entity and is required to be updated a minimum of every five years (KCFD 2012).

Fire Prevention Standard No. 503-507 Solar Panels

The Kern County Fire Department Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The standard is implemented in accordance with the 2016 California Fire Code and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for photovoltaic (PV) ground-mounted and roof-mounted solar panels. The proposed project would mount systems for the modules on steel support posts that would be pile driven into the ground and would therefore comply with the ground-mounted requirements of this fire prevention standard. Ground-mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD 2019).

California State Legislature Active Solar Energy Exclusion

The State of California has provided reduced property taxes for the solar industry. No other industry has this type of property tax reduction outside a local government providing a specific incentive of a development project.

The California Franchise Tax Board's website outlines that the property tax incentive for the installation of an active solar energy system is in the form of a new construction exclusion (California State Board of Equalization 2020). It is not an exemption. The installation of a qualifying solar energy system will not result in either an increase or a decrease in the assessment of the existing property. The site states: *"Generally, when something of value is physically added to real property, the addition is assessed at current market value and this value is added to the existing base year value of the real property. When an active solar energy system is installed, it is not assessed, meaning that the existing assessment will not increase."*

The value of the underlying land and some improvements such as operations and maintenance buildings and battery storage are assessed, but the solar panels and majority of equipment are not. Effective June 20, 2014, the sunset date for the active solar energy system new construction exclusion was extended through the 2023-24 fiscal year. The statue is now scheduled to sunset on January 1, 2025. The Kern County Assessor has calculated that the estimated lost annual revenue to the County General Fund from the existing large-scale commercial scale solar projects already built is $19,924,000 that they would normally pay (Kern County 2020c). They currently pay $1,511,000.

This revenue is only the funding that would normally go to the General Fund to pay for public services and facilities that maintain quality of life for communities and residents in unincorporated Kern County. The Kern County 2020-2021 Recommended Budget details the General Fund, which funds many County operations, as totaling $883.1 million, a decrease of $76.5 million, or 7.97 percent from the 2019-2020 budget. The 2019-2020 budget was the end of a four-year fiscal emergency with a deficient of over $40 million.

4.13.4 Impacts and Mitigation Measures

Methodology

The methodology used to evaluate potential public services impacts includes the following: (1) evaluation of existing fire and police services and personnel for the fire and law enforcement stations serving the project site; (2) determination of whether the existing fire and law enforcement services and personnel are capable of servicing the proposed project, in addition to the existing population and building stock; and (3) determining whether the proposed project's contribution to the future service population would cause fire or police station(s) to operate beyond service capacity. The determination of the significance of the proposed project on fire protection and emergency medical and police protection services considers the level of services required by the proposed project and the ability of KCFD and KCSO to provide this level of service and maintain the regular level of service provided throughout the County, which in turn could require the construction of new or expansion of existing facilities. The methodology for this analysis included a review of published information pertaining to KCFD and KCSO. The contribution of the project through established property tax revenues was reviewed to fully document the project's contribution to all government services and facilities that provide for stability in communities and prevent decline of the communities' physical neighborhoods.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect on public services.

A project could have a significant adverse effect on public services if it would:

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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

   i. Fire Protection

   ii. Police Protection

   iii. Schools

   iv. Parks

   v. Other Public Facilities

Project Impacts

Impact 4.13-1: The project would 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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any public services.

Fire Protection

Construction

As described in Chapter 3, *Project Description*, it is estimated that up to 1,000 workers per day (during peak construction periods) would be required during construction of the proposed project. The presence of construction workers would be temporary and would last approximately 12 to 18 months. It is anticipated that most workers would be sourced from the surrounding communities, such as Mojave, Palmdale, and Victorville, and would commute to the site.

According to CALFIRE, Kern County Fire Hazards Severity Zone Maps for the Local Responsible Areas, the project site is classified as LRA Moderate (CALFIRE 2018). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The proposed project would comply with all applicable wildland fire management plans and policies established by CALFIRE and the KCFD. Accordingly, the project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires (refer to Section 4.17, *Wildfire*). Fire protection facilities requirements are based on the number of residents and workers in the KCFD service area. Service demand is primarily tied to population, not building size, because emergency medical calls typically make up the majority of responses provided by the fire department. As the number of residents and workers increase, so do the number of emergency medical calls. There are no residential uses proposed as a part of the project. Therefore, no residents would occupy the project site and an increase in service demands as a result of an increase in residential uses would not occur.

While the construction of the proposed project would increase the number of people on the project site, the increase would be temporary, fire hazards from the project, as a large scale construction project would increase the need for response from fire for emergency services as well as fire protection. As required by Mitigation Measure MM 4.13-1, the project proponent would prepare 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. The plan would be for use during the 12- to 18-month construction period and would include emergency fire precautions for vehicles and equipment as well as implementing fire rules and trainings so temporary employees are equipped to handle fire threats. With implementation of this plan, impacts to fire protection services during project construction would be less than significant.

Operation

Once constructed, the proposed project would require an operational staff of up to five full-time employees per site. These employees could also be shared from the Operations & Maintenance (O&M), substation, and/or transmission facilities from nearby projects. Employees would be responsible for maintenance of

the facilities, including cleaning of PV panels, monitoring electricity generation, providing site security, and replacing or repairing inverters, wiring, and PV modules. All battery components for the proposed energy storage component would be installed on pad or post-mounted foundations and contained within an enclosure to minimize the potential for sparks or ignition to occur. Further, all such enclosures would be equipped with a fire safety and protection system compliant with applicable U.S. national safety standards and codes such that fire hazards are reduced and/or avoided.

The proposed project would also be required to implement Mitigation Measure MM 4.13-2, which would require the project operator to pay a Kern County Cumulative Impact Charge (CIC) to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services and facilities. In addition, if the project is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then that entity shall pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt. The amount shall be paid for all years of operation through implementation of Mitigation Measure MM 4.13-3. Through implementation of Mitigation Measure MM 4.13-4, the project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. With implementation of Mitigation Measures MM 4.13-1 through MM 4.13-4, any potential operational impacts on fire protection services would be reduced. Given the reduced potential for fire to occur during project operation from the fire safety plan and the required monetary compensation for any increased demand on fire protection services from the proposed project's operation would reduce impacts on fire protection services. Therefore, new or physically altered KCFD facilities would not be required to accommodate increased demand associated with the proposed project. Impacts would be less than significant.

Police Protection

Construction

As described above in Section 4.13.2, *Environmental Setting*, the KCSO provides primary law enforcement protection services for the project site and surrounding areas. The Boron Substation, located at 26949 Cote Street in the community of Boron, is less than one mile from the project site areas and would provide primary law enforcement services to the project site. Similar to fire protection services, the proposed project could increase service needs from KCSO during project construction and would increase the number of people on the project site. The increase would be temporary and, thus, would not necessarily substantially increase the service demand for law enforcement protection services in Kern County. However due to existing budget constraints, substations may close or be modified to address fiscal limitations.

During construction, the proposed project may attract vandals or present other security risks. Commutes of construction workers could potentially increase traffic and could thus adversely affect KCSO response times and/or the CHP's ability to patrol the highways. However, the project site is currently undeveloped and located in a relatively remote location in a rural community and is thus unlikely to attract attention that would make project facilities susceptible to crime. Chain-link security fencing would be installed around the site perimeter and other areas requiring controlled access to restrict public access during construction. The additional volume of vehicles associated with workers commuting to the project site during construction would be temporary and is not expected to adversely affect traffic. Therefore, new or

physically altered KCSO facilities would not be required to accommodate the proposed project and impacts to the CHP patrol are not anticipated. Impacts would be less than significant.

Operation

Once the proposed project is constructed, regular activities 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

The proposed project would require an operational staff of up to 5 full-time employees per site. These employees could also be shared from the O&M, substation(s), and/or transmission facilities operating at nearby projects. Given the small number of permanent employees, commutes by maintenance employees would be minimal and would not result in an adverse impact on the KCSO response times or the CHP's ability to patrol the local highways. Project operation could attract vandals or present other security risks, but this would be addressed through a number of design and operational features, as follows. For security purposes, the perimeter of each site would be enclosed within a chain link fence with barbed wire measuring up to 8 feet in height. An intrusion alarm system composed of sensor cables integrated into the perimeter fence, intrusion detection cabinets placed along the perimeter fence, and an intrusions control unit, located either in the substation control room or at the O&M building(s), or similar technology, would be installed. Additionally, the proposed project may include additional security measures including, but not limited to, barbed wire, low voltage fencing with warning reflective signage, controlled access points, security alarms, security camera systems, and security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with operation of the proposed project. Controlled access gates would be maintained at the main entrances to the project site. Project access would be provided to off-site emergency response teams that respond in the event of an "after-hours" emergency. Enclosure gates would be manually operated with a key provided in an identified key box location. With these on-site security measures, the project would not result in a need to construct new or expand existing KCSO stations or other resources.

The project would implement Mitigation Measure MM 4.13-2 to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities and assuring the provision of adequate public services and facilities. In addition, if the project is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then that entity shall pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt. The amount shall be paid for all years of operation through implementation of Mitigation Measure MM 4.13-3. Through implementation of Mitigation Measure MM 4.13-4, the project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. Impacts would be less than significant.

Construction

The proposed project would require a peak workforce of up to 1,000 workers during the anticipated 12 to 18-month construction period. The number of vehicle trips would vary by month depending on the

construction activities. The presence of construction workers at the project site would be temporary during the approximate 12- to 18-month construction period. These construction workers would likely come from an existing local and/or regional construction labor force and would not likely relocate their households as a consequence of working on the project. If temporary housing should be necessary, it is expected that accommodations would be available in the nearby hotels in Boron, Mojave, and other local communities. Therefore, the short-term increased employment of construction workers on the project site would not result in a notable increase in the residential population of the area surrounding the project site. Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, through the implementation of Mitigation Measure MM 4.13-5 which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. Accordingly, there would not be a corresponding demand or use of the local schools, parks, or public facilities. Therefore, project construction workers would not increase demand for local schools, parks, or public facilities such that substantial physical deterioration of such facilities would occur, nor would project construction require the construction or expansion of recreational facilities which might have an adverse effect on the environment, nor result in substantial adverse physical impacts associated with the construction of new or physically altered facilities in order to maintain acceptable service ratios. Impacts during construction would be less than significant.

Operation

Operation of the project would require up to 25 full-time workers onsite, where each Site could require an operational staff of up to five full-time employees who could be there at any time. Employees would visit the project site for routine inspection, maintenance, and repair of solar arrays and accessory components. These employees would be expected to come from an existing local and/or regional labor force and would not likely relocate their households as a consequence of working on the project. Even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the resulting addition of potential families to this area would not result in a substantial increase in the number of users at local schools as accommodations for temporary housing would be available in the nearby hotels in Boron, Mojave, and other local communities. Therefore, staff required during operation would not increase demand for local schools, parks, or public facilities such that substantial physical deterioration of such facilities would occur, nor would project construction require the construction or expansion of recreational facilities which might have an adverse effect on the environment, nor result in substantial adverse physical impacts associated with the construction of new or physically altered facilities in order to maintain acceptable service ratios. Impacts during construction would be less than significant.

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 require development to address economic deficiencies in public services and facilities costs. Further the cumulative impacts of all the projects in addition to this project on

various resources including aesthetics, air and biological resources have contributed to changing the visual and community character of the unincorporated communities and caused decline due to using land for a use that does not provide normal property tax revenue.

Mitigation Measure MM 4.13-2 provides a CIC calculated on net acreage that excludes assessable structures and permanent improvements (Operation and Maintenance Building and Energy Storage) and legally unbuildable land (recorded easements). The charge factor was calculated based on the fair share under the Government Code that the project would have paid if the Tax Exclusion was not present. The amount the project should pay is calculated as $550 per net acre annual charge. This is in addition to the normal property tax revenue legally assessed on the property as the fair share that is provided to the Kern County General fund. As this project application had already been deemed complete and commenced processing when the December 8, 2020 report on the amount of the deficiency in the revenue from the State of California Active Solar Energy Exclusion was presented to the Kern County Board of Supervisors, an accommodation is included in the mitigation that requires a one-time charge for the General fund contribution. In addition, if the project is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then that entity shall pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt. The amount shall be paid for all years of operation, through implementation of Mitigation Measure MM 4.13-3. Through implementation of Mitigation Measure MM 4.13-4, The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. With this CIC and assessed taxes if the project is sold, the project impacts on public services and facilities and contribution to decline of communities is less than significant.

Mitigation Measures

MM 4.13-1 Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning.

The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:

a. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.

b. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition.

c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.

d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

e. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.

f. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

MM 4.13-2 The following Cumulative Impact Charge (CIC) shall be implemented as payment on approved Conditional Use Permit acreage.

a. Submittal of Building Permit and Phasing

1. Any building permit submitted shall be accompanied by a map and legal description showing a defined phase for which permits are being requested. All phases shall be numbered sequentially for identification.

2. The map for either the total project or a phase shall calculate the Cumulative Impact Charge (CIC) net acreage as follows:

A. Total gross acreage (Phase)

B. Total acres for Operations and Maintenance building permanent accessory improvements

C. Total acres for Energy Storage structure and permanent accessory improvements

D. Total acres of recorded easements

3. Formula: Net Acreage = (2)A minus the sum of [(2)B + (2)C + (2)D].

4. Temporary storage areas or non-permanent commercial coaches or cargo containers for construction or operations are not eligible for inclusion under (2)B or (2)C, above.

5. All areas of buildings, accessory improvements and easement used in the calculations shall be shown on the submitted Phase Map.

6. Any property included in the approved Conditional Use Permit that is not included in a phase must be included in the last phase or a formal modification processed to remove it from the Conditional Use Permit.

b. Calculation and Payment of Cumulative Impact Charge (CIC)

1. A payment of $620 per net acre for the map shown with the building permit submittal shall be paid upon issuance of the first building permit. If it is not paid within 30 days after the issuance of the first building permit for the phase regardless of the total number of building permits or type of building permit issued, all such permits shall be suspended until the fee is paid in full.

2. Payments shall be made to the Planning and Natural Resources Department for transfer directly to the County Administrative Office Fiscal Division (CAO) and labeled Cumulative Impact Charge (CIC) with the project name and phase number.

3. Any acres denoted for an operation and maintenance building or energy storage that are not built, cannot be used for solar panels unless payment is provided for the Cumulative Impact Charge (CIC)

MM 4.13-3 Written verification of ownership of the project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company with assessed taxes that total less than $ 3,000 per megawatt per year, then a Supplemental Cumulative Impact Charge (SCIC) shall be paid for the difference annually up to $3,000 per megawatt. The SCIC payments shall be made annually directly to the County Administrative Office Fiscal Division (CAO) and labeled "Supplemental Cumulative Impact Charge (SCIC)" with the project name and phase number.

MM 4.13-4 The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.

MM 4.13-5 Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. The project operator shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.13-1 through MM 4.13-5, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or substantially increase other environmental impacts. Cumulative impacts for a project are considered significant if the incremental effects of the individual projects are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the project site. The cumulative impact analysis area for public services includes the service areas for each of the fire, police and other governmental offices/facilities serving the project site. For both the KCSO and the KCFD, service areas comprise unincorporated areas of Kern County. As discussed above, police and fire service impacts related to the proposed project would be less than significant. Mitigation Measure MM

4.13-1 requires implementation of a fire safety plan during project construction, operation and decommissioning that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services onsite. Mitigation Measures MM 4.13-2 through MM 4.13-5 require the project proponent to pay a CIC to reduce significant impacts to all public services, including fire and law enforcement services, provided by the Kern County General Fund. Implementation of Mitigation Measures MM 4.13-2 through MM 4.13-5 would also prevent the decline of services in unincorporated communities that result in physical impacts on neighborhoods. Such cumulative impacts include increase in vandalism on public spaces such as parks, lack of road and park facilities maintenance, abandoned vehicles and buildings, trash abandonment on private property, and lack of funding for code enforcement of regulations for public health and safety, lack of services for homelessness prevention programs, as well as lack of services and facilities for elder, adolescent and child health and safety services and general mental health facilities. With payment of the required mitigation charge as assessed by the Kern County Planning and Natural Resources Department for transfer to the Kern County General Fund, impacts from the project's cumulative contribution to decline of services would be appropriately mitigated. Therefore, the project would not create a cumulatively considerable impact on public services even from the State of California Active Solar Energy Exclusion which creates a lack of fair share funding by the project for public services.

Mitigation Measures

Implement Mitigation Measures MM 4.13-1 through MM 4.13-5.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.13-1 through MM 4.13-5, cumulative impacts would be less than significant.

Section 4.14
Transportation

4.14.1 Introduction

This section of the EIR describes the affected environment and regulatory setting related to transportation for the proposed project. It also describes the impacts associated with transportation that would result from project implementation and includes mitigation measures that would reduce these impacts, where applicable.

Information in this section is based primarily on the *Aratina Solar Project Traffic Impact Analysis* (TIA) prepared by Environment Planning Development Solutions, Inc. (EPD Solutions 2019) located in Appendix L-1 of this EIR. Additional information is taken from the *Level of Service Traffic Analysis for Aratina Solar Project, Boron, CA*, also prepared by EPD Solutions (EPD Solutions 2021) and located in Appendix L-2 of this EIR.

Since the preparation of the *TIA* and the *Level of Service Traffic Analysis*, the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from 2,672 acres to 2,317 acres. The 15 percent reduction in project footprint associated with the proposed project would result in a 15 percent reduction of land disturbed during construction. The reduced development footprint reduces the project electrical generation capacity from 600 megawatts (MW) to 530 MW. Therefore, the following discussion that is based on the previous approximately 2,317-acre footprint represents the worst-case potential impacts related to transportation (i.e., potentially a greater number of worker or truck trips generated during the construction phase).

4.14.2 Environmental Setting

The project site is located on approximately 2,317 acres in unincorporated Kern County, straddling State Route (SR) 58 between Gephart Road on the west and the San Bernardino County line on the east. The project site is in the vicinity of the unincorporated communities of Boron and Desert Lake and north of the Edwards Air Force Base.

Existing Roadway System and Freight Rail Lines

SR 58 is a four-lane east-west divided highway bisecting the project site. For regional travel, residents of Boron and other nearby communities rely primarily on SR 58 which carries traffic east to Barstow and west to Bakersfield. SR 58 connects to U.S. Route 395 to the east and SR 14 to the west before reaching SR 99 in Bakersfield. SR 99 connects to Interstate 5 south of Bakersfield, which provides access to Los Angeles.

Access to the project site from SR 58 would be via Boron Avenue (Sites 1 and 2), Twenty Mule Team Road (Sites 1 to 4), and Gephart Road (Sites 4 and 5).

The Burlington-Santa Fe Railroad crosses the project site, traversing generally north/south through Sites 2 and 3, then paralleling SR 58 as it extends eastward; refer to **Figure 3-2**, *Project Site Boundaries*, and **Figure 3-3**, *Aerial Photograph*.

Transit, Bicycle, and Pedestrian Facilities

Public transportation in Kern County is provided by Kern Transit, which offers 17 fixed bus routes throughout the County and a dial-a-ride general public transportation service for residents in Frazier Park, Kern River Valley, Lamont, Mojave, Rosamond, and Tehachapi. The transit system offers intercity bus service along with local transit service. In the vicinity of the PV solar field and the gen-tie route, Kern Transit operates several bus routes. Route 100 (Bakersfield-Lancaster) provides service between Bakersfield and Lancaster. The route follows Route 58 easterly from Bakersfield, then south along SR 14 to Lancaster with stops in Tehachapi and Rosamond. Route 240 (Boron-Mojave) follows SR 58 easterly from Mojave to Boron. Route 230 extends to the north from Mojave along SR 14, east along California City Boulevard, north along Neuralia Road, north along SR 14, and east along SR 178 (W. Inyokern Road) to Ridgecrest. Stops are provided in California City and Esta along the route. Additionally, Route 250 (California City-Lancaster) provides service between California City and Lancaster. The route extends north/northeast from Lancaster along SR 14, then east along California City Boulevard to California City. Stops are provided in Rosamond and Mojave along the route (Kern Transit 2020).

Due to the rural location of the proposed PV solar fields and gen-tie route, there are no dedicated pedestrian or bicycle facilities in the immediate vicinity.

Airport Facilities

Public and private airports located within a 20-mile radius of the project site are described below.

California City Municipal Airport is a public airfield located approximately 18 miles northwest of the project site. This airport has a 6,000-foot asphalt runway and primarily serves general aviation aircraft, with some military flights also using the facility. In operation since 1963, the airport serves an average of 68 flight operations per week.

Edwards Air Force Base is a military base and airstrip located approximately 5 miles southwest of the western site. The base is owned and operated by the U.S. Air Force (not open to public use) and includes three runways that range in length from 8,000 feet to 12,000 feet and that are paved with concrete or asphalt. The base covers more than 301,000 acres, and also includes additional landing areas on the hard packed surface of the Rogers Dry Lake and Rosamond Dry Lake. The base also supports the U.S. space shuttle program as a backup landing site.

Existing Traffic Conditions

Table 4.14-1, *Existing Peak Hour Traffic Volumes and Roadway Operation*, shows the maximum daily traffic volumes that would allow the roadway and highway segments to maintain an acceptable LOS.

As shown in **Table 4.14-1**, the existing volumes of three of the four SR 58 segments (#11-13) are operating at acceptable LOS C or better, and all 10 roadway segments are operating at acceptable LOS D or better. East of the town of Boron, SR 58 transitions from a 4-lane freeway to a 2-lane highway. It should be noted

that Caltrans recently completed construction of the Kramer Junction Expressway Project, which widened and realigned SR 58 from the San Bernardino County line to 13 miles east..

Table 4.14-1. Existing Peak Hour Traffic Volumes and Roadway Operation

#	Segment	Facility Type (# of Lanes)	Volume	LOS D Capacity (LOS C for Caltrans Facilities)[1]	Volume Less Than Capacity?
1	Gephart Rd. north of SR-58	Undivided Road (2)	202	9,600	Yes
2	Gephart Rd. south of SR-58	Undivided Road (2)	202	9,600	Yes
3	Borax Rd. south of SR-58	Undivided Road (2)	592	14,900	Yes
4	Boron Ave. north of Twenty Mule Team Rd.	Urban Two Lane (2)	1,240	11,800	Yes
5	Boron Ave. south of Twenty Mule Team Rd.	Undivided Road (2)	606	14,800	Yes
6	Twenty Mule Team Rd. east of SR-58	Undivided Road (2)	633	11,200	Yes
7	Twenty Mule Team Rd. east of Gephart Rd.	Undivided Road (2)	633	11,200	Yes
8	Twenty Mule Team Rd. east of Borax Rd.	Undivided Road (2)	633	11,200	Yes
9	Twenty Mule Team Rd. west of Boron Ave.	Urban Four Lane (4)	1,815	24,700	Yes
10	Twenty Mule Team Rd. east of Boron Ave.	Urban Four Lane (4)	1,228	24,700	Yes
11	SR-58 east of Clay Mine Rd.	Freeway (4)	16,300	56,000	Yes
12	SR-58 west of Boron Ave.	Freeway (4)	15,350	56,000	Yes
13	SR-58 east of Boron Ave.	Freeway (4)	15,400	56,000	Yes
14	SR 58 east of Boron Ave.[2]	Two-Lane Highway (2)	15,400	7,900	No

Source: EPD Solutions 2019; see Appendix L-1.

Notes:

LOS = level of service

SR = state route

The Allowable Daily Service Volume was calculated for each location based on the unique peaking factors obtained from Caltrans.

1 Capacity values from Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016. Exhibit 1 2-40, 15-46, and 16-16.

2 1 mile from SR 58 and Boron ramps the freeway changes from a 4 lane freeway to a 2 lane highway.

Additionally, considering the anticipated project access routes, the following 11 study intersections in the vicinity of the project site were analyzed, where project traffic would contribute turning vehicles:

1. Twenty Mule Team Road/SR-58 Eastbound (EB) Ramps
2. Twenty Mule Team Road/SR-58 Westbound (WB) Ramps
3. Gephart Road/Twenty Mule Team Road
4. Gephart Road/SR-58 WB Ramps
5. Gephart Road/SR-58 EB Ramps
6. Borax Road/Twenty Mule Team Road
7. Borax Road/SR-58 EB Ramps
8. Borax Road/SR-58 WB Ramps
9. Boron Road/Twenty Mule Team Road
10. Boron Road/Frontage Road - SR-58 EB Ramp
11. Boron Road/Cherryhill Drive – SR-58 WB Ramp

As shown in **Table 4.14-2**, *Existing Peak Hour Levels of Service Summary for Intersection Operations*, the intersections serving the project area currently operate at LOS D or better during the analyzed time periods based on average intersection delay and roadway volume-to-capacity (v/c) ratios.

Table 4.14-2. Existing Peak Hour Levels of Service Summary for Intersection Operations

#	Intersection	Existing			
		AM Peak		PM Peak	
		Delay	LOS[1]	Delay	LOS[1]
1	Twenty Mule Team Rd/SR-58 EB Ramps	9.4	A	9.5	A
2	Gephart Rd. south of SR-58	9.6	A	9.9	A
3	Borax Rd. south of SR-58	8.9	A	9.2	A
4	Boron Ave. north of Twenty Mule Team Rd.	10.0	A	10.2	A
5	Boron Ave. south of Twenty Mule Team Rd.	9.5	A	9.4	A
6	Twenty Mule Team Rd. east of SR-58	9.4	A	9.2	A
7	Twenty Mule Team Rd. east of Gephart Rd.	9.6	A	9.4	A
8	Twenty Mule Team Rd. east of Borax Rd.	9.8	A	9.8	A
9	Twenty Mule Team Rd. west of Boron Ave.	7.7	A	8.2	A
10	Twenty Mule Team Rd. east of Boron Ave.	12.4	B	12.0	B
11	SR-58 east of Clay Mine Rd.	16.7	C	18.6	C
Source: EPD Solutions 2021; see Appendix L-2. 1 - LOS = Level of Service					

The gen-tie infrastructure would consist of both existing and new gen-tie and/or connection lines depending on the route selected. The environmental setting characteristics relative to transportation for the construction, operation, and decommissioning of the gen-tie would be substantially similar to that for the solar facility.

4.14.3 Regulatory Setting

Federal

Federal Aviation Administration (FAA)

The FAA regulates aviation at regional, public, and private airports. The FAA regulates objects affecting navigable airspace. According to 49 Code of Federal Regulations Part 77.9, any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA of:

- Any construction or alteration exceeding 200 feet above ground level;
- Any construction or alteration:
    - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway where the longest airport runway exceeds 3,200 feet in actual length;
    - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway where the longest airport runway is less than 3,200 feet in actual length; and
    - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface;

- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above standards;
- When requested by the FAA; and
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Failure to comply with the provisions of Federal Aviation Regulation Part 77 is subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to 49 United States Code Section 46301(a).

State

Senate Bill 375

Senate Bill (SB) 375 (codified in the Government Code and the Public Resources Code) took effect in 2008 and provides a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the greenhouse gas (GHG) reduction goals established by Assembly Bill (AB) 32. SB 375 requires metropolitan planning organizations (MPO) to incorporate a Sustainable Communities Strategy in their Regional Transportation Plans to achieve GHG emissions reduction targets by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

SB 375 required the California Air Resources Board (CARB) to set regional targets for reducing GHG from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each region in California governed by an MPO. Kern Council of Governments (Kern COG) is the MPO for the Kern Region as designated by the federal government, and the Regional Transportation Planning Agency (RTPA) as designated by the State of California.

Senate Bill 743

SB 743 was signed into law September 2013 and includes several changes to CEQA for projects located in areas served by transit (e.g., transit-oriented development, or TOD). Most notably with regard to transportation and traffic assessments, SB 743 changes the way that transportation impacts are analyzed under CEQA (see Public Resources Code Section 21099). SB 743 required the Governor's Office of Planning and Research to amend the CEQA Guidelines to exclude level of service (LOS) and auto delay when evaluating transportation impacts.

With implementation of SB 743, new criteria have been established to promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. The Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA (Guidelines) provided recommendations for updating the State's CEQA Guidelines in response to SB 743 and contained recommendations for a vehicle miles traveled (VMT) analysis methodology in an accompanying Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory).

The Guidelines, including the Technical Advisory, recommended use of automobile VMT per capita as the preferred CEQA transportation metric, along with the elimination of automobile delay/LOS for CEQA

purposes statewide. Public Resources Code Section 21099 and CEQA Guideline Section 15064.3 reflect this change. Under Section 21099, automobile delay, as measured by LOS or similar measures of traffic congestion or vehicular capacity, is not considered a significant effect on the environment.

California Department of Transportation (Caltrans)

Caltrans has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Eastern Kern County (i.e., including the project site and surrounding area) is under the jurisdiction of Caltrans District 9. The Caltrans regulations below apply to potential transportation impacts of the project:

California Vehicle Code (CVC), Division 15, Chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code, Sections 660-711, 670-695. Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of State and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

Regional

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (COG), and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS), which is required by California's Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set a goal of Kern County reducing greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035, as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA), ensuring consistency between low income housing needs and transportation planning. Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. This process required Kern COG to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the State's housing goals are met.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape the community's future.

The RTP/SCS financial plan identifies available funding to support the region's transportation investments. The plan includes a core revenue forecast of existing local, State, and federal sources along with funding

sources that are considered to be reasonably available over the time horizon of the RTP/SCS. Funding sources include adjustments to State and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future state bonding programs, and mileage based user fees.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan Circulation Element for transportation that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference. The design level-of-service (LOS) for Kern County is LOS C. The minimum LOS for conformance with the Kern County General Plan is LOS D.

Chapter 2. Circulation Element

2.1 Introduction

Goals

Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.

Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County.

2.3 Highways

2.3.3 Highway Plan

Goal

Goal 5: Maintain a minimum LOS D.

Policies

Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and midsection lines. This is because the road centerline can be determined by an existing survey.

Policy 2: This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond 2010. Where the Kern County Planning and Natural Resources Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division

Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert regions for arterial right-of-way. The County shall routinely protect all midsection lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and midsection lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and midsection "grid" will comprehensively apply to the Mountain Region.

Policy 3: This plan's road-width standards are listed below. These standards do not include State highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.

- Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;
- Arterial [Major Highway] Minimum 110-foot right-of-way;
- Collector [Secondary Highway] Minimum 90-foot right-of-way;
- Commercial-Industrial Street Minimum 60-foot right-of-way; and
- Local Street [Select Local Road] Minimum 60-foot right-of-way.

Implementation Measure

Measure A: The Kern County Planning and Community Development Department shall carry out the road network policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. The Kern County Planning and Community Department can help developers and property owners in identifying where planned circulation is to occur.

2.3.4 Future Growth

Goal

Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.

Policies

Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below LOS D. Utilization of the California Environmental Quality Act (CEQA) process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space, and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build offsite transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to California Department of Transportation (Caltrans) standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

Policy 5: When there is a legal lot of record, improvement of access to county, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.

Policy 6: The County may accept a developer's road into the County's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.

Implementation Measures

Measure A: The County should relate traffic levels to road capacity and development levels. To accomplish this, the Kern County Roads Department and the Kern County Planning and Natural Resources Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.

Measure C: Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.3.10 Congestion Management Programs

State law requires that urbanized counties prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the congestion management program. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the Federal Transportation Improvement Program (FTIP), the regional transportation agency must keep current a Regional Transportation Program that contains the CMP. The CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP is linked to air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures to attain, and maintain, the State air quality standard.

Goals

Goal 1: To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.

Goal 2: To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

Policy 1: Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).

Policy 2: The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.

Implementation Measures

Measure A: Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper Congestion management program.

Measure B: The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

2.5.1 Trucks and Highways

The Kern County road network handles a high ratio of heavy truck traffic. State highways carry most of this traffic. Most of the trucks are interstate carriers. As such, interstate trucking is not under the direct control of County officials. In as much as this traffic affects County residents and taxpayers, they need actions to guarantee State highways in Kern County receive a fair share of California's transportation investment.

Goals

Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2: Reduce potential overweight trucks.

Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policies

Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.

Policy 2: Start a program that monitors truck traffic operations.

Policy 3: Promote a monitoring program of truck lane pavement condition.

Kern Council of Governments Congestion Management Program

All urbanized areas with a population larger than 200,000 residents are required to have a Congestion Management System, program, or process. The Kern COG refers to its congestion management activities as the CMP. The Kern COG was designated as the CMA.

The CMP provides a systematic process for managing congestion and information regarding (1) transportation system performance, and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs. The purpose of the CMP is to ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system LOS performance standards and air quality improvement. The program attempts link land use, air quality, transportation, advanced transportation technologies as integral and complementary parts of this region's plans and programs.

The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established LOS standards. At a minimum, all State highways and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways. Kern County has 18 designated state highways.

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern COG, and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS), which is required by California's Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set Kern greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing need and transportation planning. Kern COG engaged in the RHNA process concurrently with the development of the 2018 RTP. This process required Kern COG to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the state's housing goals are met.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP seeks to: improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.

The 2018 RTP financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, state and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP. These new sources include adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future state bonding programs and mileage based user fees (Kern COG, 2018).

Kern County Airport Land Use Compatibility Plan (ALUCP)

The Kern County Airport Land Use Compatibility Plan (ALUCP) establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues between airports and surrounding land uses. The closest airports to the proposed solar facilities are the California City Municipal Airport, a public airport, approximately 18 miles northwest of the project site, and Edwards Air Force Base, approximately 5 miles to the southwest. The project site is not located within any safety or noise zones for the California City Municipal Airport or Edwards Air Force Base.

4.14.4 Impacts and Mitigation Measures

Methodology

The *Aratina Solar Project TIA* was prepared for the proposed project and is provided in Appendix L-1, *Aratina Solar Project Traffic Impact Analysis,* of this EIR. As noted above, although the project acreage has been reduced since the time that the TIA was prepared, such changes do not affect or alter the original methodologies or findings of the TIA. The TIA analysis represents a worst-case impact scenario as compared to that which would occur with the project as currently designed. As the subsequent *Level of Service Traffic Analysis for Aratina Solar Project, Boron, CA,* was prepared after the project design had been revised, the intersection analysis was not affected by such changes; refer to Appendix L-2, *Level of Service Traffic Analysis for Aratina Solar Project, Boron, CA*.

Traffic impacts from implementation of the proposed project were evaluated for the site by establishing trip generation rates for both the construction and operational phases of the project. Trip generation is based primarily on the numbers of workers and the types of equipment that would be used. Trip generation is defined as the number of vehicle trips produced by a particular type of land use or project. A trip is defined as vehicle movement in one direction. The total number of trips generated by each land use or project includes both inbound and outbound trips.

Construction Trip Generation

The proposed project is comprised on five development areas (or sites). The development areas would be constructed in phases. Construction activities would occur within each development area; however, the same construction activity may not be occurring in all five development areas at the same time.

At the time the TIA was prepared, a detailed construction schedule accounting for construction phases by development area and overlapping of construction activities was not available. For this reason, construction of the project was evaluated assuming that the project is comprised of only one development area and that construction activities would progress in a linear fashion without overlap. This approach provides a conservative estimate, as it is unlikely that the phase with the highest trip generation would occur at the same time across all development areas.

For the purposes of the construction trip generation estimate, the following six activities are anticipated, with Activities 3, 4, and 5 occurring concurrently.

- Activity 1: Site Preparation

- Activity 2: Grading and Earthwork
- Activities 3, 4, and 5: Concrete Foundations, Structural Steel Work, and Electrical/Instrumentation Work
- Activity 6: Collector Line Installation

Daily vehicle traffic would be primarily comprised of worker's passenger cars/light trucks, worker shuttles, delivery trucks, concrete trucks, and porta let trucks. The highest number of trips would likely be from construction workers traveling to and from the site each day. The construction trip generation is shown in **Table 4.14-3**, *Project Construction Trip Generation*, and has been calculated for total trips and for passenger car equivalent (PCE). A PCE factor is applied to truck trips to account for the fact that trucks utilize more capacity on the roadway than a passenger car due to larger size and slower acceleration. PCE factors of 2.0 for trucks were used for this analysis, based on guidance for passenger car equivalent factors found in the Highway Capacity Manual, 6th Edition.

As shown in **Table 4.14-3**, *Project Construction Trip Generation*, Activities 3, 4, and 5 would generate the most trips with an estimated 2,110 daily trips, including 211 trips during the AM and PM peak hours. When the trip generation is adjusted to account for PCE, Activities 3, 4, and 5 would generate an estimated 2,220 daily PCE trips, including 222 PCE trips during the AM and PM peak hours.

Construction Truck Routing

Trucks would travel to and from the project via SR 58 and local roads serving each site. Sites 1 and 2 would be accessed via Boron Avenue, Sites 1 to 4 would be accessed via Twenty Mule Team Road, and Sites 4 and 5 would be accessed via Gephart Road.

Table 4.14-3. Project Construction Trip Generation

Activity	Number of Workers/ Trucks	PCE	Vehicle Trips			PCE Trips		
			Daily	AM Peak Hour[2]	PM Peak Hour[2]	Daily	AM Peak Hour[2]	PM Peak Hour[2]
Activity 1 – Site Preparation								
Workers[1]	100	1.0	200	20	20	200	20	20
Heavy Vehicles	25	2.0	50	5	5	100	10	10
Activity 1 Total			250	25	25	300	30	30
Activity 2 – Grading and Earthwork								
Workers[1]	400	1.0	800	80	80	800	80	80
Heavy Vehicles	25	2.0	50	5	5	100	10	10
Activity 2 Total			850	85	85	900	90	90
Activities 3, 4, and 5 – Concrete Foundations, Structural Steel Work and Electrical/Instrumentation Work								
Workers[1]	1,000	1.0	2,000	200	200	2,000	200	200
Heavy Vehicles	55	2.0	110	11	11	220	22	22
Activities 3, 4, and 5 Total			2,110	211	211	2,220	222	222
Activity 6 – Collector Line Installation								
Workers[1]	75	1.0	150	15	15	150	15	15
Heavy Vehicles	15	2.0	30	3	3	60	6	6
Activity 6 Total			180	18	18	210	21	21

Source: EPD Solutions, Inc. 2019; see Appendix L-1.

Notes:

PCE = Passenger Car Equivalent

1 – Assumes that all workers would drive separately to the site. Carpooling could reduce trip generation estimate.

2 – Most workers would arrive before 7:00 AM and depart prior to 4:00 PM. Assumption that 20% of workers would arrive or depart and 10% of truck trips would arrive and depart during the peak hours (7-9 AM and 4-6 PM).

Operations and Maintenance Trip Generation

Once constructed, the solar facility will have up to five employees per site, three for daytime work and two for night/weekend work. There are expected to be fewer than 22 trips per day per site (or approximately 110 total project trips per day for the overall project) during operation.

The County's guidelines require that analysis be conducted at intersections where a project would generate 50 or more peak hour trips. As the proposed project is expected to generate fewer than 50 trips during the weekday AM and PM peak hours during operations, traffic-related analysis for project operations is not required.

Level of Service Methodology

Specific service measures are used to determine LOS. For freeway segments, LOS is based on density while on two-lane highways, the LOS is based on the percent time-spent-following and speed. The *Highway Capacity Manual* (HCM), 6th Edition, published by the Transportation Research Board, includes six levels of service for roadways or intersections ranging from LOS A (best operating conditions characterized by free-flow traffic, low volumes, and little or no restrictions on maneuverability) to LOS F (worst operating conditions characterized by forced traffic flow with high traffic densities, slow travel speeds, and often stop-and-go conditions) (Transportation Research Board 2016).

For planning-level analyses, the HCM provides generalized service volume tables to estimate the LOS based on traffic volume on a roadway. The roadway capacity can be compared to the traffic volume to determine if a segment of roadway, highway, or freeway is operating at satisfactory LOS, as defined in the Thresholds of Significance below.

LOS at signalized intersections is defined in terms of the weighted average control delay for the intersection as a whole. Control delay is a measure of the increase in travel time that is experienced due to traffic signal control and is expressed in terms of average control delay per vehicle (in seconds). Control delay is determined based on the intersection geometry and volume, signal cycle length, phasing, and coordination along the arterial corridor.

Unsignalized intersections are categorized as either all-way stop control (AWSC) or two-way stop control (TWSC). LOS at AWSC intersections is determined by the weighted average control delay of the overall intersection. The HCM TWSC intersection methodology calculates LOS based on the delay experienced by drivers on the minor (stop-controlled) approaches to the intersection. For TWSC intersections, LOS is determined for each minor-street movement, as well as the major-street left turns.

It should be noted that, in order to account for the reduced roadway volumes due to the ongoing Covid-19 pandemic, a Covid-factor of 15 percent was applied to the existing traffic counts taken for the intersection analysis (EPD Solutions 2021).

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect on traffic.

A project could have a significant adverse effect on transportation if it would:

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, as follows:

   i. Kern County General Plan LOS D

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.

Project Impacts

Impact 4.14-1: The Project would conflict with a program, plan, ordinance or policy establishing the circulation system, including transit, roadway, bicycle, and pedestrian facilities as follows: Kern County General Plan LOS D.

Solar Facility

Construction

The Kern County General Plan identifies standards for maintaining an adequate LOS for County streets and intersections. To evaluate project consistency with the General Plan Circulation Element, a *Traffic Impact Analysis* was prepared for the project (EPD Solutions 2019); refer to Appendix L-1, *Aratina Solar Project Traffic Impact Analysis*, for additional discussion. As previously stated, vehicle delay (evaluated in terms of LOS) is no longer considered to be an environmental impact under CEQA. However, an evaluation of potential project effects on LOS is included herein.

Regional access is primarily provided by SR 58, which carries traffic east to Barstow and west to Bakersfield. SR 58 connects to U.S. Route 395 to the east and SR 14 to the west. Local access to the project site is provided from Boron Avenue, Twenty Mule Team Road, and Gephart Road.

Minor improvements may be required to provide adequate access from these roadways locations. However, it is not anticipated that any such improvements would substantially interfere with existing roadway operations or circulation patterns. Additionally, the project proposes to remove future road reservations along section and mid-section lines where solar arrays are proposed and public streets would not be needed. This would not affect any existing roadways or eliminate any access to existing land uses. None of these activities would result in conflict with an applicable plan, ordinance, or policy addressing the circulation system. The project does not propose any features that are inconsistent with applicable policies of the County's General Plan Circulation Element.

Roadways

To evaluate potential project effects on LOS along affected roadway segments, it was assumed that the most active construction phase would occur concurrently on all 5 Sites to provide a worst-case scenario. **Table 4.14-4**, *Peak Hour Volumes and Roadway Operations with Construction Trips*, below shows during

the peak of construction activity, all but one of the study area roadways and freeways would continue to operate at satisfactory LOS, with a volume lower than capacity of the roadway. Only the segment of SR-58 east of Boron (2-lane highway segment) operates at an unsatisfactory LOS C in the existing condition. The increase in traffic from project construction would not cause the operation of any roadway to be reduced from satisfactory LOS to unsatisfactory LOS. Therefore, impacts would be less than significant.

Table 4.14-4. Peak Hour Volumes and Roadway Operation with Construction Trips

#	Segment	Existing Volume	Project Volume	Existing Plus Project Volume	LOS D Capacity (LOS C for Caltrans Facilities)[1]	Volume Less Than Capacity?
1	Gephart Rd. north of SR 58	202	444	646	9,600	Yes
2	Gephart Rd. south of SR 58	202	112	314	9,600	Yes
3	Borax Rd. south of SR 58	592	1,054	1,646	14,900	Yes
4	Boron Ave. north of Twenty Mule Team Rd.	1,240	1,418	2,658	11,800	Yes
5	Boron Ave. south of Twenty Mule Team Rd.	606	2,184	2,790	14,800	Yes
6	Twenty Mule Team Rd. east of SR 58	633	272	905	11,200	Yes
7	Twenty Mule Team Rd. east of Gephart Rd.	633	900	1,533	11,200	Yes
8	Twenty Mule Team Rd. east of Borax Rd.	633	1,074	1,707	11,200	Yes
9	Twenty Mule Team Rd. west of Boron Ave.	1,815	376	2,191	24,700	Yes
10	Twenty Mule Team Rd. east of Boron Ave.	1,228	1,140	2,368	24,700	Yes
11	SR 58 east of Clay Mine Rd.	16,300	1,172	17,472	56,000	Yes
12	SR 58 west of Boron Ave.	15,350	1,860	17,210	56,000	Yes
13	SR 58 east of Boron Ave.	15,400	1,968	17,368	56,000	Yes
14	SR 58 east of Boron Ave.[2]	15,400	1,968	17,368	7,900	No

Source: EPD Solutions, Inc. 2019; see Appendix L-1.

1 - Capacity values from Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016. Exhibit 12-40, 14-12, and 15-46.

2 - One mile from SR-58 and Boron ramps the freeway changes from 4 lanes to 2 lanes.

Intersections

Table 4.14-5, *Existing and Existing Plus Project Peak Hour Levels of Service Summary for Intersection Operations*, shows the LOS analysis in the baseline conditions and during construction of the project. All intersections were found to operate at LOS D or better during both the existing AM peak and existing PM peak conditions.

For intersections outside of Caltrans right-of-way and for the SR-58 ramp intersection, a threshold of D was used, consistent with the County's General Plan as well as previous traffic analyses in the project area. All study intersections would continue to operate at LOS D or better with the addition of project construction trips. As the study intersections would operate at LOS D or better during construction of the project, the project would not have a significant LOS impact and no mitigation measures are required. Impacts would be less than significant.

Table 4.14-5. Existing and Existing Plus Project Peak Hour Levels of Service Summary for Intersection Operations

#	Intersection	Existing				Existing Plus Project				Impact?	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay	LOS[1]	Delay	LOS[1]	Delay	LOS[1]	Delay	LOS[1]	AM	PM
1	Twenty Mule Team Rd/SR-58 EB Ramps	9.4	A	9.5	A	9.5	A	9.6	A	No	No
2	Gephart Rd. south of SR-58	9.6	A	9.9	A	9.8	A	10.0	B	No	No
3	Borax Rd. south of SR-58	8.9	A	9.2	A	9.0	A	9.4	A	No	No
4	Boron Ave. north of Twenty Mule Team Rd.	10.0	A	10.2	A	10.2	B	10.6	B	No	No
5	Boron Ave. south of Twenty Mule Team Rd.	9.5	A	9.4	A	9.8	A	9.9	A	No	No
6	Twenty Mule Team Rd. east of SR-58	9.4	A	9.2	A	10.4	B	9.9	A	No	No
7	Twenty Mule Team Rd. east of Gephart Rd.	9.6	A	9.4	A	11.7	B	11.1	B	No	No
8	Twenty Mule Team Rd. east of Borax Rd.	9.8	A	9.8	A	10.3	B	10.4	B	No	No
9	Twenty Mule Team Rd. west of Boron Ave.	7.7	A	8.2	A	9.8	A	11.5	B	No	No
10	Twenty Mule Team Rd. east of Boron Ave.	12.4	B	12.0	B	18.8	C	16.3	C	No	No
11	SR-58 east of Clay Mine Rd.	16.7	C	18.6	C	28.0	D	26.9	D	No	No

Source: EPD Solutions 2021; see Appendix L-2.
[1] LOS = Level of Service

Transit, Bicycle, and Pedestrian Facilities

Additionally, as previously noted, several bus routes operate within the vicinity of the PV solar field. Although bus stops along these routes are not directly adjacent to the site, these bus routes provide regional connections to other surrounding communities within the County. Project construction and/or operation is not anticipated to substantially interfere on conflict with the operation of any existing bus routes in proximity to the proposed project improvements. No changes to any existing bus stops would occur as the result of project implementation.

The Burlington-Santa Fe Railroad crosses the project site, traversing generally north/south through Sites 2 and 3, then paralleling SR 58 east-west. The solar panels would be installed within the boundaries of the subject property; any crossing of the rail lines for construction or ongoing maintenance purposes would occur at designated crossings. Due to the nature of the proposed improvements, it is not anticipated that the solar fields would adversely affect or interfere with rail operations or conflict with any applicable plans, ordinances, or policies regulating the railway system.

There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the project site or along surrounding roadways. Due to the generally rural nature of project-affected lands, pedestrian and bicycle traffic is limited. Although some bicyclists may occasionally use local rural roads potentially affected by project construction or operation, such activities would not occur within dedicated bicycle lanes, as such features are not present. Therefore, the project would not result in conflict with an applicable plan, ordinance, or policy establishing the circulation system in this regard.

As such, project construction or operation would not result in a conflict with the County's General Plan supporting vehicular or alternative transportation modes. The project would be in conformance with adopted policies, plans, and programs pertaining to the local and regional circulation system, including roadway, public transit, bicycle, and pedestrian facilities, and would not otherwise decrease the performance or safety of such facilities. Impacts would be less than significant.

Operation and Maintenance

As noted previously, the proposed project is expected to generate fewer than 50 trips during the weekday AM and PM peak hours during operations. The County's guidelines require that analysis be conducted at intersections where a project would generate 50 or more peak hour trips. Therefore, an analysis of LOS conditions for project operation and maintenance was not conducted, and the impact is presumed to be less than significant. Additionally, due to the low number of on-site employees, the project would not adversely affect any area transit, bicycle, or pedestrian facilities. Project operation and maintenance would not conflict with a program, plan, ordinance or policy establishing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

Decommissioning

Additionally, at the end of the project's operational term, the project operator may determine that the project should be decommissioned and deconstructed, which would adhere to the requirements of the appropriate governing authorities and would occur in accordance with all applicable federal, state, and county regulations. Decommissioning impacts would be relatively similar to those identified for construction of the proposed solar facility and would be short-term and temporary. Thus, project decommissioning would not conflict with an applicable plan, ordinance, or policy establishing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Impacts would be less than significant.

Gen-Tie

Construction and operation of the gen-tie would generally occur within public rights-of-way or easements. Limited portions of the gen-tie may occur on acquired private lands. As such, it is not anticipated that the gen-tie line would substantially interfere or conflict with circulation along affected roadways or conflict with applicable plans or policies pertaining to existing or planned area circulation routes.

As noted above, several bus routes operate within the vicinity of the proposed gen-tie route, including along SR 58. The proposed gen-tie route would cross SR 58; however, due to the nature of the gen-tie line (i.e., aboveground or underground), project construction and/or operation are not anticipated to substantially interfere or conflict with any existing bus routes in proximity to the proposed improvements.

The gen-tie line would be constructed to the west of the Burlington-Santa Fe Railroad alignment which traverses Sites 2 and 3 and extends eastward, paralleling SR 58. As such, construction or operational activities associated with the proposed gen-tie would not require crossing of the rail lines or interfere with rail operations.

Similar to the proposed PV solar field location, due to the rural nature of land affected by the gen-tie route, no dedicated pedestrian or bicycle facilities are present in the vicinity of where improvements would occur. It is not anticipated that project construction or operation of the gen-tie would substantially affect circulation patterns on local roadways or conflict with existing or planned pedestrian or bicycle operations.

Therefore, construction or operation of the gen-tie line would not conflict with an applicable plan, ordinance, or policy establishing the circulation system relative to transit, roadway, bicycle, or pedestrian facilities. Impacts would be less than significant.

Additionally, at the end of the project's operational term, the project operator may determine that the project should be decommissioned and deconstructed, which would adhere to the requirements of the appropriate governing authorities and occur in accordance with all applicable federal, state, and county regulations. Decommissioning impacts would be relatively similar to those identified for construction of the proposed gen-tie and would be short-term and temporary. Thus, project decommissioning would not conflict with an applicable plan, ordinance, or policy establishing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.14-2: The Project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

Solar Facility

As stated above, the new *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 greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. Kern County is currently engaged in this process and have not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the County, guidance from the State of California Office of Planning and Research's (OPR) December 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Guidelines), was relied upon in this EIR to determine the significance of transportation impacts (OPR 2018).

Impacts due to construction activities would be temporary and would not result in any meaningful long-term or permanent change in VMT; therefore, the evaluation of VMT is focused on project operation. As defined in *CEQA Guidelines* section 15064.3, subdivision (a), VMT refers to the amount and distance of automobile travel attributable to a project. The Technical Guidelines further explain that the automobile in section 15064.3 "refers to on-road passenger vehicles, specifically cars and light trucks." For this reason, this VMT analysis only considers passenger vehicle (i.e., cars and light trucks) trips generated by the

project. However, this EIR also includes an analysis of GHG emissions associated with heavy truck traffic generated by the project (as well as other traffic), and addresses potential significant transportation impacts of all project vehicles, including heavy trucks, related to air quality, noise, and safety.

The Technical Guidelines provide a screening criterion that could be used to determine if VMT analysis is warranted for small projects, which are defined as projects that would generate fewer than 110 trips per day and may generally be assumed to cause a less-than-significant transportation impacts. As indicated above in **Table 4.14-2**, *Project Construction Trip Generation*, project operation would generate fewer than 50 vehicle trips per day. Therefore, daily passenger vehicle trips generated by the project would be well below OPR's recommended small-project screening criterion threshold of 110 trips per day, and the project's impact to VMT would be less than significant.

Gen-Tie

As discussed in Impact 4.14-1, the project would generate vehicular and truck trips during construction. These short term traffic conditions would have a less than significant effect on long-term VMT volumes or patterns. Operation of the completed gen-tie line would involve minor and occasional traffic for routine maintenance and would have a negligible effect on area or regional VMT volumes or patterns. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.14-3: The Project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Solar Facility

During construction and decommissioning, the project would require the delivery of heavy construction equipment and PV solar components using area roadways, some of which may require transport by oversize vehicles. Heavy equipment associated with these components would not be hauled to/from the site daily, but rather would be hauled in and out on an as needed basis. Nevertheless, the use of oversized vehicles during construction and decommissioning may create a hazard to the public by limiting motorist views on roadways and by the obstruction of space, which is considered a potentially significant impact.

The completed and fully operational project would not modify existing roadway geometrics or include a roadway design feature or other features, or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the project site. However, the occasional need for and number of escorts, California Highway Patrol escorts, as well as the timing of transport of construction-related or solid waste materials to the site would occur at the discretion of Caltrans and Kern County, and would be detailed in respective oversize load permits to be obtained from each agency, as appropriate. Thus, potential adverse effects on the local circulation system, including with regard to potential hazards, would be reduced.

To ensure that impacts relative to traffic hazards remain less than significant, Mitigation Measure MM 4.14-1 would be implemented to require that all oversize vehicles used on public roadways during construction and decommissioning obtain required permits and obtain approval of a Construction Traffic Control Plan, as well as identify anticipated construction delivery times and vehicle travel routes in advance to minimize traffic during AM and PM peak hours. This would ensure that construction- or decommission-related oversize vehicle loads are operated in compliance with applicable California Vehicle Code sections and California Street and Highway Codes applicable to licensing, size, weight, load, and roadway encroachment.

Gen-Tie

Heavy equipment associated with construction and/or decommissioning of the gen-tie components would not be hauled to/from the site daily, but rather would be hauled in and out on an as needed basis. Due to the rural nature of the area roads, construction vehicles associated with the gen-tie are not anticipated to incur hazards traveling to and from the project site. The gen-tie would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the project site. Additionally, construction- and decommissioning-related oversize vehicle loads would be required to comply with permit-related and other requirements of the California Vehicle Code and California Streets and Highway Code. Maintenance of the gen-tie would occur on occasion. However, such activities would generally be confined to within public rights-of-way or easements supporting the gen-tie line and would therefore be distanced from vehicular circulation along public roads or other existing area land uses.

Construction, operation, and/or decommissioning of the gen-tie line are not anticipated to have the potential to substantially increase hazards due to a geometric design feature or incompatible uses. Impacts would be less than significant.

Mitigation Measures

MM 4.14-1 Prior to the issuance of construction or building permits, the project proponent/operator shall:

a. Obtain all necessary encroachment permits for work within the road right-of-way or use of oversized/overweight vehicles that will utilize County-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved Construction Traffic Control Plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department and the Kern County Public Works Department Development Review, prior to the commencement of construction or decommissioning activities.

b. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the State and/or Kern County.

c. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 9, as appropriate, for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of

Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues:

1. Timing of deliveries of heavy equipment and building materials;
2. Directing construction traffic with a flag person;
3. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;
4. Ensuring access for emergency vehicles to the project site;
5. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections;
6. Maintaining access to adjacent property; and,
7. Specifying both construction-related vehicle travel and oversize load haul routes, minimizing construction traffic during the AM and PM peak hours, distributing construction traffic flow across alternative routes to access the project sites, and avoiding residential neighborhoods to the maximum extent feasible.

d. Institute construction work hours as necessary, such that the arrival and/or departure times of workers would be staggered as necessary.

e. Identifying vehicle safety procedures for entering and exiting site access roads.

f. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-County maintained roads that may result from construction activities. The project proponent/operator shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department Development Review and the Kern County Planning and Natural Resources Department.

g. Within 30 days of completion of construction, the project proponent/operator shall submit a post-construction video log and inspection report to the County. This information shall be submitted in electronic format. The County, in consultation with the project proponent/operator's engineer, shall determine the extent of remediation required, if any.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.14-1, impacts would be less than significant.

Impact 4.14-4: The project would result in inadequate emergency access.

Solar Facility

The project site is located in a rural area with existing primary access roads allowing adequate egress/ingress to the site in the event of an emergency. Construction-, operation-, and decommissioning-related traffic

would access the project site from SR 58 via Boron Avenue (Sites 1 and 2), Twenty Mule Team Road (Sites 1 to 4), and Gephart Road (Sites 4 and 5), depending on the portion of the project site being accessed. Driveways and parking lot entrances would be constructed in accordance with Kern County improvement standards. Any off-site roadway improvements would be constructed in conformance with Caltrans and/or County codes and regulations, as applicable.

Controlled access gates would be maintained at the main entrances to the project site. Project access would be provided to off-site emergency response teams that respond in the event of an "after-hours" emergency. Enclosure gates would be manually operated with a key provided in an identified key box (i.e., Knox box) location. Due to the limited number of employees that would travel to and from the site on a daily basis for operations and maintenance, it is not anticipated that impacts relative to inadequate emergency access would occur. All access roads would be designed and constructed in conformance with applicable County standards, and all gated emergency access points would be accessible to emergency personnel at all times.

The project is not expected to require the closure of public roads during construction or decommissioning which could inhibit access by emergency vehicles. Nevertheless, during the construction or decommissioning phase of the project, project-related traffic using the local roadways could interfere with emergency response to the project site (or other surrounding properties) or emergency evacuation procedures in the event of an emergency such as a wildfire or chemical spill. To ensure that potential project effects are reduced to the extent feasible, implementation of Mitigation Measure MM 4.14-1 would require preparation of a Construction Traffic Control Plan that considers access for emergency vehicles to the project site. With implementation of the proposed mitigation, project impacts relative to adequate emergency access would be reduced less than significant.

Gen-Tie

Heavy equipment associated with construction and/or decommissioning of the gen-tie components would not be hauled to/from the site daily, but rather would be hauled in and out on an as needed basis. Due to the rural nature of the area roads, construction vehicles associated with the gen-tie are not anticipated to incur hazards traveling to and from the project site. The gen-tie would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the project site. Additionally, construction- and decommissioning-related oversize vehicle loads would be required to comply with permit-related and other requirements of the California Vehicle Code and California Streets and Highway Code. Maintenance of the gen-tie would occur on occasion. However, such activities would generally be confined to within the public rights-of-way or easements supporting the gen-tie line and would therefore be distanced from vehicular circulation along public roads or other existing area land uses.

Construction, operation, and/or decommissioning of the gen-tie line are not anticipated to have the potential to substantially increase hazards due to a geometric design feature or incompatible uses. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.14-1.

Level of Significance after Mitigation

With Implementation of Mitigation Measure MM 4.14-1, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Solar Facility

The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have an overlapping construction schedule and/or project operations that could affect similar transportation resources. Projects with overlapping construction schedules and/or operations could result in a substantial contribution to increased traffic throughout the surrounding roadway network; contribute to hazardous roadway conditions; and/or adversely affect emergency access or circulation. A cumulative impact related to transportation could therefore result if the project's incremental effects were combined with impacts of other past, present, or reasonably foreseeable future projects.

A list of cumulative projects considered for the transportation analysis is included in **Table 4.14-6**, *Cumulative Projects Construction Trip Generation*, below. The cumulative projects are projects that are proposed and in the review process, but not yet fully approved; or, projects that have been approved, but not fully constructed or occupied. The majority of these projects are also renewable energy generation facilities designed at utility scale, primarily involving solar photovoltaic panels to produce electrical power, at various energy production capacities.

Table 4.14-6. Cumulative Projects Construction Trip Generation

#	Name	Vehicle Trips Generated[1]	PCE Trips
1	Boron Commercial Development	187	248
2	Kramer Junction	288	381
3	Nautilus Solar	63	67
4	EAFB Solar	2,110	2,220
5	Monte Vista Solar	443	466
6	High Desert Solar	63	67
7	Eland Solar	1,758	1,850
8	enXco Desert Solar	689	725
9	Fremont Solar	3,545	3,730
	Total	**8,671**	**9,124**

Source: EPD Solutions, Inc. 2019; see Appendix L-1.
PCE = Passenger Car Equivalent
[1] Construction trip generation estimated using Gemini Solar Trip Generation Estimate factored to size of cumulative projects.

The projects identified in **Table 4.14-6**, *Cumulative Projects Construction Trip Generation*, are located west of the project site and utilize SR-58. The four study area roadway segments along SR-58 would be affected by trips generated by the cumulative projects considered. The Kramer Junction project would also only affect the four SR-58 roadway segments. The Boron Commercial Development project would be the only project with trips affecting non SR-58 segments, those being Boron Avenue north of Twenty Mule Team Road and Boron Avenue south of Mule Team Road. Traffic volumes on the remaining study area roadways would remain the same as under existing conditions (see **Table 4.14-1**, *Existing Peak Hour Traffic Volumes and Roadway Operation*, above). **Table 4.14-7**, *Cumulative and Cumulative Plus Construction Trips*, provides the Cumulative and Cumulative Plus Project traffic volumes on study area roadway segments.

Table 4.14-7. Cumulative and Cumulative Plus Construction Trips

#	Segment	Existing Volume	Approved Projects Volume	Project Volume	Cumulative Plus Project Volume	LOS D Capacity (LOS C for Caltrans Facilities)[1]	Volume Less Than Capacity?
1	Gephart Rd. north of SR 58	202	0	444	646	9,600	Yes
2	Gephart Rd. south of SR 58	202	0	112	314	9,600	Yes
3	Borax Rd. south of SR 58	592	0	1,054	1,646	14,900	Yes
4	Boron Ave. north of Twenty Mule Team Rd.	1,240	307	1,418	2,965	11,800	Yes
5	Boron Ave. south of Twenty Mule Team Rd.	606	307	2,184	3,097	14,800	Yes
6	Twenty Mule Team Rd. east of SR 58	633	0	272	905	11,200	Yes
7	Twenty Mule Team Rd. east of Gephart Rd.	633	0	900	1,533	11,200	Yes
8	Twenty Mule Team Rd. east of Borax Rd.	633	0	1,074	1,707	11,200	Yes
9	Twenty Mule Team Rd. west of Boron Ave.	1,815	0	376	2,191	24,700	Yes
10	Twenty Mule Team Rd. east of Boron Ave.	1,228	0	1,140	2,368	24,700	Yes
11	SR 58 east of Clay Mine Rd.	16,300	1,799	1,172	19,271	56,000	Yes
12	SR 58 west of Boron Ave.	15,350	1,799	1,860	19,009	56,000	Yes
13	SR 58 east of Boron Ave.	15,400	1,848	1,968	19,666	56,000	Yes
14	SR 58 east of Boron Ave.[2]	15,400	1,848	1,968	19,191	7,900	No

Source: EPD Solutions, Inc. 2019; see Appendix L-1.

1- Capacity values from Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016. Exhibit 12-40, 14-12, and 15-46.

2 -1 mile from SR-58 and Boron ramps the freeway changes from 4 lanes to 2 lanes.

As shown in **Table 4.14-7**, *Cumulative and Cumulative Plus Construction Trips*, the 2-lane segment of SR-58 east of Boron Avenue would operate over its LOS C capacity in the cumulative condition, and the project would add trips to this already-deficient segment. However, Caltrans recently completed construction of the Kramer Junction Expressway project which widened and realigned SR-58 from the San Bernardino County line to 13 miles east. Implementation of the Kramer Junction Expressway project mitigates the deficient condition forecast on SR-58 in the cumulative condition, and therefore, the proposed project would not contribute to a degradation of LOS along this roadway segment.

As discussed above, due to the rural nature of the proposed location of the PV solar facility and the gen-tie route, the substantial distances between the project and other pending projects, and the different schedules for construction among the various projects, the project is not anticipated to substantially conflict with circulation patterns or operations, including roadway, bicycle, transit, and pedestrian facilities. However, implementation of Mitigation Measure MM 4.14-1 would be required to ensure that the project's contribution to cumulative impacts in this regard would remain less than significant. It is anticipated that other cumulative projects would similarly be evaluated based on the existing setting (i.e., proximity to transit, pedestrian, and bicycle facilities, etc.) and planned transportation systems to identify and reduce potential impacts, as appropriate.

According to the Office of Planning and Research (OPR) Technical Advisory (OPR 2018), increased demand on transit systems throughout a region may cause a cumulative impact by requiring new or additional transit infrastructure. Such impacts may be adequately addressed through a fee program that allocates the cost of improvements not just to projects located near transit, but on a regional level for all projects that may impose a potential burden on the transportation system. The project would result in the construction of a PV solar facility and would not include the construction of new housing or the generation

of new area population. It is therefore not anticipated that the project would create a significant new demand on existing transit facilities either locally or on a regional level, or contribute to a significant cumulative impact in this regard. Other cumulative projects would be evaluated based on the type of use proposed and existing setting to determine if conflicts with applicable plans, ordinances, or policies establishing the circulation system would occur.

Transportation impacts involving implications of a project's vehicle miles traveled characteristics are long-term and cumulative in nature, since the objective of this consideration is to reduce total vehicle miles traveled as a way of reducing transportation sources of greenhouse gas emissions, throughout a jurisdiction, region or statewide. It is reasonable to estimate that because this project has a small and skilled workforce that is likely to be comprised of people who would commute similar distances as other skilled workers, this project would not result in circumstances where VMT patterns of the area or region would be significantly affected. The same reasoning can be applied to all of the other proposed renewable energy projects considered in this cumulative impact analysis. Based on this assessment, cumulative impacts involving vehicle miles traveled patterns would be less than significant.

On a project-level, the project would not include a design feature or incompatible uses that would substantially increase hazards on surrounding roadways. However, implementation of Mitigation Measure MM 4.14-1 is proposed and would ensure that the potential for the project to contribute to a cumulative impact would remain less than significant. Similarly, the other cumulative projects considered would be evaluated for their design and intended land use to determine if a potential hazard would occur and to identify appropriate mitigation, if needed.

Similar to the project, it is anticipated that other cumulative projects would be required to implement mitigation to ensure that a Construction Traffic Control Plan is prepared and approved, prior to commencement of construction in order to minimize potential conflicts or adverse effects on emergency access or circulation. As stated above, the project would implement Mitigation Measure MM 4.14-1 to reduce potential impacts relative to adequate emergency access. With implementation of the proposed mitigation, the project's contribution to a significant cumulative impact in this regard would be reduced to less than significant.

Gen-Tie

Similar to the PV solar facility site, the proposed gen-tie route is located in a rural area. Sufficient access exists within the identified gen-tie line rights-of-way and/or easement(s) to allow for emergency access and circulation. In this context, project construction, operation, or decommissioning are not anticipated to result in significant impacts to adequate emergency access. However, preparation of a Construction Traffic Control Plan would be required to ensure that emergency access is maintained along all routes that may be affected by project construction and decommissioning activities. Implementation of Mitigation Measure MM 4.14-1 would reduce potential impacts to less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.14-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.14-1, cumulative impacts would be less than significant.

Section 4.15
Tribal Cultural Resources

4.15.1 Introduction

This section provides an assessment of potential impacts related to tribal cultural resources that could result from implementation of the proposed project. Cultural resources include places, objects, and settlements that reflect group or individual religious, archaeological, architectural, or paleontological activities. By statute, "tribal cultural resources" are generally described as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are further defined in Public Resources Code (PRC) Section 21074(a)(1)(A)–(B). The analysis in this section is based on the results of the Native American consultation conducted by the County for purposes of compliance with California Environmental Quality Act (CEQA) requirements prompted by Assembly Bill (AB) 52, as well as Senate Bill (SB) 18; see Appendix E of this EIR.

This section is also partially based on the Aratina Solar Project Cultural Resources Assessment Report prepared by Rincon Consultants, Inc. (2020; Appendix E) and peer reviewed by Michael Baker International, which details the results of a cultural resources records search and field survey for the project. Due to the confidential nature of the location of tribal cultural resources, information regarding locations of cultural resources has been redacted from the report and is not included in the appendix.

Since the preparation of the *Cultural Resources Assessment Report,* the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from 2,672 acres to 2,317 acres. The 15 percent reduction in project footprint associated with the proposed project would result in a 15 percent reduction of land disturbed during construction. The reduced development footprint reduces the project electrical generation capacity from 600 megawatts (MW) to 530 MW. Therefore, the following discussion that is based on the previous approximately 2,317-acre footprint represents the worst-case potential impacts related to cultural resources and tribal cultural resources, in particular, those resources that may be currently unknown.

4.15.2 Environmental Setting

Refer to Section 4.5, *Cultural Resources*, of this EIR for a greater discussion of the cultural resources environmental setting.

Existing Tribal Cultural Resources

Native American Correspondence and SB 18 and AB 52 Consultation

The Kern County Planning and Natural Resources Department forwarded the Notice of Preparation (NOP) of a Draft EIR for the Aratina Solar Project to the Office of Planning and Research, State Clearinghouse, (OPR/SCH) on August 14, 2020. The Native American Heritage Commission (NAHC) was included in the list of agencies to be notified by OPR/SCH. The NAHC identifies, catalogs, and protects Native American

cultural resources on private and public lands in California. Cultural resources include graves, cemeteries, and places of special religious or social significance to Native Americans. The NAHC also records the historical territories of State-recognized tribes into a database called the Sacred Lands File. A records search of the Sacred Lands File is conducted to ensure that tribes potentially affected by a project are properly notified and consulted.

The NAHC maintains a contact list of Native American tribes that have traditional lands located within the County's jurisdiction. On April 11, 2019, Rincon Consulting submitted a Sacred Lands File search request to the NAHC. The NAHC responded via an email dated June 12, 2020, stating that no Native American cultural resources are known to exist within the project site or the immediate vicinity and provided a list of Native American groups affiliated with the project site to be contacted for additional information regarding cultural resources. On June 17, 2020 SB 18 notification letters were sent to the Native American groups indicated by the NAHC. The letters included a description of the proposed project, the project location, and a notification of the type of consultation that the County was initiating. On June 17, 2020 the County sent consultation notification letters via certified mail to Native American groups on the County's Master List pursuant to the requirements of AB 52 pertaining to government-to-government consultation.

Table 4.15-1, *Summary of SB 18 and AB 52 Consultation Efforts*, summarizes the County's consultation efforts to date. At the time of preparation of this EIR, the County had received two responses. Correspondence was received from Brandi Kendrick of the Kern Valley Indian Community where Ms. Kendrick noted that the project area has, in the past, proven to harbor items or features of cultural significance and requested to be involved in the project. Ms. Kendrick noted that the tribe prefers that there be a tribal representative on-site to monitor all ground-disturbing activities and provided contact information to allow for continued consultation with County staff. Additionally, a representative of the San Manuel Band of Mission Indians indicated that the project site lies within the Serrano ancestral territory and requested additional information from the County to complete review of the project. On May 21, 2021, Ryan Nordness of the Tribe provided official mitigation language adopted by the Tribal members to the County for consideration. Coordination with the Kern Valley Indian Community and San Manuel Band of Mission Indians remains ongoing at the time of preparation of this EIR.

Table 4.15-1. Summary of SB 18 and AB 52 Consultation Efforts

Contact(s)	Tribe/Organization Contacted	Consultation Type	Date Letter Mailed	Response Received
Robert Robinson, Chairperson; Julie Turner, Secretary; Brandy Kendricks	Kern Valley Indian Community	SB 18; AB 52	6/17/2020	In an email dated September 13, 2020, Kern Valley Indian Community requested additional coordination with the County and indicated preference for a Native American monitor during ground-disturbing activities.
Jessica Mauck, Director-CRM Dept.	San Manuel Band of Mission Indians	SB 18; AB 52	6/17/2020	In an email dated August 20, 2020, a representative of the San Manuel Band of Mission Indians acknowledged the delivery of the notice and requested additional information from the County to complete their review of the project.
Michael Mirelez, Cultural Resources Coordinator	Torres Martinez Desert Cahuilla Indians	SB 18; AB 52	6/17/2020	No Response

Table 4.15-1, continued

Contact(s)	Tribe/Organization Contacted	Consultation Type	Date Letter Mailed	Response Received
Anthony Madrigal Jr., Tribal Grants Administrator; Darrell Mike, Tribal Chairman	Twenty-Nine Palms Band of Mission Indians	SB 18; AB 52	6/17/2020	No Response
Colin Rambo, CRM Tech; Octavio Escobedo III, Chairperson	Tejon Indian Tribe	SB 18; AB 52	6/17/2020	No Response
Sally Manning, Env. Director; Danelle Gutierrez, THPO; James Rambeau, Sr., Chairperson	Big Pine Paiute Tribe of the Owens Valley	SB 18	6/17/2020	No Response
Jairo F. Avila, THPO	Fernandeno Tataviam Band of Mission Indians	SB 18	6/17/2020	No Response
Lee Sisco, Chairperson	Santa Rosa Rancheria Tachi Yokut Tribe	SB 18	6/17/2020	No Response
Robert L. Gomez, Jr., Tribal Chairperson	Tubatulabals of Kern Valley	SB 18	6/17/2020	No Response
Delia Dominguez, Chairperson	Kitanemuk & Yowlumne Tejon Indians	SB 18	6/17/2020	No Response
Julio Quair, Chairperson	Chumash Council of Bakersfield	SB 18	6/17/2020	No Response
Neil Peyron, Chairperson	Tule River Indian Tribe	SB 18	6/17/2020	No Response
Kenneth Woodrow, Chairperson	Wuksache Indian Tribe/Eshom Valley Band	SB 18	6/17/2020	No Response
Mona Olivas Tucker, Chairwoman	Vak titvu vak tilhini - Northern Chumsah Tribe	SB 18	6/17/2020	No Response

4.15.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

Native American Heritage Commission

PRC Section 5097.91 established the NAHC, the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native

Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a County coroner.

Assembly Bill 52 and Related Public Resources Code Sections

AB 52 was approved by California State Governor Edmund Gerald "Jerry" Brown, Jr. on September 25, 2014. The act amended PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which an NOP or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native

American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

Senate Bill 18

SB 18 (Statutes of 2004, Chapter 905), which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to "provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places" (California Governor's Office of Planning and Research 2005).

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the Tribal Consultation Guidelines: Supplement to General Plan Guidelines (California Governor's Office of Planning and Research 2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3).

- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code Section 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.

- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code Section 65092).

- In accordance with SB 18 and the California Tribal Consultation guidelines, the appropriate native groups were consulted with respect to the project's potential impacts on Native American places, features, and objects.

California Native American Graves Protection and Repatriation Act (NAGPRA) of 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection and Repatriation Act is consistent with the federal NAGPRA. Intended to "provide a

seamless and consistent state policy to ensure that all California Indian human remains and cultural items be treated with dignity and respect," Cal NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The Cal NAGPRA also provides a process for non-federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

California Health and Safety Code, Sections 7050 and 7052

California Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

Local

Construction, operation, and decommissioning of the solar facility would be subject to policies and regulations contained within the general and specific plans, including the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to tribal cultural resources. There are no policies, goals, and implementation measures in the Kern County General Plan related to tribal cultural resources that are applicable to the project. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

4.15.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to tribal cultural resources have been evaluated using a variety of resources, including an SLF search conducted by the NAHC. SB 18 and AB 52 notification letters were sent to Native American groups and individuals indicated by the NAHC to solicit information regarding the presence of tribal cultural resources. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

As established in Appendix G of the CEQA Guidelines, the Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria to determine if a project could potentially have a significant impact with respect to tribal cultural resources.

A project would have a significant impact on tribal cultural resources if it would:

a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

    i. Listed or eligible for listing in the CRHR, or in a local register of 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.

Impact 4.15-1a: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 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 that is listed or eligible for listing in the California Register of Historic Places, or in a local register of historical resources as defined in Public Resources Section 5020.1(k).

As part of the information-gathering process for the cultural resources technical report (Appendix E), the NAHC was contacted to request a search of the Sacred Lands File in April 2019. The NAHC emailed a response on June 12, 2020, stating that the search was returned with negative results, which means the record search did not identify any sacred lands within the project boundary (Rincon 2020). However, the absence of specific site information does not necessarily indicate the absence of cultural resources in the project area, as unknown cultural resources may be present.

In response to County notification efforts, the County has not received official request for consultation pursuant to the AB 52 process. However, as noted above, the Kern Valley Indian Community has requested be that a tribal representative be on-site to monitor all ground-disturbing activities. This requirement has been incorporated into Mitigation Measure MM 4.5-1; refer to Section 4.5, *Cultural Resources*. Additionally, a representative of the San Manuel Band of Mission Indians requested technical information from the County to complete review of the project. The County provided the information requested to the tribe. Subsequently, the Tribe provided the County with a list of official mitigation measures addressing cultural and tribal resources, as well as the inadvertent discovery of human remains. Such language has been incorporated into Mitigation Measures MM 4.5-6 and MM 4.5-7, and included as Mitigation Measures MM 4.15-1 and MM 4.15-2, as appropriate. Coordination with the Kern Valley Indian Community and San Manuel Band of Mission Indians remains ongoing at the time of preparation of this EIR.

No tribal cultural resources have been identified to date within the project boundary. If no tribal cultural resources are identified during the consultation process, a significant impact to known tribal cultural resources would not occur. However, subsurface disturbances (e.g., trenching, excavation, grading) associated with project construction or decommissioning would have the potential to impact unknown tribal cultural resources. To ensure proper protection of any unknown resources, should they be encountered during project-related ground disturbance activities, Mitigation Measures MM 4.5-1, MM 4.5-2, and MM

4.5-6 are proposed to require the presence of an on-site Native American monitoring during project grading and construction and/or decommissioning. Monitoring would allow for discovery of unknown resources to be readily managed in accordance with federal and state law to prevent potential damage to or loss of such resources. Refer to Section 4.5, *Cultural Resources*, for the full text of Mitigation Measures MM 4.5-1, MM 4.5-2, and MM 4.5-6.

Additionally, Mitigation Measure MM 4.15-1 would require that the appropriate Native American Representatives be contacted and informed in the event that any pre-contact and/or post-contact cultural resources are discovered during project implementation, so as to allow for Tribal input with regards to significance and treatment. Should the find be deemed significant, a cultural resources Monitoring and Treatment Plan would be created by the contracted project archaeologist, in coordination with the appropriate Native American Representatives, to allow for a monitor from the Tribe to be present on-site for the remainder of project construction, as deemed appropriate. Additionally, Mitigation Measure MM 4.15-2 would be implemented to ensure that documentation of any finds on-site is shared with the Native American representatives, as appropriate.

Additionally, human remains may be encountered during ground-disturbing activities. Although unlikely, if human remains are discovered, all work must stop in the immediate vicinity of the discovered remains. The Kern County coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed, pursuant to Health and Safety Code Section 7050. If the remains are deemed to be Native American, the NAHC must be contacted by the coroner so that a "Most Likely Descendant" can be designated and further recommendations regarding treatment of the remains provided. With implementation of Mitigation Measure MM 4.5-7, potential project impacts on undiscovered human remains would be reduced to less than significant. Refer to Section 4.5, *Cultural Resources*, for the full text of Mitigation Measure MM 4.5-7.

With implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7 (see Section 4.5, *Cultural Resources*), and MM 4.15-1 to MM 4.15-2, project impacts on tribal cultural resources would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 to MM 4.5-2 and MM 4.5-6 to MM 4.5-7 (refer to Section 4.5, *Cultural Resources*).

MM 4.15-1 During project ground-disturbing activities on project Sites 1 through 5 and the Holgate gen-tie route, the project proponent shall contact the appropriate Native American representatives in the event of any pre-contact and/or post-contact cultural resources discovered during project implementation, and shall provide information regarding the nature of the find so as to allow for Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by the California Environmental Quality Act (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the contracted project archaeologist, in coordination with the appropriate Native American representatives and all subsequent finds shall be subject to the Plan. The Plan shall allow for a monitor to be present that represents the appropriate Native American representatives for the remainder of the project construction phase, should the appropriate Native American representatives elect to place a monitor on-site.

MM 4.15-2 During and subsequent to the project construction phase, any and all archaeological/cultural documents created as a part of the project (i.e., isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the County, acting as the lead agency, for dissemination to the appropriate Native American representatives. The County shall, in good faith, consult with the appropriate Native American representatives throughout the life of the project.

Level of Significance after Mitigation

With the implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7, and MM 4.15-1 to MM 4.15-2, impacts would be less than significant.

Impact 4.15-1b: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 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 that is 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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As noted above, tribal cultural resources were not identified as part of the County's government-to government notification and consultation efforts with interested Native American groups conducted pursuant to AB 52 and SB 18. At the request of the San Manuel Band of Mission Indians, the County provided the *Aratina Solar Project Cultural Resources Assessment Report* (Rincon Consultants, Inc. 2020; Appendix E) and the *CEQA Level Geotechnical Study* (Stantec 2019; Appendix G) to the tribe on April 19, 2021, with additional information provided on April 28, 2021. The tribe has reviewed the information provided and consultation with the County remains ongoing at the time of preparation of this EIR.

Given that tribal cultural resources were not identified within or immediately adjacent to the project site, the project would not cause a substantial direct or indirect adverse change in the significance of a known tribal cultural resource. However, as noted under Impact 4.15-1a, the project would have the potential to result in impacts to unknown tribal cultural resources. Implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2 and MM 4.5-6 to MM 4.5-7, in addition to Mitigation Measures MM 4.15-1 to MM 4.15-2, would reduce such potential impacts to less than significant.

However, the lead agency notes that that Section 21080.3.2(c) of AB 52 states as follows:

(1) This Section does not limit the ability of a California Native American tribe or the public to submit information to the lead agency regarding the significance of the tribal cultural resources, the significance of the project's impact on tribal cultural resources, or any appropriate measures to mitigate the impact.

(2) This Section does not limit the ability of the lead agency or project proponent to incorporate changes and additions to the project as a result of the consultation, even if not legally required.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 to MM 4.5-2 and MM 4.5-6 to MM 4.5-7 (refer to Section 4.5, *Cultural Resources*); and MM 4.15-1 to MM 4.15-2.

Level of Significance after Mitigation

With the implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7, and MM 4.15-1 to MM 4.15-2, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

An analysis of cumulative impacts takes into consideration the entirety of impacts that the project, as described in Chapter 3, *Project Description*, of this EIR, would have on tribal cultural resources. The geographic area of analysis for tribal cultural resources includes the Antelope Valley, which sits at the western edge of the Mojave Desert, where the proposed project is located. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. This geographic scope of analysis is appropriate because the resources within this area are expected to be similar to those that occur on the project area because of their proximity, their similarities in environments and landforms, and their location within the same Native American tribal territories. The area considered is large enough to encompass any project effects on tribal cultural resources that may combine with similar effects caused by other projects, and provides a reasonable context wherein cumulative actions could affect any such tribal cultural resources.

Relative to CEQA, the importance of a tribal cultural resource is the value of the resource to California Native American tribes culturally affiliated with a certain project area. On a cumulative level, the cumulative loss of the tribal cultural resource must therefore be evaluated. No impact would occur if development would avoid or otherwise preserve known tribal cultural resources within dedicated on-site open space. However, if such resources cannot be avoided or preserved, a significant impact would occur, and the loss of the resource, in combination with the potential loss of other tribal cultural resources within the region, requires evaluation on a cumulative level.

Cumulative projects evaluated in the EIR would have the potential to be considered in a cumulative context with the project's incremental contribution, and are included in the analysis of cumulative impacts relative to tribal cultural resources. All of the 26 cumulative projects identified in **Table 3-3**, *Cumulative Projects List*, of Chapter 3, *Project Description*, are considered in the cumulative analysis for tribal cultural resources.

Development that has occurred over past decades in Kern County has resulted in adverse impacts on tribal cultural resources. However, the adoption of state and federal laws related to tribal cultural resources, such as AB 52, has provided a mechanism for consultation between California Native American tribes and lead agencies to address potential impacts of development activities on known and/or unknown tribal cultural resources. Although inadvertent discoveries and potential impacts may still result on a project-by-project basis based on location, development type, and/or availability of data, compliance with regulatory procedures generally mitigates potential impacts to tribal cultural resources. federal, state, and local laws protect tribal cultural resources in most instances, but this is not always feasible, particularly when in-place preservation may complicate the implementation of a development project. Future development may

conflict with these resources through inadvertent destruction or removal resulting from grading, excavation, construction and/or decommissioning activities.

Although no known tribal cultural resources of significance or human remains have been documented on the project site, including within the gen-tie alignment, project implementation could contribute to potential cumulative impacts on unknown tribal cultural resources, as well as buried human remains. Past, present, and foreseeable projects have affected, or would have the potential to affect, tribal cultural resources throughout the region over time. However, there are federal, state, and local laws designed to protect such resources. These laws have led to the discovery, recordation, preservation, and curation of artifacts and historic structures.

The project would implement Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7, and MM 4.15-1 to MM 4.15-2 which address the discovery and recovery of unknown cultural and tribal cultural resources through construction monitoring, identification of potential cultural and tribal cultural resources (including human remains), and evaluation of the significance of a discovery. Mitigation measures would be implemented to reduce potential impacts on undiscovered resources, if encountered, to less than significant. Similarly, with conformance to applicable federal, state, and local regulations, combined with the implementation of mitigation, it is anticipated that impacts resulting with implementation of other cumulative development projects would be adequately addressed and impacts on tribal cultural resources would be reduced to less than significant, or to the extent feasible.

Individual project-level impacts associated with tribal cultural resources would be less than significant with incorporation of Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7, and MM 4.15-1 to MM 4.15-2, and the proposed project and cumulative projects would be subject to conformance with applicable federal, state, and local requirements for the protection of such resources. Based on these conditions, the project's contribution to potential cumulative impacts on tribal cultural resources is considered to be less than cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 to MM 4.5-2 and MM 4.5-6 to MM 4.5-7 (refer to Section 4.5, *Cultural Resources*); and MM 4.15-1 to MM 4.15-2.

Level of Significance after Mitigation

With the implementation of Mitigation Measures MM 4.5-1 to MM 4.5-2, MM 4.5-6 to MM 4.5-7, and MM 4.15-1 to MM 4.15-2, cumulative impacts would be less than significant.

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Section 4.16
Utilities and Service Systems

4.16.1 Introduction

This section of the EIR describes the affected environment and regulatory setting of the project pertaining to demand for operational utilities (water, stormwater control, wastewater, and solid waste disposal). This section describes existing infrastructure and levels of service and evaluates whether any improvements are necessary to accommodate the project. Information in this section pertaining to stormwater control is based primarily on the *Aratina Solar Hydrology Report*, prepared by Woodard & Curran (Woodard & Curran 2020), and information concerning water supplies is based on the *Aratina Solar Project Water Supply Assessment* prepared by Rincon Consultants, Inc. (Rincon 2020) located in Appendix J and Appendix M of this EIR, respectively.

Since the preparation of the *Aratina Solar Hydrology Report* and the *Aratina Solar Project Water Supply Assessment*, the development footprint (e.g., area where the proposed physical improvements would occur) has been reduced by approximately 15 percent from 2,672 acres to 2,317 acres. The 15-percent reduction in project footprint associated with the proposed project would result in a 15-percent reduction of land disturbed during construction. The reduced development footprint reduces the project electrical generation capacity from 600 megawatts (MW) to 530 MW, and also reduces the operational water demand from 61.6 acre-feet per year (AFY) to 60 AFY.

4.16.2 Environmental Setting

Water Supply

There are typically three sources of supply water: (1) natural sources; (2) man-made sources; and (3) reclamation. Natural sources include rivers, lakes, streams, and groundwater stored in aquifers. Man-made sources include runoff water that is treated and stored in reservoirs and other catchment structures. Reclaimed water is wastewater that has been conveyed to a treatment plant and then treated to a sufficient degree that it may again be used for certain uses (such as irrigation). However, reclaimed water is not potable (drinkable) and must be conveyed in a separate system to ensure that there is no possibility of direct human consumption.

The proposed project would source water from one or more of the following water sources: an on- or off-site groundwater well pumping water from the Antelope Valley Groundwater Basin, purchased from a local retailer source by the Antelope Valley-East Kern Water Agency (AVEK) and delivered to the site via truck, or pumped from an off-site groundwater well in the Harper Valley Groundwater Basin.

The project site is located in an unincorporated part of Kern County within the boundaries of the AVEK. AVEK encompasses a service area of nearly 2,400 square miles in the Mojave Desert and provides water supplies to over 20 municipal users, including the Boron Community Services District (CSD) and Desert Lake CSD, two local utilities adjacent to the project site. In 1962, the AVEK Board of Directors signed a

water supply contract with the California Department of Water Resources (DWR) for delivery of imported water supplies from the State Water Project (SWP) to supplement Antelope Valley groundwater supplies for users in the Antelope Valley. The majority of AVEK's imported water is treated and distributed to customers throughout its service area. To help increase the reliability of regional water supplies, AVEK stores excess imported water during wet periods through groundwater banking programs. AVEK has two sources of water supply, imported SWP water and groundwater from the Antelope Valley Groundwater Basin.

The Boron CSD is a local water utility that serves water to residential, commercial, and agricultural users in the census-designated place of Boron. Prior to October 2018, the Boron CSD acquired water supplies via groundwater wells in the Antelope Valley Groundwater Basin and AVEK imports.

The Desert Lake CSD is a local water utility that serves water to residential, commercial, and agricultural users in the unincorporated community of Desert Lake. The Desert Lake CSD serves a population of approximately 2,250 people. The local water utility acquires all of its water from AVEK.

Antelope Valley Groundwater Basin Groundwater Supply

The project site is located within the Antelope Valley Groundwater Basin. The basin includes an area of 1.01 million acres (1,580 square miles) and underlies an extensive alluvial valley in the western Mojave Desert. The basin is bounded on the northwest by the Garlock fault zone at the base of the Tehachapi Mountains and on the southwest by the San Andreas fault zone at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide and on the north by the Fremont Valley Groundwater Basin at a groundwater divide approximated by a southeast-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill and the Rand Mountains farther east (California Department of Water Resources 2004).

Groundwater in the basin is used for both public water supply and local irrigation. The main water-bearing units are gravel, sand, silt, and clay derived from the surrounding mountains. Public-supply wells in the basin are anywhere from 360 to 700 feet deep. Groundwater recharge in the Antelope Valley is primarily runoff from surrounding mountains, as well as direct infiltration from irrigation, sewer, and septic systems (USGS 2013).

Natural and artificial sources recharge the basin. Precipitation provides the primary water source for the basin. The basin is recharged naturally via perennial runoff from the surrounding mountains and hills. The two primary sources of natural recharge are mountain-front recharge and infiltration from streamflow. The basin is also recharged via artificial sources including agricultural return flow, flooding of agricultural lands, off-stream spreading, and well injection. Natural recharge of the basin is estimated to be approximately 30,000 to 40,000 AFY. Total groundwater storage capacity in the basin is estimated to be approximately 70 million acre-feet (Rincon 2020).

Antelope Valley Groundwater Basin Adjudication

Prior to the Sustainable Groundwater Management Act (SGMA), the primary method for solving groundwater disputes and protecting groundwater basins was litigation. When over-pumping led to a crisis like seawater intrusion or chronic overdraft, people had little choice but to file a lawsuit—called an adjudication—in which all rights to water in a basin could be defined by a court. The SGMA now ensures

that basins can be managed sustainably through local management plans. In October 2015, Governor Brown signed Assembly Bill (AB) No. 1390, which provides for a comprehensive adjudication process for all groundwater basins regulated under the SGMA. Groundwater basins that have been adjudicated by court decision are subject to management by a court-approved Watermaster. A groundwater rights adjudication process is underway for the area managed by the Antelope Valley Integrated Regional Water Management Plan (IRWMP) area, which includes the project site. The parties to the adjudication include non-governmental overlying users, appropriative users, non-user overlying landowners, and federally reserved water rights. The case will define who owns, controls, and uses the water in the basin (Antelope Valley Times 2015).

In May 2011, the California superior court issued an official decision determining that the adjudication area is in a state of overdraft, and established a safe yield for the basin of 110,000 AFY, although pumping in the area has ranged up to 150,000 AFY. Based on the determined safe yield and the amount that was previously pumped, the 2010 Integrated Urban Waste Management Plan (UWMP) for the Antelope Valley, dated June 2011, predicted that annual entitled water rights/amounts could be reduced by as much as 35 percent by the adjudication. On December 23, 2015, Judge Komar issued a final judgment that set in motion court-directed procedures for the Directors of the AVEK to create a Watermaster Organization empowered to monitor the groundwater basin. In their first meeting of the year following settlement of long-running litigation over water rights adjudication, AVEK, as directed by the court, took action to begin the Watermaster transition process. The judgment specifies that AVEK and Los Angeles County Waterworks District 40 each occupy a seat, along with another public water supplier to be named later.

The judgment confirmed that the basin is in overdraft and promulgated regulations and procedures to govern groundwater usage in the basin. The court established a physical solution to limit overproduction of the basin and ensure the long-term sustainability of the basin by determining a Native Safe Yield of 82,3000 AFY for groundwater production. The Native Safe Yield is based on estimates of natural groundwater recharge from the hydrologic system, including subsurface inflows from the surrounding bedrock and infiltration from precipitation and streamflow. The adjudication parties were divided in classes to assign respective water rights among producers.

The judgement defined classes of groundwater pumpers, two of which may include groundwater sources for this project—a Non-Pumper Class and a Small Pumper Class. It defined a multi-party Watermaster to oversee continuing implementation of the judgment and directed the appointment by the Watermaster of a water engineer, defining his duties. The Watermaster and a water engineer are in place and are enforcing and implementing the adjudication.

Because the project proponent was not an existing producer at the time of the adjudication judgement, the project proponent for the proposed project would be considered a non-pumper with no pumping rights under the judgement. To obtain approval to construct a well on the project site, the project proponent would be required to submit a New Production Application from the Watermaster and agree to purchase replacement water. The Watermaster would have discretion to approve or reject the application. Any use of groundwater in the basin, which includes multiple individual parcels, must be compliant with the adjudication judgement, and coordinated with the Watermaster as required. DWR identifies the Antelope Valley Groundwater Basin as a very low-priority groundwater basin (Rincon 2020). This designation indicates the basin is not currently critically overdrafted.

Harper Valley Groundwater Basin

The project site is located approximately 1.5 miles west of the boundary to the Harper Valley Groundwater Basin, a subbasin of the Mojave Groundwater Basin. This western portion of the Harper Valley Groundwater Basin is located in the Centro Hydrologic Subarea, a designated hydrologic subarea used for groundwater modeling and watershed management efforts. The proposed project's water demands may be met with groundwater pumped from an off-site well in the Harper Valley Groundwater Basin.

The Harper Valley Groundwater Basin spans approximately 640 square miles and extends across the western portion of San Bernardino County and eastern portion of Kern County, in the central Mojave Desert. This basin is bounded on the east by Fremont Peak, Black Mountain, the Gravel Hills, and the Mud Hills; on the west by a combination of surface drainage divides, portions of the Harper, Kramer Hills and Lockhart faults, and low-lying basement hills; on the south by Mount General, Iron Mountain, and the Waterman Hills, and by subsurface drainage patterns; and on the north by the Rand Mountains (Rincon 2020).

The Harper Valley Groundwater Basin is primarily recharged via rainfall infiltration and percolation of surface runoff through alluvial fans around the edges of Harper Valley. The basin also receives groundwater underflow from the Middle Mojave River Valley and Cuddeback Valley Groundwater Basins. Groundwater flows to the south toward Harper Lake. Total groundwater storage capacity in the basin is estimated to be approximately 6,975,000 acre-feet (Rincon 2020).

Hydrograph records for wells in the Harper Valley Groundwater Basin indicate that groundwater trends have varied across the basin since the 1950s. Hydrographs in the northwestern part of the basin suggest relatively stable water levels between 1974 and 1999. In the southern part of the basin, one well showed a groundwater surface elevation decline of approximately 12 feet between 1992 and 1998. Wells in the southeastern part of the basin showed both steady levels and declines from 1967 to 1993 (DWR 2004).

Groundwater production in the Centro Subarea increased significantly starting in the 1940s. Water level records suggest that water levels in the Centro Subarea in 1959 were relatively similar to groundwater levels in 2010. Groundwater flow patterns also remained consistent throughout that time period (Rincon 2020).

In 2019, the Mojave Basin Watermaster Annual Report for 2017-2018 noted that water levels in Centro have been stable in recent years, showing seasonal variability and declines during dry years but generally recovering during wet periods. The Mojave Water Agency (MWA) estimates that water demand within the Centro Subarea will increase from 20,100 AFY to 20,549 AFY between 2015 and 2040 (Rincon 2020).

Harper Valley Groundwater Basin Adjudication

The adjudication of the Mojave Basin Area was the legal process that established water production rights and obligations for the available natural water supply. In 1990, the City of Barstow and the Southern California Water Company filed a complaint against upstream water users, claiming that the cumulative increase in water consumption in the upper part of the Mojave Groundwater Basin reduced the natural flows to downstream users. The complaint requested that 30,000 acre-feet of water be made available to the City of Barstow annually and that the MWA obtain supplemental water for use in other service areas (Rincon 2020).

One year after the initial lawsuit, the MWA filed a cross-complaint asserting that the native water supply of the Mojave Groundwater Basin was inadequate to meet the agency's present and future demands. The cross-complaint requested that the court determine the water rights of all surface and groundwater users within the Mojave Basin Area (including the Lucerne and El Mirage Basins). This action included not only the water producers upstream of the City of Barstow, but also those downstream (Rincon 2020).

Due to the magnitude and complexity of the case, the involved parties agreed to conduct good faith negotiations to avoid the expense and length of litigation. After two years of negotiations, the participating parties reached a proposed settlement in the form of a stipulated judgment. This judgment offered a physical solution to the overdraft in the basin, and appointed the MWA as Watermaster of the Mojave Basin Area. The judgment also created a minimal class of producers (those using 10 AFY or less) and dismissed them from the litigation (Rincon 2020).

For the purposes of administration under the Mojave Basin Judgment, the MWA split the Mojave River watershed and associated groundwater basins into five separate subareas: Oeste, Este, Alto, Centro, and Baja. Producers in each subarea are allowed to produce as much water as needed to meet their individual requirements, subject only to compliance with the physical solution set forth in the Mojave Basin Judgment. An underlying assumption of the judgment is that sufficient water will be made available to meet the supply needs of the basin in the future (Mojave Basin Area Watermaster 2019). A "Minimal Producer" within the adjudicated Mojave Groundwater Basin is defined as any person or entity producing equal to or less than 10 AFY of water (by well, surface water diversion, or other means), who are also within the MWA boundaries; Minimal Producers are not required to be bound by the terms of the adjudication judgment for the Mojave Groundwater Basin (MWA 2016). DWR identifies the Harper Valley Groundwater Basin as a very low-priority groundwater basin (Rincon 2020). This designation indicates the basin is not currently critically overdrafted. In addition, based on coordination between the project applicant and the Watermaster, water transfers may be arranged to ensure compliance of the project with the Mojave Basin judgment (Rincon 2020).

Wastewater

The Kern Sanitation Authority provides maintenance and wastewater service for Kern County; however, the unincorporated parts of the Antelope Valley (including the project site) that do not have a sewer line connection utilize septic systems to treat household, commercial, and industrial wastewater. Septic system treatment first separates sludge from wastewater effluent in the septic tank, then allows liquid effluent to percolate in spreading grounds to be filtered by the soil. Septic tanks are emptied regularly by private County-certified waste haulers. Runoff wastewater from agricultural operations is allowed to infiltrate as agricultural return flows into the ground and does not require treatment.

Stormwater Drainage

The project site is currently undeveloped and has a relatively flat topography with slopes ranging from 0.78 to 4.7 percent. There are no existing stormwater drainage systems on-site. The project site naturally drains via sheet flow and via existing natural drainages. On Sites 1 and 2, drainage flows from southeast to northwest. On Sites 3 and 4, drainage flows from east to west. On Site 5, drainage flows from northeast to southwest. Stream flows typically pond in the dry lakes in Edwards Air Force Base, evaporating rather than infiltrating since the dry lakes are very impervious and have high evaporation rates.

Solid Waste

Solid waste generally refers to garbage, refuse, sludge, and other discarded solid materials that come from residential, industrial, and commercial activities. Construction, demolition, and inert wastes are also classified as solid waste. Such wastes include nonhazardous building materials such as asphalt, concrete, brick, drywall, fencing, metal, packing materials, pallets, pipe, and wood. The general waste classifications used for California waste management units, facilities, and disposal sites are outlined below. Nonhazardous solid waste consists of organic and nonorganic solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes, and other discarded waste, provided that such wastes do not contain hazardous materials or soluble pollutants in concentrations that would exceed applicable water quality objectives or cause a degradation of waters of the State.

California State law regulates the types of waste that can be disposed of at the different classes of landfills. Class I landfills may accept hazardous and nonhazardous wastes. Class II landfills may accept designated and nonhazardous wastes, and Class III landfills may accept nonhazardous wastes.

The Kern County Public Works Department operates seven landfills throughout the County. Landfills are located in Bakersfield, Boron, Mojave-Rosamond, Ridgecrest, Shafter-Wasco, Taft, and Tehachapi. The project site does not currently generate any solid waste. The closest operational landfill to the project site is the Boron Sanitary Landfill, located in between Sites 1 and 2. This Class III landfill accepts wastes from agricultural, construction and demolition, green materials, industrial, and mixed municipal (CalRecycle 2020a). The next closest landfill is the Mojave-Rosamond Recycling and Sanitary Landfill, which is also a Class III landfill, located approximately 23 miles west of the project site. The location of the landfills expected to serve the proposed project, their capacity, and their anticipated closure dates are presented in **Table 4.16-1**, *Summary of Kern County Public Works Department's Landfills*.

Kern County is responsible for meeting the California Integrated Waste Management Act of 1989 (AB 939). AB 939 required cities and counties to reduce the amount of solid waste being sent to landfills by 50 percent by January 1, 2000. It also required cities and counties to prepare solid waste planning documents. These documents include the Source Reduction and Recycling Element, the Household Hazardous Waste Element, and the Non-disposal Facility Element. All three of these documents, as well as the Integrated Waste Management Plan, approved February 1998 by the California Integrated Waste Management Board, have been approved for Kern County. The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

Construction and demolition (C&D) waste is a heavy, inert material. This material creates significant problems when disposed of in landfills. Because C&D waste is heavier than paper and plastic, it is more difficult for counties and cities to reduce the tonnage of disposed waste. For this reason, C&D waste has been specifically targeted by the State of California for diversion from the waste stream. Projects that generate C&D waste should emphasize deconstruction and diversion planning rather than demolition. Deconstruction is the planned, organized dismantling of a prior construction project, which allows maximum use of the deconstructed materials for recycling in other construction projects and sends a minimum amount of the deconstruction material to landfills.

The Kern County Public Works Department administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals:

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.;
- Drop-off recycling centers for household recyclables. The County- and the City-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents;
- Financial assistance for operation of the City of Bakersfield Green Waste Facility;
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents;
- Semi-annual "bulky waste" collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor);
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield);
- Community Clean Sweep summer workshops called "Trash to Treasure," which educate children about recycling and other Kern County Waste Management Department programs (sponsor);
- An innovative elementary school program called the "Clean Kids Hit the Road Puppet Show" (operates in collaboration with Community Clean Sweep); and
- Recycling trailers for churches, schools, and nonprofit organizations.

Table 4.16-1. Summary of Kern County Public Works Department's Landfills

Landfill	Distance from Project Site	Maximum Permitted Capacity (cubic yards)	Remaining Capacity (cubic yards)	Maximum Permitted Throughput (tons/day)	Anticipated Year of Closure
Boron Sanitary Landfill 11400 Boron Avenue Boron, CA 93516	< 1 mile	1,057,000	191,380	200	2048
Mojave-Rosamond Recycling and Sanitary Landfill 400 Silver Queen Road Mojave, CA 93501	23 miles (west)	78,000,000	76,310,297	3,000	2123
Source: CalRecycle 2020a, CalRecycle 2020b					

Electricity, Natural Gas, and Telecommunications

No electricity, natural gas, or telecommunication facilities are currently located on the project site. Southern California Edison (SCE) operates existing distribution level in the project area along with larger facilities, including the SCE's Holgate Substation generally north of the project site and Kramer Substation, east of the project site, within Edwards Airforce Base, either of which may serve as the project's point of interconnection. Telephone service in the project area is provided by AT&T. SoCalGas is the natural gas provider in this area of Kern County.

4.16.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

California Water Code 10912

Section 10912 of the Water Code requires a city or county that determines that a project, as defined, is subject to the CEQA to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment. The project is subject to CEQA and is considered a project requiring preparation of a water supply assessment because it is a proposed industrial facility occupying more than 40 acres of land.

Senate Bills 610 and 221

Passed in 2001, Senate Bill (SB) 610 and SB 221 are companion measures that seek to promote more collaborative planning among local water suppliers and cities and counties. They require that water supply assessment occur early in the land use planning process for all large-scale development projects. If groundwater is the proposed supply source, the required assessments must include detailed analyses of historic, current, and projected groundwater pumping and an evaluation of the sufficiency of the groundwater basin to sustain a new project's demands. They also require an identification of existing water entitlements, rights, and contracts and a quantification of the prior year's water deliveries. In addition, the supply and demand analysis must address water supplies during single and multiple dry years presented in five-year increments for a 20-year projection. In accordance with these measures, a water supply assessment was prepared for the proposed project as it is an industrial use of more than 40 acres.

California Department of Water Resources

The DWR is a department in the California Natural Resources Agency responsible for managing California's water resources, systems, and infrastructure, including the SWP, in a responsible, sustainable manner. Its duties include preventing and responding to floods, droughts, and catastrophic events; informing and educating the public on water issues; developing scientific solutions; restoring habitats; planning for future water needs, climate change impacts, and flood protection; constructing and maintaining facilities; generating power; ensuring public safety; and providing recreational opportunities.

California Water Code Section 13260

California Water Code Section 13260 requires any person who discharges waste, other than into a community sewer system, or proposes to discharge waste that could affect the quality of waters of the State to submit a report of waste discharge to the applicable Regional Water Quality Control Board (RWQCB). Any actions of the projects that would be applicable under California Water Code Section 13260 would be reported to the Lahontan Region RWQCB. However, the proposed project is not expected to discharge waste into the local sewer system, and therefore is not required to prepare and submit the described report.

State Water Resources Control Board

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine RWQCBs. The SWRCB sets Statewide policy for the implementation of State and federal laws and regulations. These include the National Pollutant Discharge Elimination System (NPDES) permit program, established per 1972 amendments to the federal Water Pollution Control Act, or Clean Water Act (CWA), for the purpose of controlling discharges of pollutants from point sources (Section 402) into waters of the United States. Amendments to the CWA created a new section to the act, which is devoted to stormwater permitting (Section 402[p]), with individual states designated for administration and enforcement of the provisions of the CWA and the NPDES permit program. The SWRCB issues both general construction permits and individual permits under this program.

Lahontan Regional Water Quality Control Board

As stated above, the primary responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB sets Statewide policy for the implementation of State and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans, which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The project site is within the jurisdiction of the Lahontan Region, which extends from the Oregon border to the Northern Mojave Desert and includes all of California east of the Sierra Nevada crest.

California Solid Waste Reuse and Recycling Access Act of 1991 or Senate Bill 1327

The California Solid Waste Reuse and Recycling Access Act of 1991 (Public Resources Code [PRC] Chapter 18) identified a lack of adequate areas for collecting and loading recyclable materials, resulting in a significant impediment to diverting solid waste. This act requires State and local agencies to address access to solid waste for source reduction, recycling, and composting activities. Each local agency must adopt an ordinance related to adequate areas for collecting and loading recyclable materials for development projects.

Assembly Bill 341

Since the passage of AB 939, diversion rates in California have been reduced to approximately 65 percent, the Statewide recycling rate is approximately 50 percent, and the beverage container recycling rate is approximately 80 percent. In 2011, the State passed AB 341, which established a policy goal that a minimum of 75 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State provided the following strategies to achieve that 75 percent goal:

- Moving organics out of the landfill;
- Expanding the recycling/manufacturing infrastructure;
- Exploring new approaches for State and local funding of sustainable waste management programs;
- Promoting State procurement of post-consumer recycled content products; and

- Promoting extended producer responsibility.

To achieve these strategies, the State recommended legislative and regulatory changes including mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard to construction and demolition, the State recommended an expansion of California Green Building Code standards that incentivizes green building practices and increases diversion of recoverable construction and demolition materials. Current standards require 50 percent waste diversion on construction and some renovation projects, although this may be raised to 65 percent for nonresidential construction in upcoming changes to the standards. The State also recommends promotion of the recovery of construction and demolition materials suitable for reuse, compost or anaerobic digestion before residual wastes are considered for energy recovery.

California Integrated Solid Waste Management Act

Pursuant to the California Integrated Solid Waste Management Act of 1989 (PRC 40050 et seq.) or AB 939, all cities in California are required to reduce the amount of solid waste disposed in landfills. AB 939 required a reduction of 25 percent by 1995 and 50 percent by 2000. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source-reduction, reuse, and recycling programs.

As described above, C&D waste is heavy, inert material that creates significant problems when disposed of in landfills. Because C&D waste is heavier than paper and plastic, it is more difficult for counties and cities to reduce the tonnage of disposed waste. For this reason, C&D waste has been specifically targeted by the State of California for diversion from the waste stream. Projects that generate C&D waste should emphasize deconstruction and diversion planning rather than demolition. Deconstruction is the planned, organized dismantling of a prior construction project, which allows maximum use of the deconstructed materials for recycling in other construction projects and sends a minimum amount of the deconstruction material to landfills.

Waste should be diverted from disposal in landfills (particularly Class III landfills) and maximize source reduction, reuse, and recycling of construction and demolition debris. AB 939 also required cities and counties to prepare solid waste planning documents (e.g., the Source Reduction and Recycling Element, the Household Hazardous Waste Element, and the Non-disposal Facility Element). All three of these documents, as well as the Integrated Waste Management Plan, approved February 1998 by the California Integrated Waste Management Board (now California Department of Resources Recycling and Recovery or CalRecycle), have been approved for Kern County. The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

California Department of Resources Recycling and Recovery

The California Department of Resources Recycling and Recovery (CalRecycle) is the State agency designated to oversee, manage, and track California's 76 million tons of waste generated each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. CalRecycle develops laws and regulations to control and manage waste, for which enforcement authority is typically delegated to the local government. The CalRecycle board works jointly with local government to implement regulations and fund programs.

The Integrated Waste Management Act of 1989 (PRC 40050 et seq. or AB 939, codified in PRC 40000), administered by CalRecycle, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25 percent by the year 1995 and 50 percent by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

California Green Building Code

As part of compliance with the State of California Green Building Code Requirements (known as CALGreen) that took effect beginning January 2011, Kern County implemented the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan prior to project construction for approval by the Kern County Building Department;
- Recycling and/or reuse of a minimum 50 percent of construction & demolition waste; and
- Recycling or reuse of 100 percent of tree stumps, rocks and associated vegetation and soils resulting from land clearing (County of Kern 2017).

California Energy Commission

The California Energy Commission is the State's primary energy policy and planning agency and regulates the provision of natural gas and electricity within California. Created in 1974, the commission has five major responsibilities: forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 MW or larger; promoting energy efficiency through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing State responses to energy emergencies.

California Public Utilities Commission

The California Public Utilities Commission regulates privately owned electric, natural gas, telecommunications, water, sewer, railroad, rail transit, and passenger transportation companies. In 1911, the utilities commission was established by Constitutional Amendment as the Railroad Commission. In 1912, the legislature passed the Public Utilities Act, expanding the commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies. In 1946, the commission was renamed the California Public Utilities Commission. It is tasked with ensuring that safe, reliable utility service is available to consumers, setting retail energy rates, and protecting customers against fraud.

Local

Antelope Valley Integrated Regional Water Management Plan

The Antelope Valley Integrated Regional Water Management Plan (IVIRWMP) is a joint water planning effort aimed at ensuring water supply reliability for the Antelope Valley Region, undertaken by agencies which joined to form a Regional Water Management Group, including the following: AVEK Water Agency, Antelope Valley State Water Contractors Association, City of Lancaster, City of Palmdale, Littlerock Creek Irrigation District, Los Angeles County Sanitation District Nos. 14 and 20, Los Angeles County Waterworks District No. 40, Palmdale Water District, Quartz Hill Water District, and Rosamond Community Services District.

These agencies agreed to contribute funds to help develop the AVIRWM Plan, provide and share information, review and comment on drafts, adopt the final AVIRWM Plan, and assist in future grant applications for the priority projects identified in the Plan. In January 2007, the RWMG have collectively defined a water resource management plan in the AVIRWMP, which describes a course of action to meet the expected demands for water within the entire Antelope Valley Region through 2035. In 2012, the RWMG developed an update to the AVIRWM Plan to incorporate changes to the Region's water resources that occurred since 2007. The AVIRWM Plan was revisited in 2017 and updated once again in two phases. The first phase revised the Plan to comply with the 2016 AVIRWM Grant Program Guidelines and the second phase (the 2019 AVIRWM Plan Update) conducted an extensive update of the AVIRWM Plan so that the Plan is reflective of the current conditions of the Region. The 2019 AVIRWM Plan Update extended the planning horizon through 2040. (Antelope Valley IRWMP, 2019).

The primary goals of the Antelope Valley IRWMP are to address the following:

- How to reliably provide the quantity and quality of water that will be demanded by a growing population;
- Options to satisfy agricultural users' demand for reliable supplies of reasonable cost irrigation water; and
- Opportunities to protect, enhance, and manage current water resources and the environmental resources for human and natural benefit within the Antelope Valley Region (Antelope Valley IRWMP, 2019).

Antelope Valley-East Kern Water Agency Urban Water Management Plan

The AVEK Water Agency adopted an updated UWMP in 2016. AVEK delivers California SWP water used by customers in lieu of or in addition to local groundwater resources. AVEK constructed potable groundwater wells in 2015. Delivery of SWP can be unreliable and is dependent upon multiple factors such as climatic variations and other users of SWP water; therefore, to ensure water supply reliability, AVEK has established use of supply enhancement programs such as groundwater banking in the Antelope Valley Groundwater Basin and conjunctive water use (AVEK 2016).

Antelope Valley Watermaster

In accordance with the 2015 adjudication of the Antelope Valley Groundwater Basin establishing a safe yield and decreased respective water rights among groundwater producers, the Antelope Valley Watermaster Board and Advisory Committee were formed in 2016. The Watermaster is responsible for groundwater management within the Antelope Valley, including approving new production wells, collecting and reviewing groundwater production reporting forms, and producing annual reports summarizing overall groundwater production and replenishment in the basin.

Kern County Integrated Waste Management Plan

The Kern County Public Works Department is required by the State to plan and implement waste management activities and programs in the County's unincorporated area to ensure compliance with AB 939 and subsequent State mandates. The Kern County Integrated Waste Management Plan includes a Reduction and Recycling Element, Household Hazardous Waste Element, and Non-Disposal Facility Element. The plan was approved February 1998 by the California Integrated Waste Management Board (now CalRecycle) and is the long-range planning document for landfill facilities.

Kern County Public Works Department, Operations & Maintenance Division Recycling Programs

The Kern County Public Works Department, Operations & Maintenance Division administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals to achieve 75 percent recycling, composting, or source reduction of solid waste by 2020:

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.;
- Drop-off recycling centers for household recyclables. The County- and the City-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents;
- Financial assistance for operation of the City of Bakersfield Green Waste Facility;
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents;
- Semi-annual "bulky waste" collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor);
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield);
- Telephone book recycling program (co-sponsors with Community Clean Sweep);
- Community Clean Sweep summer workshops called "Trash to Treasure," which educate children about recycling and other Kern County Waste Management Department programs (sponsor);
- An innovative elementary school program called the "Clean Kids Hit the Road Puppet Show" (operates in collaboration with Community Clean Sweep); and

- Recycling trailers for churches, schools, and nonprofit organizations.

Kern County Construction Waste Diversion Requirements per the California Green Building Code

As part of compliance with the State of California Green Building Code Requirements (known as CALGreen) that took effect beginning January 2011, Kern County implemented the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan prior to project construction for approval by the Kern County Building Department;
- Recycling and/or reuse of a minimum 65 percent of construction & demolition waste; and
- Recycling or reuse of 100 percent of tree stumps, rocks and associated vegetation and soils resulting from land clearing (Kern County, 2018).

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for utilities and service systems applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.4 Public Facilities and Services

Goals

Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.

Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Goal 9: Serve the needs of industry and Kern County residents in a way that does not degrade the water supply and the environment and protect public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.

Policies

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

1.9 Resources

Goals

Goal 3: Ensure the development of resource areas minimize effects on neighboring resource lands.

Goal 4: Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.

Policy 16: The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.

Policy 19: Work with other agencies to define regulatory responsibility concerning energy related issues.

1.10 General Provisions

1.10.1 General Provisions, Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations, administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterizes the quality of the upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that the upper most groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would id the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment and disposal facilities.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4: The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Implementation Measure

Measure B: The County should work with affected State and federal agencies and interest groups to establish consistent policies for solar energy development.

4.16.4 Impacts and Mitigation Measures

Methodology

Potential impacts to the water supply and drainage facilities associated with construction and operation of the proposed project were evaluated qualitatively and quantitatively using the *Aratina Solar Hydrology Report* (Woodard & Curran 2020) and the *Aratina Solar Project Water Supply Assessment* (Rincon 2020) located in Appendix J and Appendix M, respectively, of this EIR. In addition, current data obtained from the Kern County and State of California about the capacity of landfills was used to identify potential solid waste impacts. The evaluation of impacts is based on professional judgment, analysis of the County's land use policies, and significance criteria established in Appendix G of the *CEQA Guidelines*, which the County has determined appropriate for the EIR.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant impact with respect to utilities and service systems:

A project would have a significant adverse effect on utilities and service systems if it would:

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 which serves or may serve the project that it has inadequate 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; or

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in Appendix A of this EIR, that the proposed project would not result in significant impacts to one of these environmental issue areas and that no further analysis would be needed in the EIR; these issue areas are thus scoped out of this EIR. It was determined that the project would not:

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

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. The proposed project would include construction of an on-site septic system to serve each of the O&M facilities. All wastewater

disposal for project operations would be handled on-site. 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.

Project Impacts

Impact 4.16-1: The project would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects.

Solar Facility and Gen-Tie

Construction

Water

The proposed project would require an estimated 410 acre-feet of water during construction for dust suppression, concrete manufacturing, truck wheel washing, equipment washing, and fire safety. Water required during construction would be supplied via one or more of the following sources: an on-site or off-site groundwater well pumping water from the Antelope Valley Groundwater Basin and/or a local retailer sourced by AVEK. Potable water would be brought to the site via water trucks for drinking and domestic needs for construction workers. Therefore, project construction would not require or result in the relocation or construction of new or expanded water facilities. Impacts would be less than significant.

Wastewater

Construction of the project would generate a minimal volume of wastewater. During construction, wastewater would be contained within portable toilet facilities and disposed of at an approved disposal site. The Kern County Public Health Services Department/Environmental Health Services Division is responsible for monitoring the use of portable toilet facilities, and if required the project proponent would provide documentation of a portable toilet pumping contract. A standard on-site septic tank and leach field may be used at the O&M building(s) to dispose sanitary wastewater, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. No off-site sewage or disposal connections to a municipal sewer system exist or are proposed and, thus, impacts during construction would be less than significant.

Stormwater Drainage

The project area is presently drained by natural drainage channels and sheet flow and does not rely on constructed stormwater drainage. The existing project area pattern and runoff characteristics could potentially be altered by project activities during earth disturbance work during construction and decommissioning, such as grading, excavation, and equipment installation work during construction. As required in Mitigation Measure MM 4.10-1, a Stormwater Pollution Prevention Plan (SWPPP) would be implemented during construction, which would include best management practices to manage stormwater drainage and runoff from the site. Further evaluation of the stormwater drainage of the site can be found in Section 4.10, *Hydrology and Water Quality*, of this EIR.

In compliance with NPDES General Construction Permit requirements, the proposed project would design and submit a site-specific Storm Water Pollution Prevention Plan to minimize the discharge of wastewater during construction and a Water Quality Management Plan that include best management practices for runoff control.

Therefore, the project would not affect existing stormwater drainage systems during construction and relocation or expansion of existing stormwater drainage facilities would not be required. A storm drainage plan for the developed site will be prepared prior to issuance of building permits that would identify locations and physical characteristics of any permanent stormwater control facilities. Such facilities could have impacts due to ground disturbance affecting biological or cultural resources, as well as water quality. Refer to those sections of this EIR for discussion of potential impacts that could result from the project's permanent improvements, including stormwater control facilities.

Electric Power

Two transmission lines parallel the north-south collector line between Site 4 and the gen-tie line to the Holgate substation. These include SCE's Edwards – Holgate – Southbase 115 kV line and the Kramer – Holgate 115 kV line. The Kramer to Holgate line and its associated right-of way road also traverses east-west through Sites 1, 2, and 3. A smaller SCE distribution line (Paxton 4 kV) is located along Boron Avenue along a portion of Site 1.

The project site consists largely of undeveloped lands comprising privately owned parcels and numerous dirt roads typically associated with utility corridors. Electricity for construction would be provided by SCE and a hookup would be installed on the project site (and this hookup could also provide on-site electricity for the operational phase of the project). Because construction of the project would not displace existing electrical facilities, and would tie into existing off-site facilities, relocation of electrical facilities would not be required. During construction, installation of the new electrical infrastructure would create a temporary environmental disturbance; however, since the electrical power lines would be placed underground for the duration of operation and maintenance, there would be less than significant impacts.

Natural Gas

Multiple gas pipelines and their associated right-of-way roads pass through the project area. The Mojave Gas pipeline and a Pacific Gas and Electric pipeline parallel one another east-west through the southern portion of Site 4 just north of Twenty Mule Team Road. The Mojave Gas pipeline also passes through Sites 1, 2 and 3. Within Sites 1 and 2, the Mojave Gas pipeline parallels another gas pipeline along the same utility corridor. Within Site 3 these pipelines diverge with the Mojave Gas pipeline turning to the north while the other pipeline continues traversing generally in an east-west direction. Natural gas would not be required for project construction. Therefore, relocation or construction of new or expanded natural gas facilities would not be required and impacts would be less than significant

Telecommunications

No existing telecommunication facilities are located on-site. During construction, cellular or satellite communication technology may be used for both internet and telephone systems, which would not require construction of new telecommunication facilities.

The project would require telecommunications facilities to meet the communication requirements for interconnecting with the SCE station and to support project operations during monitoring. Fiber optic

communication lines would follow the electrical collector system. The communication lines will link each solar inverter module to the O&M building(s), which would house the supervisory control and data acquisition (SCADA) system. Hard-wired (landline) systems for operational use will be installed during completion of electrical construction activities. Since the fiber optic communication lines would follow the electrical collector system and land line systems would also follow the electrical collector system, relocation of telecommunication facilities would not be required. The construction of new telecommunication facilities would occur within the same overall footprint as the solar array facilities and, thus, construction of such facilities would not result in additional environmental impacts not already addressed in this EIR. Therefore, impacts would be less than significant.

Operation

Water

Water demand for panel washing, fire suppression, and O&M domestic use (sinks, lavatories, landscape irrigation, drinking) is expected to total approximately 60 acre-feet per year. Water for operations would be supplied from one or more of the following sources: an on-site or off-site groundwater well in the Antelope Valley Groundwater Basin, purchased from a local water utility (the Boron CSD or the Desert Lake CSD) and delivered via truck to the site, or pumped from an off-site groundwater well in the Harper Valley Groundwater Basin. Therefore, project operations would not require or result in the relocation or construction of new or expanded water facilities. In this context, impacts would be less than significant.

Wastewater

As a part of the proposed project, a standard on-site septic tank and leach field would be used at the O&M building(s) to dispose sanitary wastewater, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. Therefore, the proposed project would not affect existing wastewater treatment facilities. No impacts would be expected.

Stormwater Drainage

As previously discussed, there are no constructed stormwater drainage systems present on-site. The existing pattern and concentration of runoff could potentially be altered by the proposed facility development, including equipment, structural enclosures and foundation installation, and other impervious features. As discussed in Section 4.10, *Hydrology and Water Quality,* of this Draft EIR, Mitigation Measure MM 4.10-1 would be implemented as part of the proposed project, which requires preparation of a final hydrologic study and drainage plan to detail engineering design measures to manage stormwater flows and reduce potential increases in stormwater runoff. Potential increase in runoff would be addressed with the construction of detention basins, retention basins, erosion control, or other drainage facilities in accordance with the guidelines from the Kern County Development Standards Division 4 Standards for Drainage, including Chapter III, Retention Basin Design. The design features would be developed on-site along with the rest of the project construction and infiltration would occur similar to existing conditions. No off-site connections to municipal stormwater facilities exist or are proposed; thus, impacts would be less than significant.

Electric Power

Project operation would generate 530 MW of renewable electrical energy for distribution on the Statewide utility grid. The existing grid infrastructure has adequate capacity to accept the additional 530 MW that would be generated by the project without modifications. The project would require minimal electric power for operation and maintenance, which would be provided by the on-site PV solar system or via the SCE hook-up created during construction. Therefore, relocation or construction of new or expanded electrical facilities would not be required during operation and impacts would be less than significant.

Natural Gas

No natural gas facilities would be required for operation of the project. The project includes a solar array, battery storage, and O&M facilities that would not require heating from natural gas during operation. Therefore, operation of the project would not require the relocation or construction of new or expanded natural gas facilities and no impact would occur.

Telecommunications

The project would require telecommunications facilities to meet the communication requirements for interconnecting with the SCE station and to support project operations during monitoring. During operation, the SCADA system would allow individual solar inverter modules and other project elements to be monitored and controlled in the O&M building(s) from remote locations. Additional fiber optic lines required for the operational phase of the project would be located in proximity to the other telecommunication facilities and would not result in additional demand such that the construction of off-site facilities would be required. Therefore, impacts would be less than significant.

Gen-Tie

Neither construction nor operation of the gen-tie infrastructure would require or introduce large amounts of water to the site. The construction and operation of the aboveground gen-tie infrastructure would require minimal ground disturbance and would not impact water flow across the site, thereby not requiring the construction of new or expansion of existing stormwater facilities. In the event that portions of the gen-tie are installed underground, the facilities would be constructed to maintain existing surface elevations and would not impact existing surface water flow patterns. No new water or wastewater treatment facilities would be required for the gen-tie. Impacts would be less than significant.

The gen-tie would have a negligible impact on impervious area and runoff as the poles and associated concrete foundations would be widely spaced. The project would leave large areas of pervious surfaces that would absorb stormwater runoff. In the case of underground portions of the gen-tie, the underground line may require construction of maintenance access points along the route; however, these facilities are expected to be few and interspersed along the route and would not contribute substantial impervious surfaces. The gen-tie would not require the construction of storm water drainage infrastructure. The project is not expected to exceed the capacity of existing storm water drainage systems in the area, and relocation or construction of new or expanded stormwater drainage facilities off-site would not be required. Therefore, impacts would be less than significant and no mitigation would be required for the gen-tie portion of the project.

Natural gas would not be required for construction or operation of the gen-tie. Therefore, relocation or construction of new or expanded natural gas facilities would not be required and impacts would be less than significant.

As previously described, the project would require telecommunications facilities to meet the communication requirements to support project operations during monitoring. During operation, the SCADA system would allow individual solar inverter modules and other project elements to be monitored and controlled in the O&M building(s) from remote locations. Additional fiber optic lines required for the operational phase of the project would be located in proximity to the other telecommunication facilities and would not result in additional demand such that the construction of off-site facilities would be required. Therefore, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2 (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).

Level of Significance after Mitigation

With the implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, impacts would be less than significant.

Impact 4.16-2: The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

Solar Facility

Water requirements for the project during construction and operation were determined in the *Water Supply Assessment* prepared for the project (see Appendix M of this EIR). During the construction period of approximately 18 months, the proposed project would use up to approximately 410 acre-feet of water for construction activities. Operational water demands, which include water used for fire suppression, solar PV panel washing, and operation of the proposed O&M building(s) on each site, would not total approximately 60 AFY. The proposed project's amortized annual water demand is estimated to be approximately 73 AFY. The water required during decommissioning has not been estimated but would be similar to construction and mainly required for dust suppression. Non-potable water required during construction, operation, and decommissioning would be provided from one or more of the following sources: an on-site of off-site groundwater well pumping water from the Antelope Valley Groundwater Basin, purchased from a local retailer (the Boron CSD or the Desert Lake CSD) and delivered to the site via truck, or pumped from an off-site groundwater well pumping water from the Harper Valley Groundwater Basin.

In normal and single-dry years, AVEK has sufficient water supplies to meet its current projected demands, including projected demands from Boron CSD and Desert Lake CSD. Under multiple-dry year scenarios, AVEK's projections indicate water supply shortages due to curtailed SWP deliveries. It is anticipated that the difference will be made up by increased groundwater pumping of banked supplies and/or reductions in demand by the retail agencies. If the proposed project acquires its water from Boron CSD or Desert Lake CSD, these SWP-sourced supplies may be curtailed in multiple-dry year scenarios.

The project may also acquire water from an on- or off-site groundwater well from the Antelope Valley Groundwater Basin or Harper Valley Groundwater Basin. The groundwater adjudication judgments ensure the sustainability and long-term reliability of water supplies in the Antelope Valley Groundwater Basin and the Harper Valley Groundwater Basin. Any groundwater produced from those basins would be subject to the physical limitations imposed by the adjudication judgments, at the discretion of the respective court-appointed Watermaster. As such, the proposed project would not adversely affect groundwater supply availability under varying climatic conditions, including normal year, single-dry year, and multiple-dry year scenarios. If drilling and installing an on-site groundwater well or wells is necessary to obtain non-potable water, the project proponent/operator would be required to complete the necessary application required by the respective court-appointed Watermaster and await Watermaster approval prior to installing any wells. Throughout the operation of any new wells, all required monitoring and reporting forms would be submitted to the Watermaster for review. Based on the low project water needs and the availability of multiple sources of potential water sources, it is reasonably expected that sufficient water supplies are available for the proposed project. By obtaining water either from an existing well with existing water rights or through a Watermaster-approved new groundwater well or wells, impacts related to water supply would be less than significant.

Gen-Tie

The construction water demand associated with the proposed gen-tie is incorporated directly into the overall construction water demand of the proposed project. Compared to the solar facility, the gen-tie would have a shorter construction period, requiring less equipment, materials, and water. Operation of the gen-tie would neither require full-time personnel nor cleaning and would therefore not require water. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.16-3: The project would 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.

The minimal amount of solid waste generated at the project site would most likely be disposed of by a permitted hauler at the Boron Sanitary Landfill (located in between Sites 1 and 2) or Mojave-Rosamond Recycling and Sanitary Landfill (approximately 23 miles west). As of 2020, approximately 191,380 cubic yards (18.1 percent of the total 1,057,000 cubic yards capacity) remained at the Boron Sanitary Landfill and 76,310,297 cubic yards (97.8 percent of the total 78,000,000 cubic yards capacity) remained at the Mojave-Rosamond Sanitary Landfill. The permitted maximum daily disposal is 200 tons per day at the Boron Sanitary Landfill and 3,000 tons per day at the Mojave-Rosamond Recycling and Sanitary Landfill (see **Table 4.16-1**, *Summary of Kern County Public Works Department's Landfills*). The construction period for the proposed is expected to commence as early as fourth quarter of 2021 and would extend for approximately 18 months.

Construction

It is anticipated the project would not generate substantial amounts of non-recyclable waste during construction. The project site is currently undeveloped and, therefore, there would be no demolition or removal of large debris. Materials brought to the project site would be used to construct facilities, and few residual materials are expected. Solar modules would be delivered to the site via shipping containers packaged via use of wood and cardboard materials. The shipping container materials for module deliveries would be recycled and are not anticipated to generate non-recyclable waste. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. Any hazardous waste generated during construction would be disposed of at an approved facility.

Non-hazardous construction refuse and solid waste would either be collected and recycled, or disposed of at a local landfill. The Boron Sanitary Landfill (located between Sites 1 and 2) is the closest landfill to the project site and, therefore, would be the most likely recipient of project site solid waste. The Boron Sanitary Landfill has a remaining capacity of 191,380 cubic yards with an anticipated closure year of 2048 (CalRecycle, 2020a). The Boron Sanitary Landfill is a Class III landfill and, therefore, accept wastes from construction and demolition as well as industrial sources, but does not accept hazardous waste, hot ashes, and liquids of any kind. In addition, with the implementation of Mitigation Measure MM 4.16-1, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste during construction. Therefore, construction impacts of the project on existing landfills are anticipated to be less than significant.

Operation

The project site would produce small amounts of waste associated with O&M activities. Solar PV system waste typically includes broken and rusted metal, defective or malfunctioning modules, electrical materials, and empty containers and other miscellaneous solid materials. Most of these materials would be collected and delivered back to the manufacturer for recycling. Small amounts of typical household/office refuse would be generated by workers during maintenance visits. The operation of the new gen-tie line connection would not require full-time personnel or cleaning and would therefore not generate solid waste during operation.

As described above, the existing landfills have adequate capacity, and the recycling of decommissioned materials would further reduce the waste stream. Post-construction operational solid wastes would most likely be disposed of at the Boron Sanitary Landfill or the Mojave-Rosamond Sanitary Landfill, which are permitted to operate through 2048 and 2123, respectively. Therefore, operational solid waste could be disposed of at these landfills during the operational lifespan of the project (approximately 35 years). In addition, with the implementation of Mitigation Measure MM 4.16-1, as discussed below, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste generated during project operation, thereby further reducing solid waste generated during operation. Therefore, impacts related to landfill capacity would be less than significant with the implementation of Mitigation Measure MM 4.16-1.

Decommissioning

Solar PV panels have a lifespan of over 30 years, after which the land could be converted to other uses in accordance with applicable land use regulations in effect at that time. Solar PV panels contain valuable

materials that would likely be recycled at the end of their useful life. Solar panel manufacturers have identified that approximately ninety percent of materials in solar panel modules can be recycled, where feasible. In the case of both crystalline silicon and thin film CdTe PV technology, a national PV module recycling network has been established by the U.S. Solar Energy Industry Association (SEIA) for providing module collection and recycling services (see https://www.seia.org/initiatives/seia-national-pv-recycling-program). Decommissioning of the collection lines would not generate substantial amounts of solid waste. As stated above, the Boron Sanitary Landfill and the Mojave-Rosamond Recycling and Sanitary Landfill are expected to be in operation through 2048 and 2123, respectively, and are anticipated to serve as possible solid waste disposal locations during project decommissioning. Per Mitigation Measure MM 4.16-1, a collection and recycling program would be implemented during decommissioning to recycle project components and minimize disposal of project components in landfills. Following decommissioning, the project site would be returned to predevelopment conditions or converted to other uses in accordance with applicable land use regulations in effect at the time, and would not generate waste. Therefore, impacts related to landfill capacity would be less than significant during decommissioning with the implementation of Mitigation Measure MM 4.16-1.

Mitigation Measures

MM 4.16-1 During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible. The provisions listed below shall apply to the project.

a. An onsite Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance and Decommissioning, Trash Abatement and Pest Management Program.

b. The Recycling Coordinator shall facilitate recycling of all construction waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes.

c. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal

d. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits.

e. The project proponent/operator shall provide a storage area for recyclable materials within the fenced project area that is clearly identified for recycling. This area shall be maintained on the site during construction, operations and decommissioning. A site plan showing the recycling storage area shall be submitted prior to the issuance of any grading or building permit for the site.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.16-1, impacts would be less than significant.

Impact 4.16-4: The project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Solar Facility

The project would generate solid waste during construction, operation, and decommissioning. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. AB 341 requires Kern County to attain a waste diversion goals of 75 percent by 2020 through reduction, recycling, or composting. In addition, as part of compliance with CALGreen requirements, Kern County implements the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan
- Recycle and/or reuse a minimum 50 percent C&D waste
- Recycle or reuse 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing.

Furthermore, 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 project design. Implementation of Mitigation Measure MM 4.16-1 would ensure compliance with waste diversion and recycling requirements by requiring recycling during construction, operation, and decommissioning of the project. The proposed project would be required to comply with all federal, State, and local statutes and regulations related to the handling and disposal of solid waste. Therefore, implementation of the project would result in less than significant impacts regarding compliance with management and reduction statutes and regulations related to solid waste.

Gen-Tie

Similar to the solar facility, the proposed gen-tie would be required to comply with all federal, State, and local statutes and regulations related to the handling and disposal of solid waste. Therefore, the proposed gen-tie would result in less than significant impacts regarding compliance with management and reduction statutes and regulations related to solid waste.

Construction of the gen-tie is expected to generate minimal amounts of waste. Non-hazardous construction waste would be recycled or disposed of at a local landfill; any hazardous waste generated would be disposed of at an approved location. Operation of the gen-tie would not require full-time personnel or cleaning and would therefore not generate solid waste during operation. During decommissioning, a collection and recycling program would be implemented to recycle 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, in accordance with all applicable federal, State, and local regulations.

Similar to the solar facility, the proposed gen-tie would be required to comply with all federal, State, and local statutes and regulations related to the handling and disposal of solid waste. Therefore, the gen-tie would result in less than significant impacts regarding compliance with management and reduction statutes and regulations related to solid waste.

Mitigation Measures

Implement Mitigation Measure MM 4.16-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.16-1, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Solar Facility

The geographic scope for cumulative analysis of impacts on water supply and wastewater are the related projects that would impact the Antelope Valley Groundwater Basin. The geographic scope of analysis for stormwater drainage, solid waste disposal, electricity, natural gas, and telecommunications includes the projects that would be relying on the same facilities and infrastructure. Impacts of the proposed project would be cumulatively considerable if the incremental effects of the proposed project when combined with other past, present, or reasonably foreseeable projects (see **Table 3-3**, *Cumulative Projects List*, in Chapter 3, *Project Description*) would result in a significant cumulative effect. Physical impacts to public services, utilities, and service systems are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. There is little to no growth associated with the proposed project and nearby other solar and wind energy projects, thereby limiting the potential to contribute to demand for a particular service.

As described above, the proposed project would place few demands on water, wastewater, stormwater drainage, solid waste disposal (during construction and operation), electricity, natural gas, and telecommunications.

Water

Several utility-scale renewable energy projects are proposed in the Antelope Valley that would impact the existing water supply, which is derived almost entirely from the Antelope Valley Groundwater Basin. The water-intensive use period for renewable energy projects is typically the construction phase. Given the limited water supply in the area, other projects are expected to either rely on new or existing wells (similar to the project) or truck in their water supply. In response to the recent adjudication of the Antelope Valley Groundwater Basin, all projects relying on water from the basin would be required to obtain water from water purveyors that have existing water rights within the basin, or would be required to apply for new water rights from the Antelope Valley Watermaster. New water rights may or may not be granted. Any projects that cannot secure a water supply would not move forward to construction or operation. Therefore, cumulative impacts related to water supply and facilities would be less than significant.

Wastewater

The project is located in an area with no wastewater treatment provider and is not expected to generate a significant amount of wastewater. Wastewater produced during construction would be collected in portable toilet facilities and disposed of at an approved facility. A standard on-site septic tank and leach field may be used at the O&M building(s) to dispose sanitary wastewater, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. No off-site

sewage or disposal connections to a municipal sewer system are proposed. Well water used on-site is not anticipated to require treatment for construction and operational uses. Therefore, the proposed project would not contribute to a cumulative impact on any municipal wastewater treatment facilities.

Stormwater Drainage

The project area is presently drained by natural drainage channels and sheet flow and does not rely on constructed stormwater drainage. The existing pattern and concentration of runoff could potentially be altered by project activities, such as the grading of access roads. However, the amount of runoff across the project site would not be substantially altered, such that new stormwater drainage facilities are needed. In accordance with Mitigation Measures MM 4.10-1 and MM 4.10-2, the proposed project would implement a SWPPP during construction and a drainage plan that would incorporate measures to offset increases in stormwater flows caused by the project. Other projects in the vicinity would be required to offset substantial increases in stormwater as well per County requirements.

Surrounding projects would also be required to prepare a drainage plan that would help avoid substantial increases of stormwater generated on-site by their respective ground disturbance. Depending on the findings of their respective drainage plans, these projects may need to construct stormwater control structures on-site to reduce the potential for increased stormwater runoff. Therefore, the project would not substantially contribute to a cumulatively impact on stormwater drainage facilities.

Electric Power

The proposed project would include construction of a gen-tie that would tie into existing facilities and provide 530 MW of renewable electrical energy to the Statewide utility grid. Electricity demand of the project would be minimal and would be provided by the on-site solar PV system or via a connection to an existing SCE source in the vicinity. This project in combination with other cumulative solar projects in East Kern County would provide a significant increase in renewable electrical energy sources that could be utilized on the Statewide electricity grid and therefore provide a beneficial cumulative impact on electrical demand and facilities.

Natural Gas

The proposed project would not require natural gas for construction and operation. Therefore, the project would not contribute to a cumulatively considerable impact related to natural gas demand and facilities.

Telecommunications

The proposed project in combination with cumulative projects would increase demand on telecommunication facilities. However, demand associated with energy projects and other cumulative development would be minimal and is expected to be within the planning forecasts of the affected telecommunications provider. Therefore, cumulative impacts related to telecommunications facilities would be less than significant.

Solid Waste

The proposed project would generate a minimal amount of waste and is not expected to significantly impact Kern County landfills. Although the Boron Sanitary Landfill is expected to cease operation in 2048, the Mojave-Rosamond Landfill is expected to operate until 2123. However, generation of waste from

cumulative projects, including other solar and wind projects, could result in a cumulative impact. To ensure that the proposed project reduces the amount of waste sent to landfills, implementation of Mitigation Measure MM 4.16-1 requires that debris and waste generated shall be recycled to the extent feasible, and an on-site recycling coordinator be designated by the project proponent to facilitate recycling efforts. With implementation of Mitigation Measure MM 4.16-1, the project's incremental contribution would be less than cumulatively considerable. Furthermore, other cumulative projects would also be required to comply with State and local waste reduction policies.

Gen-Tie

The proposed gen-tie would result in minimal ground disturbance and would therefore not generate a substantial amount of stormwater runoff nor would it drain into an existing stormwater drainage system. Construction of the gen-tie would require minimal water use, which would be provided by either by on-site wells or construction water trucks. Operation of the gen-tie would neither require full-time personnel nor cleaning, and would therefore not require water nor generate wastewater or solid waste during operation. Standard solid waste management practices would require debris and waste generated by construction of the gen-tie to be recycled the extent feasible. Cumulative impacts would be less than significant.

Conclusion

In conclusion, the project would be self-contained and would not have a significant impact on public utilities. The incremental effects of the proposed project would also not be substantial enough to result in a cumulatively considerable impact on utilities and service systems with implementation of Mitigation Measures MM 4.10-1, MM 4.10-2, and MM 4.16-1. Furthermore, the proposed project would result in a beneficial impact on electrical energy services and reduce future stress on energy service providers as energy demand grows in Kern County and Southern California.

Mitigation Measures

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text), and MM 4.16-1, cumulative impacts would be less than significant.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1, MM 4.10-2, and MM 4.16-1, cumulative impacts would be less than significant.

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Section 4.17
Wildfire

4.17.1 Introduction

This section of the EIR describes the affected environment and regulatory setting for wildland wildfire. The section includes the physical and regulatory setting for the project, the methods used in evaluating these potential impacts, the criteria used to evaluate the significance of potential impacts, and an analysis of potential impacts from wildfire. The analysis in this section is based on the project plans, California Department of Forestry and Fire Protection (CAL FIRE) and Kern County Fire Hazards Severity Zone (FHSZ) Maps. Additionally, information from the *Biological Evaluation - Aratina Solar Project,* prepared by EnviroPlus Consulting, Inc. (EPC 2020), was relied upon to describe existing site conditions; refer to Appendix D-1.

4.17.2 Environmental Setting

Site Characteristics and Fire Environment

The project site is located on undeveloped desert land in unincorporated Kern County, straddling State Route 58 (SR 58) between Gephart Road on the west and the San Bernardino County line on the east. The project site lies within the vicinity of the unincorporated communities of Boron and Desert Lake, with Edwards Air Force Base located to the south. The existing U.S. Borax open pit mine and refinery are located approximately 2 miles north of the project site, across SR 58.

CAL FIRE maps FHSZs based on factors such as fuel, slope, and fire weather to identify the degree of fire hazard throughout California (e.g., moderate, high, or very high). While FHSZs do not predict when or where a wildfire will occur, they do identify areas where wildfire hazards could be more severe and are therefore of greater concern.

According to the FHSZ map published by CAL FIRE, the project site is not located within or near a state responsibility area (SRA) or lands classified as very high fire hazard severity zones. The project site is located outside of areas identified by CAL FIRE as having a substantial or very high risk for wildfire to occur. The project site is located within a local responsibility area (LRA) and is designated as LRA Moderate (KCFD 2009). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. Refer to **Figure 4.17-1**, *Fire Severity Zones for Local Responsibility Areas*, and **Figure 4.17-2**, *Fire Severity Zones for State Responsibility Areas*.

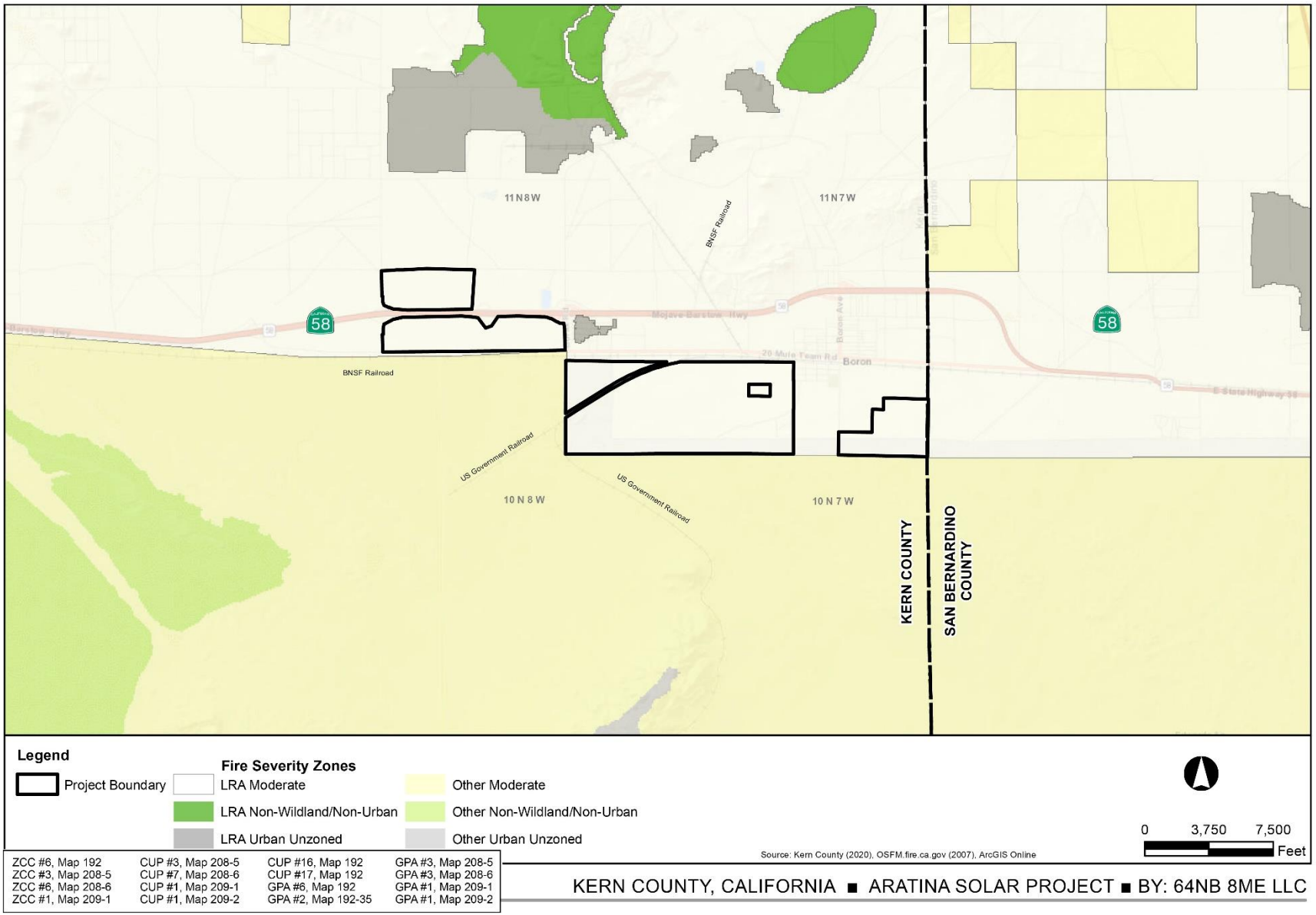

FIGURE 4.17-1 FIRE SEVERITY ZONES FOR LOCAL RESPONSIBILITY AREAS

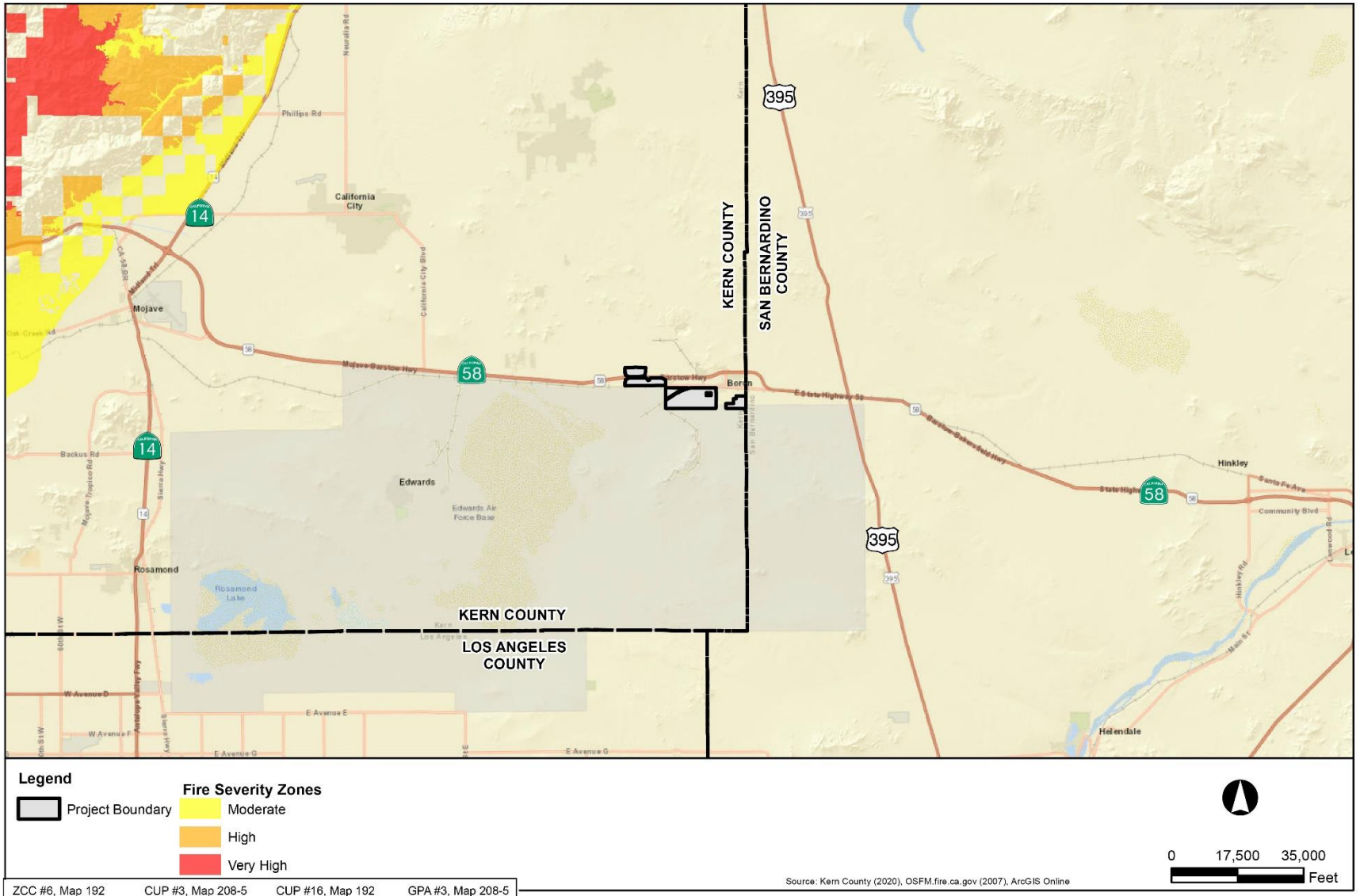

FIGURE 4.17-2 FIRE SEVERITY ZONES FOR STATE RESPONSIBILITY AREAS

Fire History

Fire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources. Fire history represented in this section uses CAL FIRE's California Statewide Fire Map, which shows the history of fires back through 2013 (CAL FIRE 2019a) and CAL FIRE's Fire and Resource Assessment Program (FRAP) Fire Perimeters: Wildfires 1950-2018 map (CAL FIRE 2019b). Based on a review of these maps, no fires in recorded history have burned across the project site.

Vegetation (Fuels)

Vegetation communities on the project site consist of creosote bush - white bursage shrubland alliance; spinescale shrubland alliance; creosote bush shrubland alliance; allscale shrubland alliance; successional allscale - spinescale scrub; successional spinescale scrub; white bursage shrubland alliance; and Joshua tree woodland alliance. The largest community consists of the creosote bush-white bursage scrub shrubland alliance, comprising 57 percent of the project area. The second largest community consists of the spinescale shrubland alliance, comprising approximately 27 percent of the project area (EPC 2020).

Fires in the desert environment are generally infrequent and of low severity because production of annual and perennial herbs seldom provides a fuel load capable of sustaining fire. The creosote bush community which makes up the majority of the vegetation onsite is not considered to have a high flammability potential because the shrubs are too sparse to carry fire; however, the foliage of creosote bush, which contains resin, is considered flammable (USFS 2018).

Topography

Topography of the project area is relatively flat with slopes ranging from less than 1 percent to approximately 4.7 percent. Elevations within the project site range from approximately 2,350 feet above mean sea level (amsl) in the northwestern portion to approximately 2,540 feet amsl in the southeastern portion (Woodard Curran 2020). No slopes are located within proximity to the project site.

Winds

The project site is situated in the Mojave Desert portion of the Mojave Desert Air Basin (MDAB). The MDAB is disconnected from the southern California coastal and central California valley regions by the Tehachapi Mountains to the west and by the San Gabriel Mountains to the south. Prevailing winds in the MDAB come from the west and southwest and are due to a combination of the proximity of MDAB to coastal and central regions and the location of the Sierra Nevada Mountains to the north that prevent air from passing through. High winds may occur during certain times of the year, resulting in blowing dust and/or increasing the potential for the occurrence or spread of wildfire, becoming particularly dangerous in the fall when summer droughts typically create the driest conditions.

4.17.3 Regulatory Setting

State

2019 California Fire Code

The 2019 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. Chapter 6 (Building Services and Systems) of the Code focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems addressed include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment, and promote prompt response to fire emergencies. The Fire Code includes regulations regarding fire resistance-rated construction; fire protection systems such as alarm and sprinkler systems; fire service features, such as fire apparatus access roads, means of egress, fire safety during construction, and demolition; and wildland-urban interface areas.

2019 California Building Code, Chapter 7A

Chapter 7 of the 2019 California Building Code (CBC) details the materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area. A Wildland-Urban Interface Area is defined in Section 702A of the CBC as a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Section 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The CBC details the materials, systems, and assemblies used for structural fire resistance and fire resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

Public Resources Code 4291-4299

California Public Resources Code Sections 4291-4299 requires that brush, flammable vegetation, or combustible growth within 100 feet of buildings be maintained. Vegetation that is more than 30 feet from the building, less than 18 inches high, and important for soil stability may be maintained, as may single specimens of trees or other vegetation that are maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Additionally, the Public Resources Code outlines infraction fees, certification, and compliance procedures applicable with state and local building standards, including those described in Subdivision (b) of Section 51189 of the Government Code.

Local

Kern County General Plan

Chapter 4. Safety Element

4.6 Wildland and Urban Fire

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2019 California Fire Code and the 2018 International Fire Code with some amendments made to more specifically address conditions in Kern County. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release, and/or explosion due to handling of dangerous and hazardous materials; conditions hazardous to life or property in the occupancy and use of buildings and premises; the operation, installation, construction, and location of attendant equipment; and the installation and maintenance of adequate means of egress. It also provides for the issuance of permits and collection of fees related to such activities (Kern County 2019).

Kern County Fire Department Wildland Fire Management Plan

The Kern County Fire Department (KCFD) Wildland Fire Management Plan was adopted in 2009 and assesses the wildland fire situation throughout the LRA within the County. The plan includes stakeholder contributions and priorities and identifies strategic targets for pre-fire solutions as defined by the people who live and work in the local area. The plan systematically assesses the existing levels of wildland protection services and identifies high-risk and high-value areas that may be potential locations for costly or damaging wildfires. The plan also ranks the areas in terms of priority needs and prescribes measures to reduce future fire management and protection costs and minimize potential loss from wildfire. According to the plan, the project site is located within a moderate fire hazard severity zone (KCFD 2009).

Kern County Fire Department Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March 2018, is the current document that assesses the wildland fire situation throughout the SRA within Kern County. The document includes stakeholder contributions and priorities and identifies strategic targets for pre-fire solutions as defined by the people who live and work in the local area. The plan provides a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. The plan gives an overview of KCFD battalions and ranks these areas in terms of priority needs, as well as identifying the SRA areas. According to the plan, 69 percent of the land area within Kern County is located within a SRA. The County is divided into six fuel management areas: Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley. The project site is located within Battalion 1 (Tehachapi), which lies within a moderate fire hazard severity zone within the Tehachapi fire plan management area (KCFD 2018).

Fire Prevention Standard No. 503-507 Solar Panels

The KCFD Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The Standard is implemented in accordance with the 2019 County Fire Code and is an official interpretation of the Kern County Fire Marshal's Office. The Standard outlines installation requirements for photovoltaic ground-mounted and roof-mounted solar panels. Ground-mounted solar panel requirements identified by this Standard address water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD 2019).

4.17.4 Impacts and Mitigation Measures

Methodology

Potential project impacts associated with wildfires were evaluated using a variety of resources, including CAL FIRE maps showing FHSZs, FRAP, and fire history; vegetation data from the *Biological Evaluation* (EPC 2020, Appendix D.1 of this EIR); project location maps; potentially influencing wind and slope conditions; and project characteristics. Wildfire impacts are considered on the basis of: (1) off-site wildland fires that could impact the proposed project; and (2) on-site generated combustion that could affect surrounding areas. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant impact with respect to wildfires:

> A project would have a significant impact with respect to wildfires if it would be located in or near SRAs or lands classified as very high FHSZs, and if it would:

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 instability, or drainage changes.

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in Appendix A of this EIR, that the proposed project would not result in significant impacts to some of these environmental issue areas; these issue areas are thus scoped out of this EIR. It was determined that the project would not:

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes.

As stated in the NOP/IS, 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.

Project Impacts

Impact 4.17-1: The project would substantially impair an adopted emergency response plan or emergency evacuation plan.

The site is located in a rural, sparsely developed area with limited population. The KCFD offers the Ready!Set!Go! Plan which provides guidance for evacuation during a wildfire event (Kern County 2020). Additionally, the County implements its Emergency Operations Plan (EOP) which establishes an emergency management organization and provides for the integration and coordination of efforts of the County with those of surrounding cities, special districts and the state for emergency response and short-term recovery. The Plan identifies an emergency management program, defines the County/Operational Area emergency management organization (i.e., local, regional, State, federal), provides standard operating procedures, and provides for public awareness and education (Kern County 2008).

As noted in Section 4.14, *Transportation*, the need for and number of any escorts (i.e., from California Highway Patrol), as well as the timing of transport, would be at the discretion of Caltrans and Kern County, and would be detailed in respective oversize load permits. Mitigation Measure MM 4.14-1 would require that all oversize vehicles used on public roadways during construction obtain required permits and obtain approval of a Construction Traffic Control Plan, as well as identify anticipated construction delivery times and vehicle travel routes in advance to minimize construction traffic during AM and PM peak hours. This would ensure that the potential for project-related construction traffic to interfere with vehicular circulation or emergency access along local roadways would be minimized, including during any times of emergency evacuation.

Additionally, project operations would generate limited daily traffic traveling to and from the site for work and/or for intermittent maintenance purposes. During the operational phase, the project would employ up to 25 full-time equivalent (FTE) personnel (or personnel hours totaling 25 FTE positions, or an average of 1,000 personnel hours per week) who would commute to the site. Each site could require an operational staff of up to five full-time employees who could be there at any time, for example, when urgent repairs or maintenance are required. Therefore, it is not anticipated that project-generated operational traffic would result in congestion or obstruction of access along any local roadways that would impair emergency response or evacuation activities. Impacts in this regard would be less than significant.

Additionally, in compliance with applicable County Fire Code and CBC requirements, project 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-site. Additionally, project construction and maintenance/operations would comply with applicable existing state and local codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials to minimize the potential for such activities to cause a wildfire event or to induce the spread of wildfire.

The project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.17-2: The project would, 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.

Slope and wind speed can influence the rate at which wildfire spreads. As described previously, the project site has low topographic relief and is relatively flat; no slopes are present on-site. Therefore, the 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.

As stated, the site is located in an area where blowing winds may occur. Such winds may have the potential to contribute to the uncontrolled spread of wildfire, as well as to carry pollutant concentrations from a wildfire occurring within the surrounding area to the site where project occupants may be exposed. Prevailing winds originate from the west and southwest and in in those directions, the landscape is mostly undeveloped except for roads and does not represent a source of air pollution during a wildfire event. During a wildfire occurring in the area either onsite (i.e., at the energy storage systems or within the solar panel fields) or offsite (i.e., at the Borax mine to the north or on Edwards Air Force Base), pollutants may be released. However, it is anticipated that any employees occupying the site would be rapidly evacuated at the time of the event, and/or evacuated well in advance of an approaching wildfire, in conformance with applicable County evacuation directives put in place. Such measures would ensure that the exposure of

project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire from prevailing winds would be minimized to the extent feasible.

The proposed project would introduce up to 1,000 temporary construction workers on-site during the peak construction periods and up to five full-time employees could be required for each site to oversee long-term operations. The project site is classified as LRA Moderate; thus, the potential for wildfire on the project site does exist, but the site is not considered to be high risk. Project construction would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and the cleanup of spills of flammable materials.

As discussed in Section 4.13, *Public Services*, Mitigation Measure MM 4.13-1 will require that the project proponent/operator develop and implement a Fire Safety Plan that identifies notification procedures and emergency fire precautions consistent with the 2019 California Fire Code and Kern County Fire Code for use during project construction, operation, and decommissioning. As required by this Fire Safety Plan, project construction and maintenance personnel would be trained and equipped to extinguish small fires on-site, thus reducing the potential risk of damage from and/or spread of wildfire on-site. Given the moderate potential for fire to occur on the affected parcels, the generally flat topography of the site, and implementation of Mitigation Measure MM 4.13-1, the project is not anticipated to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, and other factors. Impacts would be less than significant.

Mitigation Measures

Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

With the implementation of Mitigation Measure MM 4.13-1, impacts would be less than significant.

Impact 4.17-3: The project would 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.

The proposed project includes the construction of a gen-tie line, an overhead and underground collection system, solar panel arrays, one or more O&M facilities, an energy storage system, inverter station, substation(s), and access roads. From the proposed project's substation(s), power would be transmitted to Southern California Edison's Holgate Substation or the Kramer Substation. Various flammable materials may be stored on site during construction and operations and project components would be electrified [i.e., substation(s), collector lines, gen-tie line. Additionally, the project includes onsite energy storage (batteries) which contain flammable chemicals that would be fully contained within the battery storage components.

New internal roadways would be constructed to serve as access roads from the existing off-site road network to the solar array blocks. All roadway improvements would be constructed in conformance with County engineering design requirements and regulations, and would not include any flammable materials. These roads would be cleared and compacted for equipment and emergency vehicle travel and access to the solar

blocks. These project site access roads would remain in place and would be maintained over the long term to support ongoing project operations and maintenance activities after construction is completed.

Common sources of fires within the desert environment are most often lightning strikes or vehicle exhausts. With regard to the proposed project, there is the potential for lightning to hit the collection system or energy storage facility, potentially causing a wildfire. The use of vehicles during project construction or operation may also increase fire risk due to the driving of heated mufflers and possibly scraping of loose metal pieces over vegetated areas which could cause a spark. Such conditions may result in a slight increase in the risk of wildfire ignition.

As discussed in Section 4.13, *Public Services*, Mitigation Measure MM 4.13-1 would require the project proponent/operator to develop and implement a Fire Safety Plan that identifies notification procedures and emergency fire precautions consistent with the 2019 California Fire Code and Kern County Fire Code for implementation during project construction, operation, and decommissioning. As stated in Mitigation Measure MM 4.13-1, the Fire Safety Plan will include, but not be limited to, such measures as requiring that all internal combustion engines, both stationary and mobile, be equipped with spark arresters; maintaining spark arresters in good working order; limiting use of light trucks and cars with factory-installed (type) mufflers only on roads where the roadway has been cleared of vegetation; and restricting the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. Implementation of this plan would ensure that potential impacts related to installation or maintenance of project infrastructure are minimized and, thus, impacts would be less than significant.

Additionally, the proposed on-site energy storage systems would be situated internally to the project site, with access from a primary fire apparatus roadway, and would be separated from each other per setback requirements identified in the California Building Code, Section 608. Ongoing project maintenance and 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. The Fire Safety Plan, as discussed above, would also address potential fire hazards for the various components of the project, including the energy storage system, and would include measures for fire suppression and extinguishment techniques if a fire were to occur. Implementation of this plan would ensure that potential impacts related to installation or maintenance of associated infrastructure associated with the energy storage system are reduced to less than significant.

Mitigation Measures

Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

With the implementation of Mitigation Measure MM 4.13-1, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope considered for wildfire impacts is the Antelope Valley, which includes the western edge of the Mojave Desert, where the proposed project is located. This geographic scope was selected because the land within the region possesses relatively similar features, including sparse desert vegetation,

rural access roads, scattered rural residences, mining, wind and solar energy uses. Refer to **Table 3-3**, *Cumulative Projects List*, for a list of projects currently planned or approved within the cumulative study area that may have the potential to contribute to a significant cumulative impact with regard to wildfire.

With regard to impairment of an adopted emergency response plan or emergency evacuation plan, all of the related projects would be required to demonstrate the provision of adequate emergency access in accordance with County Fire Code and CBC requirements and prior to the issuance of a building permit. As concluded in the discussion of project impacts above, the project would have a less than significant impact related to impairment of an adopted emergency response or evacuation plan. However, given the project's location in a rural area and limited infrastructure, the project, in combination with the related projects, would have the potential to result in a cumulative impact to an adopted emergency response plan or emergency evacuation plan because such projects may have the potential to result in minor temporary traffic delays during construction when equipment and building materials are transported or when offsite improvements for access or other components are required. For these reasons, the project is considered to contribute to a significant and unavoidable cumulative impact in this regard.

Projects located within a SRA and/or FHSZ would have an increased potential for the occurrence or spread of wildfire, thereby contributing to wildfire hazards in the area. Similar to the proposed project, all related projects would be required to implement a Fire Safety Plan (as required by Mitigation Measure MM 4.13-1 for the proposed project) and would be required to implement building and landscape design features in accordance with the County Fire Code and CBC to reduce potential wildfire risk and exposure of occupants to pollutant concentrations from a wildfire that may be exacerbated by existing conditions such as onsite slopes or exposure to prevailing winds. Adherence to the County Fire Code and CBC requirements would minimize potential impacts related to exposure to or the uncontrolled spread of a wildfire. As concluded in the discussion of project impacts above, the project would have a less than significant impact related to the exposure of project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. However, given the location of the cumulative projects considered within a rural area with limited available infrastructure, combined with the fact that certain cumulative projects within the study area may have a greater risk of wildfire due to onsite conditions such as slopes or exposure to prevailing winds, the project and related projects are considered to have the potential to result in a significant cumulative impact related to the exposure of project occupants to pollutant concentrations from a wildfire. Further, proximity of the cumulative projects considered to other projects or to existing land uses within the surrounding communities that may be susceptible to wildfire, and may result in the spread of airborne pollutants during such an event, may also result in a similar cumulative impact. As such, the project is considered to contribute to a potentially significant and unavoidable cumulative impact in this regard.

Related projects may require associated infrastructure such as roads, fuel breaks, and power lines that could exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Such projects would be reviewed by Kern County during the discretionary process relative to land use and zoning consistency and compliance with applicable requirements, and potentially analyzed for environmental impacts. The placement of any infrastructure associated with these related projects would occur in conformance with applicable fire codes to minimize the potential fire risk through siting and design. The proposed project includes the construction of a gen-tie line, an overhead and underground collection system, solar panel arrays, an O&M facility, an energy storage system, inverter station, substation(s), and access roads. While the potential for wildfire to occur on-site is considered moderate, such components may have the potential to exacerbate fire risk or may result in impacts on the environment if damaged during a wildfire Mitigation Measure MM 4.13-1 would be implemented to require preparation of a Fire Safety Plan that

identifies notification procedures and emergency fire precautions consistent with the 2019 California Fire Code and Kern County Fire Code, for use during project construction, operation, and decommissioning. Nevertheless, given the location in a rural area and limited infrastructure, the project and related projects would have the potential to result in a cumulative impact related to infrastructure improvements that may increase fire risk or result in environmental impacts. As such, the project, in combination with other related projects, could result in a significant and unavoidable cumulative impact in this regard.

Mitigation Measures

Implementation of Mitigation Measure MM 4.13-1 would be required (see Section 4.13, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

Even with implementation of Mitigation Measure MM 4.13-1, cumulative impacts would remain significant and unavoidable.

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Chapter 5
Consequences of Project Implementation

5.1 Environmental Effects Found to Be Less than Significant

Section 15128 of the CEQA *Guidelines* requires that an EIR "contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

Kern County has engaged the public in the scoping of this EIR. Comments received during scoping have been considered in the process of identifying issue areas that should receive attention in the EIR. The EIR's contents were established based on a Notice of Preparation/Initial Study (NOP/IS) that was prepared in accordance with the CEQA *Guidelines* and in consideration of public and agency input received during the scoping process (see Appendix A of this EIR).

Issues that were found to have no impact or a less-than-significant impact do not need to be addressed further in this EIR. Based on the findings of the NOP/IS and the results of scoping, it was determined that the project would have no impact with regard to mineral resources, population and housing, and recreation.

The NOP/IS determined that the proposed project area does not contain mineral resources of regional or statewide significance, nor is the project site designated by the Kern County General Plan or the State Department of Conservation, Geologic Energy Management Division for mineral resource activities; therefore, the project would not have an impact on mineral resources. The proposed project would only require up to 25 full-time equivalent (FTE) personnel, which the local housing stock would adequately accommodate should they relocate to the area. The proposed project would not directly or indirectly induce substantial unplanned growth and it would not displace any persons or housing as the project site does not support any existing housing units. Even if the 25 FTE personnel were hired from out of the area and relocated to eastern Kern County, the addition of any such families to the project area would not result in a substantial increase in the number of users at local parks or recreational facilities and would therefore not cause substantial demand for or physical deterioration of recreational facilities. As such, these issues were not further analyzed in this EIR.

After further study and environmental review, as provided in this EIR, it was determined that impacts in the following areas would be less than significant or could be reduced to less-than-significant levels after implementation of mitigation:

- Agriculture and Forestry Resources
- Cultural Resources
- Energy
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use and Planning
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems

5.2 Significant Environmental Effects that Cannot Be Avoided

Section 15126.2(b) of the CEQA *Guidelines* requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less-than-significant levels. Potential environmental effects of the project and proposed mitigation measures are discussed in detail in Chapter 4 of this EIR.

After further study and environmental review, as provided in this EIR, it was determined that project-level and/or cumulative impacts in the following areas would be significant and unavoidable for the project, even with the incorporation of reasonable mitigation measures that would attempt to reduce impacts to the greatest extent feasible. **Table 5-1**, *Summary of Significant and Unavoidable Impacts of the Project*, summarizes these areas and impacts.

Table 5-1. Summary of Significant and Unavoidable Impacts of the Project

Resources	Project Impacts	Cumulative Impacts
Aesthetics	Although implementation of mitigation measures would reduce the visual changes experienced at individual key observation point locations, there are no mitigation measures that would preserve the existing open and undeveloped visual character of the area. Thus, the project would have the potential to substantially degrade the existing visual character. The resultant visual impact is considered significant and unavoidable.	Although implementation of mitigation measures would reduce the adverse visual changes experienced at individual key observation point locations, there are no mitigation measures that would allow for the preservation of the existing open and undeveloped visual character of the area. The proposed project, in combination with other projects proposed in the region, would contribute to the conversion of thousands of acres in a presently rural landscape to mainly solar and wind energy production uses. The resultant cumulative impact from degradation of the existing visual character would be **significant and unavoidable.**
Air Quality	The uncertainty of the project's regional and localized health impacts associated with criteria air pollutants, such as $PM_{2.5}$ along with indirect linkages of criteria pollutants and COVID-19, on vulnerable populations would result in significant and unavoidable cumulative level impacts.	Cumulative impacts would be less than significant during temporary construction and decommissioning of the project after implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7 due to the incremental effects of the project. Cumulative impacts related to operation would be less than significant. The uncertainty of the project's regional and localized health impacts associated with criteria air pollutants, such as $PM_{2.5}$ along with indirect linkages of criteria pollutants and COVID-19, on vulnerable populations would result in **significant and unavoidable** cumulative level impacts.
Biological Resources	There would be no significant and unavoidable project-level impacts.	As development increases in Kern County, impacts to biological resources within the region are increasing on a cumulative level. When considered with the number of present and reasonably foreseeable future development projects in the Antelope Valley, the project would result in a significant and unavoidable cumulative loss of foraging and nesting habitat for special-status species, even with the implementation of project-specific mitigation measures. The loss of such foraging and nesting habitat for special-status species that may utilize habitat on the project site would result in a **significant and unavoidable** cumulative impact.
Hazards	There would be no significant and unavoidable project-level impacts.	Despite implementation of mitigation, given the location in a rural area, the project and related projects have the potential to result in a cumulative impact related to the installation or maintenance of associated infrastructure and, thus, would result in a **significant and unavoidable** cumulative impact.

Table 5-1, continued

Resources	Project Impacts	Cumulative Impacts
Wildfire	There would be no significant and unavoidable project-level impacts.	Despite implementation of mitigation, given the location in a rural area, the project and related projects have the potential to result in a cumulative impact related to the installation or maintenance of associated infrastructure and, thus, would result in a **significant and unavoidable** cumulative impact.

5.3 Irreversible Impacts

Section 15126.2(c) of the CEQA *Guidelines* defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Irreversible impacts can also result from damage caused by environmental accidents associated with the project. Additionally, irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Buildout of the project would commit nonrenewable resources during project construction. During project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term project operations. However, assuming that those commitments occur in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan, as a matter of public policy, those commitments have been determined to be acceptable. The Kern County General Plan ensures that any irreversible environmental changes associated with those commitments will be minimized.

5.4 Growth Inducement

The Kern County General Plan recognizes that certain forms of growth are beneficial, both economically and socially. Section 15126.2(d) of the CEQA *Guidelines* states the following regarding growth-inducing impacts:

> *"A project is identified as growth-inducing if it would foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."*

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the project would not induce substantial growth. It is estimated that up to 1,000 workers per day (during peak construction periods) would be required during construction of the proposed project. Construction workers are expected to travel to the site from various local communities and locations throughout Southern California, and the number of workers expected to relocate to the surrounding area is not anticipated to be substantial. If temporary housing should be necessary, it is expected that accommodations would be available in the nearby communities of Mojave, California City, Rosamond, Tehachapi, or Lancaster. Therefore, the project is not anticipated to directly or indirectly induce the development of any new housing or businesses. During the operational phase, each Site could require an operational staff of up to five full-time employees. Thus, the project could have up to 25 full-time equivalent (FTE) personnel (or personnel hours totaling 25 FTE positions, i.e., an average of 1,000 personnel hours per week), who would commute to the site. Existing housing stock would accommodate operations

personnel should they relocate to the area. The proposed project would not result in a large increase in employment that would significantly induce growth.

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

In *Kerncrest Audubon Society v. Los Angeles Department of Water and Power*, the analysis of growth-inducing effects contained in the EIR for the Pine Tree Wind Development Project was challenged. Plaintiffs argued that the discussion was too cursory to provide adequate information about how additional electricity generated by the project would sustain further growth in the Los Angeles area. The Court of Appeals held that the additional electricity that the project would produce was intended to meet the current forecast of growth in the Los Angeles area. As such, the wind development project would not cause growth, and so it was not reasonable to require a detailed analysis of growth-inducing impacts. In addition, EIRs for similar energy projects have contained similarly detailed analyses of growth-inducing impacts. Their conclusions that increasing the energy supply would not create growth has been upheld, because: (1) the additional energy would be used to ease the burdens of meeting existing energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so multifarious that any potential connection between additional energy production and growth would necessarily be too speculative and tenuous to merit extensive analysis. Thus, as has been upheld in the courts, the level of analysis provided in this EIR is adequate to inform the public and decision makers of the growth-inducing impacts of the project.

Chapter 6
Alternatives

6.1 Introduction

The California Environmental Quality Act (CEQA) requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly avoid or lessen any significant environmental impacts of the project while attaining most of the project's basic objectives. An EIR also must compare and evaluate the environmental effects and comparative merits of the alternatives. This chapter describes alternatives considered but eliminated from further consideration (including the reasons for elimination) and compares the environmental impacts of several alternatives retained with those of the proposed project.

The following are key provisions of the CEQA *Guidelines* (Section 15126.6):

- The discussion of alternatives shall focus on alternatives to the project or its site that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
- The No Project Alternative shall be evaluated, along with its impacts. The no-project analysis shall discuss the existing conditions at the time the Notice of Preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a "rule of reason." Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner that fosters meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA *Guidelines* Section 15126.6(f)(1)) are environmental impacts, site suitability, economic viability, social and political acceptability, technological capacity, availability of infrastructure, General Plan consistency, regulatory limitations, jurisdictional boundaries, and whether the project proponent could reasonably acquire, control, or otherwise have access to an alternative site. If an alternative has effects that cannot be reasonably identified, if its implementation is remote or speculative, and if it would not achieve the basic project objectives, it need not be considered in the EIR.

6.1.1 Significant Impacts of the Project after Mitigation

Implementation of the proposed project has the potential to result in significant adverse effects, after the implementation of mitigation measures, related to the following topics:

- Aesthetics (project and cumulative)
- Air quality (project and cumulative)
- Biological resources (cumulative only)
- Hazards and hazardous materials (cumulative only)
- Wildfire (cumulative only)

Even with the mitigation measures described in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR, impacts in these issue areas would be significant and unavoidable. Therefore, per the CEQA *Guidelines*, this section discusses alternatives that are capable of avoiding or substantially lessening effects on these resources. The significant and unavoidable impacts of the project are discussed below.

Aesthetics

As discussed in Section 4.1, *Aesthetics*, implementation of the project would result in potentially significant visual impacts to the existing visual quality and character of the site and surrounding area. When introduced into the project viewshed, the industrial character of the project would substantially change the existing visual character of the landscape as viewed from sensitive receptors for the life of the project. The project facilities would add modifications to the project site's landscape that would be visible from certain viewpoints. Operation of a solar power generation facility of this size would alter the existing visual character of the landscape from one that is generally rural and undeveloped in nature to industrial; be seen by viewers with high sensitivity to visual change; reduce existing scenic quality through the removal of vegetation; and introduce reflective surfaces that would result in substantial new sources of glare compared to existing conditions that would adversely affect daytime views. Native vegetation would be left in place around the project site where feasible, allowing for some natural screening of project components; however, the project would remain highly visible, particularly from regional and local roadways within and surrounding the communities Boron and Desert Lake (i.e., Twenty Mule Team Rd, Boron Rd, Borax Rd, and Gephardt Rd); residential areas in Boron and Desert Lake; Boron Park; and along an approximately 1.5-mile-long section of the SR 58 highway corridor, which is an eligible state scenic highway. Mitigation Measures MM 4.1-1 through MM 4.1-6 would be incorporated to reduce visual impacts associated with the proposed project by limiting vegetation removal, planting native vegetation, providing privacy fencing, reducing the visibility of project features and contrast with the surrounding landscape, ensuring that the site is kept free of debris and trash, and minimizing glare to the extent possible. In addition, Mitigation Measure 4.3-4 (refer to Section 4.3 Air Quality) requires installation of permanent solid barrier fences along the eastern edge of Site 4, the northern edge of Site 2 and the eastern edge of Site 3, which would screen views of those project sites from residents in the nearby communities in Desert Lake and Boron. Nevertheless, even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6 and MM 4.3-4, project-level impacts associated with visual character and quality would remain significant and unavoidable.

Additionally, while related projects in the region would also be required to implement various mitigation measures to reduce impacts, the conversion of 2,317 acres of land that is generally rural and undeveloped to solar energy production uses cannot be mitigated to a degree that impacts are no longer significant. Therefore, even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6, the project's contribution to significant impacts associated with visual character in the Antelope Valley would be cumulatively significant and unavoidable.

Air Quality

With project implementation, long-term increases in operational emissions of primary concern within the region (i.e., ROG, NO_X, CO, SO_X, and PM_{10}, and $PM_{2.5}$) would be minimal and would not exceed applicable significance thresholds. However, construction and decommissioning of the project would result in temporary increases of PM_{10} that would exceed Eastern Kern Air Pollution Control District's (EKAPCD) significance thresholds. As a result, construction- and decommissioning-generated emissions, along with other cumulative projects located within the project area, would exceed EKAPCD's significance thresholds. Mitigation Measure MM 4.3-1 would be required to implement emissions controls measures to reduce levels of NOx and PM throughout construction. Development of the project would require implementation of Mitigation Measure MM 4.3-2, which would require standard dust control measures such as watering to reduce PM_{10} emissions during construction and decommissioning. Furthermore, implementation of Mitigation Measure MM 4.3-3 would be required to reduce work roundtrips to no more than 250 per activity, reducing PM_{10} emissions to a level that would not exceed EKAPCD thresholds. Implementation of Mitigation Measures MM 4.3-1 thru MM 4.3-3 would reduce PM_{10} emissions to levels that would not exceed EKAPCD thresholds. Therefore, impacts would be reduced to less-than-significant levels.

Valley Fever, an infection caused by the fungus *Coccidioidomycosis*, can become airborne after contaminated soil and dust are disturbed. During project construction, it is possible that surrounding residents and on-site workers could be exposed to Valley Fever as fugitive dust is generated during construction. Thus, the potential for increased exposure and contraction of Valley Fever would be considered potentially significant. Dust minimization would be addressed through implementation of Mitigation Measures MM 4.3-2. Mitigation Measure MM 4.3-6 would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Implementation of Mitigation Measures MM 4.3-4 and MM 4.3-6 would reduce impacts to a less-than-significant level.

Due to the open nature of the project site, blowing dust could occur during construction and decommissioning activities and could result in the dispersal of criteria air pollutants such as $PM_{2.5,}$ and potentially contribute to the airborne transmission of respiratory diseases like COVID-19. While COVID-19 is thought to spread mainly through close contact from person-to-person, the Centers for Disease Control and Prevention is still learning how the virus spreads and the severity of the illness it causes (CDC 2020b). As of this writing, COVID-19 research and causality are currently in the beginning stages. A nationwide study by Harvard University found a linkage between long-term exposure to $PM_{2.5}$ as air pollution and statistically significant increased risk of COVID-19 death in the United States (Harvard 2020). While construction dust suppression measures would be implemented in Mitigation Measure MM 4.3-2, exposure to dust resulting from construction could still occur, which could increase the susceptibility of contracting COVID-19 and increase the severity of the disease. Mitigation Measure MM 4.3-4 requires the construction of a 6-foot tall solid barrier as either a solid fence or wall to mitigate wind blown dust generated by the project to the communities of Desert Lake and Boron. In addition to implementation of Mitigation Measure

MM 4.3-2 and MM 4.3-4, implementation of Mitigation Measure MM 4.3-5 would be required, which requires implementation of a COVID-19 Health and Safety Plan in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. Implementation of Mitigation Measures MM 4.3-2, MM 4.3-4 would be required to reduce the project's regional and localized health effects associated with criteria air pollutants and COVID-19; however, the exact reduction from implementation of these mitigation measures cannot be quantified given existing scientific constraints. As such, the impacts are conservatively considered to be significant and unavoidable for both the project and cumulatively when considered with the impacts of other projects.

Biological Resources

There are a number of special-status plant and wildlife species that currently utilize the project site and surrounding vicinity. Implementation of the project, in addition to other projects under way or proposed within Kern County, would impact habitat for transient wildlife species, including desert tortoise, Mohave ground squirrel, migratory birds, American badger, and desert kit fox. The project site contains habitat that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species, most of which are expected to utilize the project site on at least a transient basis. Given the number of present and reasonably foreseeable future development projects in the Antelope Valley, the proposed project, when combined with other projects, would result in a significant and unavoidable cumulative loss of foraging and nesting habitat for special-status species. While the project would have less-than-significant impacts at a project level with the implementation of Mitigation Measures MM4.1-4 through MM 4.1-6, MM 4.4-1 through MM 4.4-25, MM 4.9-1, and MM 4.10-1 through MM 4.10-2, when combined with other past, present and reasonably foreseeable future projects, the cumulative impact would be significant and unavoidable.

Hazards and Hazardous Materials

The proposed project by itself would have either less-than-significant impacts or less-than-significant impacts with mitigation related to hazards and hazardous materials. These impacts include impacts from the transport, use, and disposal of hazardous materials; potential for the release of a hazardous materials; impair or interfere with an adopted emergency response or evacuation plan; or loss, injury, or death involving wildland fires. Potentially significant impacts of the project would be reduced to less-than-significant levels with implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, MM 4.13-1, and MM 4.16-1.

While the proposed project by itself would not result in significant impacts after mitigation, it was determined that the project could have cumulatively considerable impacts. The proposed project combined with other cumulative project impacts has the potential to exacerbate wildfire risks, due to the rural nature and limited infrastructure where the project site is located. Consistent with the findings for wildfire impacts, the proposed project with other cumulative project impacts also has the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, due to the rural nature and limited infrastructure where the project site is located. The cumulative impacts involving wildland fire hazards would remain significant and unavoidable even after implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, MM 4.13-1, and MM 4.16-1.

Wildfire

The proposed project site is located within a rural, sparsely developed area with limited existing infrastructure. The area contains low desert vegetation typical of the Mojave Desert. Wildland fires in such desert environments are generally infrequent and of low severity because the fuel loads are incapable of sustaining fire. No recorded wildfires have burned across the project site, and neither the proposed solar field nor gen-tie line are located in or near State Responsibility Areas or lands classified as "very high" Fire Hazards Severity Zones, which are the primary indicators for elevated fire risks that require detailed impact analysis according to Appendix G of the CEQA *Guidelines*. The proposed project would not substantially impair an adopted emergency response or evacuation plan. Construction and operation of the project would pose minor risks of causing or exacerbating the uncontrolled spread of wildfire and adverse post fire conditions. The associated impacts would all be less than significant with implementation of Mitigation Measure MM 4.13-1 (development and implementation of a Fire Safety Plan).

Although impacts of the proposed project by itself would be less than significant with mitigation, the project would have cumulatively considerable impacts related to wildfire due to the rural nature of the project region and the numerous other projects in the area. The proposed project in conjunction with other current and foreseeable projects would result in significant cumulative impacts related to wildfire, including potential conflicts with an adopted emergency response or evacuation plan; exposing people to pollutant concentrations from a wildfire; and the installation or maintenance of associated infrastructure that may exacerbate fire risk. The cumulative impacts would be significant and unavoidable.

6.2 Project Objectives

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (CEQA *Guidelines* Section 15126.6(c)). As described in Chapter 3, *Project Description*, of this EIR the following objectives have been established for the project and will aid decision makers in the review of the project and associated environmental impacts.

- Construct and operate a solar energy facility of sufficient size and configuration to produce (up to) 530 MW of reliable electricity and 600 MW of energy storage in an economically feasible and commercially financeable manner that can be marketed to different power utility companies.
- To provide energy to the electric grid to meet increasing demand for in-state generation.
- Assist Kern County in promoting its role as the State's leading producer of renewable energy.
- Site and design the project is an environmentally responsible manner consistent with current Kern County guidelines.
- To promote economic development and bring living-wage jobs to the region throughout the life of the proposed project.
- Support California's efforts to reduce greenhouse gas (GHG) emissions consistent with the timeline established in 2006 under California Assembly Bill 32, the Global Warming Solutions Act of 2006, which requires the California Air Resources Board to reduce statewide emissions of GHGs to at least the 1990 emissions level by 2020. This timeline was updated in 2016 under SB 32, which

requires that statewide GHG emissions are reduced to at least 40% below the statewide GHG emissions limit by 2030.

- Support California's aggressive RPS Program consistent with the timeline established by SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") as approved by the California legislature and signed by Governor Brown in September 2018, which established a 50% RPS goal by December 31, 2026, 60% by December 31, 2030, and a goal that 100% of electric retail sales to end-use customers be provided by renewable energy and zero-carbon resources by 2045.

6.3 Overview of the Proposed Project

The Aratina Solar Project by 64NB 8ME LLC, would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 530 megawatt-alternating current (MW-AC) of renewable energy, including up to 600 megawatts of energy storage on privately-owned land in unincorporated Kern County. The project site consists of five sites (Sites 1 through 5) located on 22 parcels and totals approximately 2,554 acres; however only 2,317 acres are proposed for development.

The project would be supported by a 230 kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's Holgate Substation to the north. Alternatively, the project may interconnect at Southern California Edison's Kramer Substation to the east, located in San Bernardino County via an up to 230 kV transmission line located within an Edwards Air Force Base utility corridor. 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 (O&M) facilities.

Implementation of the project as proposed includes the following requests:

Changes in zone classifications as follows:

- Zone Change Case No. 6, Map No. 192 – from A-1 to A for 696.69 acres
- Zone Change Case No. 3, Map No. 208-5 – from A-1 to A for 299.94 acres
- Zone Change Case No. 6, Map No. 208-6 – from A-1 to A for 222.49 acres and from R-1 to A for 79.6 acres
- Zone Change Case No. 1, Map No. 209-1 from A-1 to A for 635.20 acres

Conditional Use Permits to allow for the construction and operation of five solar facilities with a total generating capacity of approximately 530 megawatts-alternating current (MW-AC) of renewable energy (broken down by site, below), including up to 600 megawatts of energy storage (for all sites), within the A (Exclusive Agriculture) Zone Districts (in Zone Maps 192, 208-5, 208-6, and 209-1) and the M-1 (Light Industrial) Zone District (in Zone Map 209-2) pursuant to Sections 19.12.030.G and 19.36.30.G, respectively, of the Kern County Zoning Ordinance:

- Site 1 (up to 70 MW)
    - Conditional Use Permit No. 3, Map No. 208-5 for 299.94 acres

- Site 2 (up to 180 MW)
  - Conditional Use Permit No. 7, Map No. 208-6 for 169.92 acres
  - Conditional Use Permit No. 1, Map No. 209-1 for 635.20 acres
- Site 3 (up to 140 MW)
  - Conditional Use Permit No. 1, Map No. 209-2 for 620.26 acres
- Site 4 (up to 80 MW)
  - Conditional Use Permit No. 16, Map No. 192 for 339.46 acres
- Site 5 (up to 60 MW)
  - Conditional Use Permit No. 17, Map No. 192 for 252.31 acres

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:

- General Plan Amendment No. 6, Map No. 192
- General Plan Amendment No. 2, Map No. 192-35
- General Plan Amendment No. 3, Map No. 208-5
- General Plan Amendment No. 3, Map No. 208-6
- General Plan Amendment No. 1, Map No. 209-1
- General Plan Amendment No. 1, Map No. 209-2

With the requested zone change, the project would be zoned A (Exclusive Agriculture) within Zone Maps 192, 208-5, 208-6, 209-1) and M-1 (Light Industrial) in Zone Map 209-2. Therefore, pursuant to Chapter 19.12.030.G and Chapter 19.36.30.G, Conditional Use Permits (CUPs) are required to allow for the construction and operation of the PV solar facility under this zoning.

See Chapter 3, *Project Description*, of this EIR, for a detailed Project Description.

6.4 Overview of Alternatives to the Proposed Project

Under CEQA, and as indicated in California Public Resources Code (PRC) Section 21002.1(a), the identification and analysis of alternatives to a project is a fundamental aspect of the environmental review process and is required to ensure the consideration of ways to mitigate or avoid the significant environmental effects of a project. The objectives established for the project and the feasibility of the alternatives considered are evaluated in this chapter and summarized in **Table 6-1**, *Summary of Proposed Project and Development Alternatives*. The following alternatives were evaluated, which are described in the sections below:

- Alternative 1: No Project Alternative (required by CEQA)
- Alternative 2: General Plan and Zoning Build-Out Alternative
- Alternative 3: Reduced Acreage Alternative

- Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only

Alternatives that were considered but rejected are discussed in Section 6.5, *Alternatives Considered and Rejected*. The Environmentally Superior Alternative is described in Section 6.8, *Environmentally Superior Alternative*, as required by CEQA. **Table 6-1**, *Summary of Proposed Project and Development Alternatives*, provides a summary description, basis for analysis, and applicable feasibility of each development alternative. A complete discussion of each alternative is also provided below.

Table 6-1. Summary of Proposed Project and Development Alternatives

Alternative	Description	Basis for Selection and Summary of Analysis
Proposed Project	Construction and operation of a solar facility on approximately 2,317 acres would generate up to 530 MW of electricity and up to 600 MW of energy storage capacity. The power would then be delivered via 230 kV gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Southern California Edison's Holgate Substation or Kramer Substation. Approval of the project would require changes in Zone Classification, issuance of CUPs, and Amendments to the Circulation Element of the Kern County General Plan.	N/A
Alternative 1: No Project Alternative	No development would occur on the project site. The project site would remain unchanged.	• Required by CEQA. • Avoids need for zoning changes, CUPs, and General Plan amendments. • Avoids all significant and unavoidable impacts. • Would not offset GHG emissions from nonrenewable energy generation. • Less impact in all remaining environmental issue areas. • Does not meet any of the project objectives.
Alternative 2: General Plan and Zoning Build-Out Alternative	Project site would be developed to the maximum intensity allowed under the Kern County General Plan land use designations and zoning classifications and other existing applicable restrictions.	• Avoids need for zoning changes and General Plan amendments. • Reduced impacts to agriculture and forestry resources, and wildfire. • Less impact to aesthetics, similar impact to hazards and hazardous materials, and no impact to land use and planning. • Greater overall impacts in all remaining environmental issue areas. • Does not meet any project objectives.
Alternative 3: Reduced Acreage Alternative	Construction and operation of multiple solar facilities on a portion of the proposed project site on approximately 1,544 acres. This alternative is still expected to contain enough land to construct a solar array field capable of generating approximately 355 MW, with up to approximately 402 MW of energy storage. This alternative would also require zoning changes, CUPs, and General Plan amendments.	• Reduced, but similar impacts to hazards and hazardous materials, land use and planning, noise, and public services. • Reduced benefit of offsetting GHG emissions from nonrenewable energy generation. • Less impact in all remaining environmental issue areas. • Does not meet all the project objectives.

Table 6-1, continued

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only	The construction of 530 MW of PV solar distributed on rooftops throughout western Antelope Valley. Electricity generated would be for on-site use only.	• Avoids need for zoning changes and General Plan amendments at the project site but may require other entitlements on other sites, such as a CUP or variance. • Avoids significant and unavoidable impacts associated with aesthetics, air quality, biological resources, and hazards. • Reduced or no benefit of offsetting GHG emissions from nonrenewable energy generation. • No impacts involving land use and planning. • Similar impacts to energy and tribal cultural resources. • Less impact in all remaining issue areas. • Does not meet all the project objectives nor does it account for the energy storage component of the project.

6.4.1 Alternative 1: No Project Alternative

The CEQA *Guidelines* require EIRs to include a "No Project Alternative" for the purpose of allowing decision makers to compare the effects of approving or denying a project altogether. Accordingly, Alternative 1 assumes that the development of the up to 530 MW solar facility with up to 600 MW energy storage capacity on the approximately 2,317-acre site would not occur. The No Project Alternative would not require 4 zoning changes, 6 CUPs, and 6 General Plan amendments for construction and operation of the proposed solar and energy storage project. The No Project Alternative would maintain the current zoning, land use classifications, and existing land uses, which consist mostly of undeveloped desert vegetation. No physical changes would be made to the project site.

6.4.2 Alternative 2: General Plan and Zoning Build-Out Alternative

Alternative 2, the General Plan and Zoning Build-Out Alternative, would develop the project site to the maximum intensity allowed under the existing Kern County General Plan land use and zoning classifications. According to the Kern County General Plan, the 4.1 (Accepted County Plan Areas) land use designation applies to areas where specific land use plans have already been prepared and approved. In the case of the project site, Sites 1 and 2 are located adjacent to the Boron Specific Plan boundary and Site 3 abuts the Desert Lake Specific Plan boundary; however, no portion of the project site is within a specific plan area. Existing land use and zoning for the proposed project sites are provided in **Table 6-2,** *Existing Land Uses and Zoning for the Proposed Project Site.*

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses. No solar facilities would be developed under this alternative and, therefore, no zone changes for solar facility construction and operation would be required.

Table 6-2. Existing Land Uses and Zoning for the Proposed Project Site

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Site 1	Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)	A-1 (Limited Agriculture)
Site 2	Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size)	A-1 (Limited Agriculture); R-1 (Low-Density Residential)
Site 3	Undeveloped	7.1 (Light Industrial); 7.3 (Heavy Industrial)	M-1 (Light Industrial)
Site 4	Undeveloped	8.3 (Extensive Agriculture, Min. 20 Acre Parcel Size), 8.5 (Resource Management, Min. 20 Acre Parcel Size)	A-1 (Limited Agriculture)
Site 5	Undeveloped	8.5/2.5 (Resource Management, Min. 20 Acre Parcel Size/Flood Hazard)	A-1 (Limited Agriculture)

6.4.3 Alternative 3: Reduced Acreage Alternative

Alternative 3 would involve a reduced footprint of the solar development facilities, including solar panels, collector lines, transformers, substations, energy storage facilities, access roads, and O&M facilities. The purpose of the Reduced Acreage Alternative is to avoid or minimize adverse effects associated with project proximity to sensitive receptors, vegetation removal, ground disturbance, construction air emissions, and the extent project facilities would be visible from sensitive viewing locations. Reducing acreage of the project to achieve these goals can be achieved through a number of different footprint configurations. While a portion of the proposed project's environmental resource conditions and impacts are consolidated or based on the presence of fixed features (i.e., receptor locations), others are not consolidated (i.e., biological resources) in a manner that clearly indicates which portions of the proposed project site could be eliminated to reduce the project's environmental effects across all parameters to the greatest extent possible. The Reduced Acreage Alternative targets an overall reduction of the project footprint by approximately one third (33%), which is intended to reduce impacts associated with project development roughly proportionally. A hypothetical reduced footprint configuration was developed for the Reduced Acreage Alternative that meets this reduction target, as discussed below; however, the County, acting within its role as CEQA lead agency when making its decision to approve or deny the project, may determine that a different footprint configuration would be more appropriate at reducing the project impacts. This could be based on considerations of operational feasibility and/or effectiveness, giving more weight to certain environmental objectives versus others, or possibly other considerations.

Under Alternative 3, the hypothetical footprint configuration for the Reduced Acreage Alternative, involves eliminating all of Sites 4 and 5, the portions of Sites 2 and 3 (herein referred as 2a and 3a) north of the Burlington Northern and Santa Fe Railway located immediately south of the Desert Lake Specific Plan area. Please refer to Figure 6-1, which illustrates this reduced project concept. All of Site 1 and the remaining portions of Sites 2 and 3 (herein referred as 2b and 3b) would be developed similar to the proposed project with solar panels and associated solar energy facilities, including the substations, energy storage system features, O&M facilities, collector lines, gen-tie lines, and other ancillary components (refer to Chapter 3, *Project Description*, for full details). **Table 6-3**, *Project Footprint Analyzed for the Reduced Acreage Alternative*, summarizes the project site acreages analyzed under the Reduced Acreage Alternative and the percentage of area that would be eliminated from the project. The Reduced Acreage Alternative would reduce the project acreage from approximately 2,317 acres to approximately 1,544 acres, which is

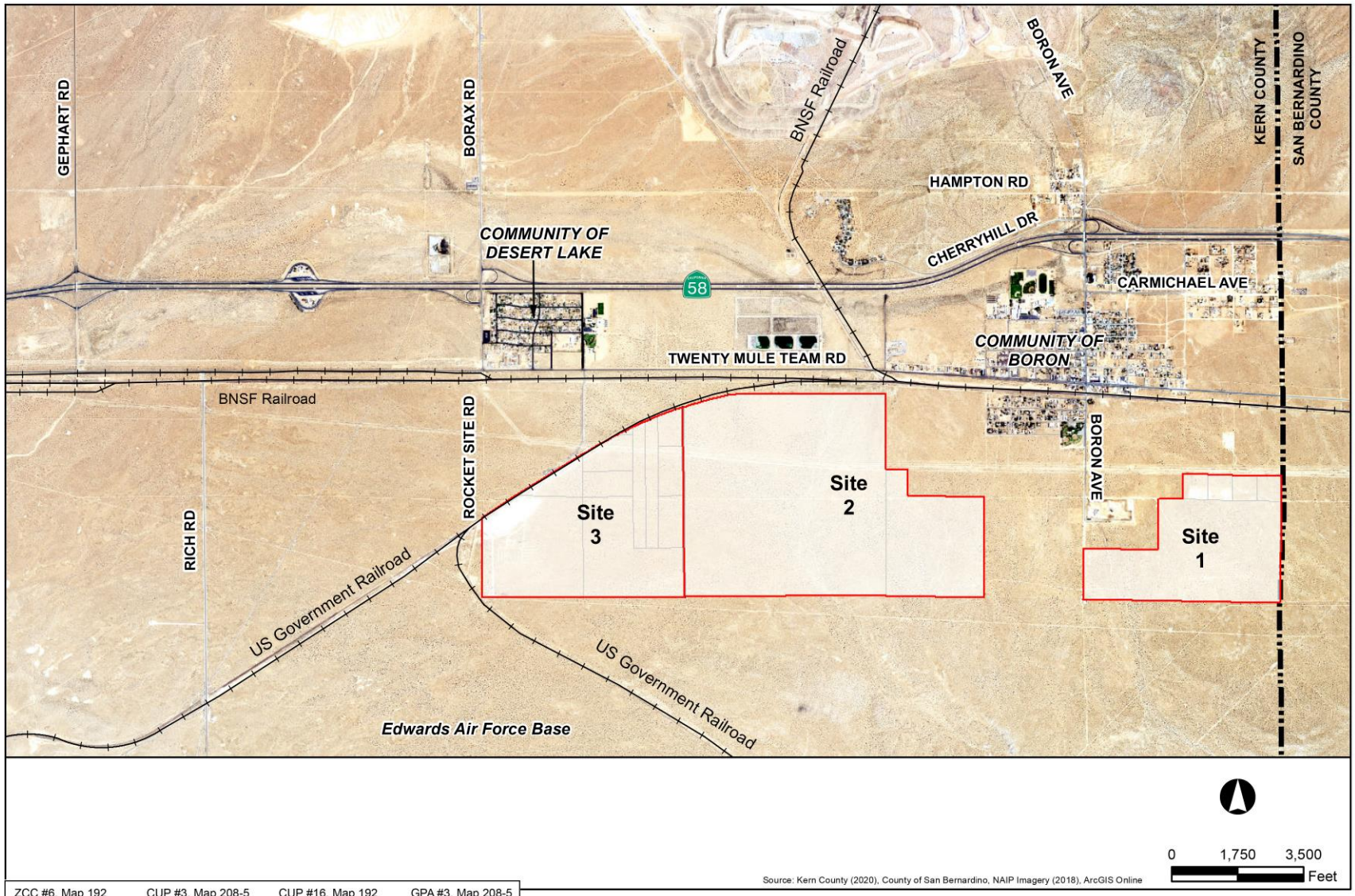
66% of the proposed project. Based on the reduced area, the energy generation and storage capacities would be reduced roughly proportionally. The generation capacity would change from approximately 530 MW to 355 MW, and the storage capacity would change from approximately 600 MW to 402 MW. Similar to the project, this alternative would require plan amendments and permits upon project approval for construction and operation of a commercial solar electrical generating facility.

Table 6-3. Project Footprint Analyzed for the Reduced Acreage Alternative

Location	Proposed Project Footprint	Reduced Footprint Analyzed (Retained Acreage)	Amount Reduced by Site and Total
Site 1	299.94 acres	299.94 acres	0%
Site 2 (Sites 2a/2b) [a]	805.12 acres (Sites 2a/2b) [a]	804.01 acres (Site 2b) [a]	0.1%
Site 3 (Sites 3a/3b) [a]	620.26 acres (Sites 3a/3b) [a]	439.58 acres (Site 3b) [a]	29%
Site 4	339.46 acres	0 acres	100%
Site 5	252.31 acres	0 acres	100%
Total	**2,317.09 acres**	**1,543.53 acres**	**33%**

Notes:

[a] Under the Reduced Acreage Alternative, Sites 2 and 3 would both be divided into two inequal parts along the route of the Burlington Northern and Santa Fe Railway that crosses through the project site in a northeast to southwest direction. Sites 2a and 3a refer to the portions that would be eliminated from the project footprint north of the railroad, and Sites 2b and 3b refer to the portions that would be retained south of the railroad.



ZCC #6, Map 192	CUP #3, Map 208-5	CUP #16, Map 192	GPA #3, Map 208-5
ZCC #3, Map 208-5	CUP #7, Map 208-6	CUP #17, Map 192	GPA #3, Map 208-6
ZCC #6, Map 208-6	CUP #1, Map 209-1	GPA #6, Map 192	GPA #1, Map 209-1
ZCC #1, Map 209-1	CUP #1, Map 209-2	GPA #2, Map 192-35	GPA #1, Map 209-2

KERN COUNTY, CALIFORNIA ■ ARATINA SOLAR PROJECT ■ BY: 64NB 8ME LLC

FIGURE 6-1 REDUCED ACREAGE ALTERNATIVE

6.4.4 Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only

Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative, would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatt-hours to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout western Antelope Valley. Under this alternative, no new land would be developed or altered. However, depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (i.e., greater than 2,317 acres of total rooftop area) may be required to attain project's capacity of 530 MW of solar PV generating capacity. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed in a freestanding utility-scale solar PV project and, therefore, would not attain the same level of efficiency with respect to solar PV generation. Alternative 4 would generate 530 MW of electricity, but it would be for on-site use only. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. Similar to the project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would typically be consumed on-site by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities.

6.5 Alternatives Considered and Rejected

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (CEQA *Guidelines* Section 15126.6(c)). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not need to be considered (CEQA *Guidelines* Section 15126(f)(2)). Kern County considered several alternatives to reduce impacts on aesthetics (project and cumulative), air quality (project and cumulative), biological resources (cumulative only), hazards and hazardous materials (cumulative only), and wildfire (cumulative only). Per CEQA, the lead agency may make an initial determination as to which alternatives are feasible and warrant further consideration, and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this EIR because they do not meet project objectives or were infeasible.

- Wind Energy Project Alternative
- Industrial Power Plant Alternative
- Alternative Site Alternative

6.5.1 Wind Energy Project Alternative

The Wind Energy Project Alternative would involve the use of wind energy as an alternative to development of solar site. Similar solar power, energy production from the wind is an alternative to energy production from coal, oil, or nuclear sources. Wind energy provides the following benefits:

- It is a renewable and infinite resource.
- It is free of any emissions, after installation, including carbon dioxide (GHG).
- It is a free resource after the capital cost of installation (excluding maintenance).

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources. Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions. Wind turbines would also have the potential to affect avian species in the local area. In addition, in order for wind turbines to produce an equivalent 530 MW of power that the project would produce, the alternative would require more space than what the project site current accommodates. Consequently, the project site would need to be expanded.

As noted above, some of the project's objectives are to assist California in meeting its GHG emission reduction goals through establishing solar PV power-generating facilities to produce reliable electricity in an economically feasible and commercially financeable while minimizing environmental impacts and using proven and established PV technology that is efficient, low maintenance and recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would substantially increase the significant aesthetic impacts associated with the project because wind turbines would be much taller than solar panels, require FAA lighting and are more visible from many viewpoints.
- It may conflict with the Mojave Air and Space Port, Kern County Airport Land Use Compatibility Plan, and the Edwards Air Force Base due to the heights of the turbines.
- It may result in additional/greater biological resources impacts to avian species than the project.
- It may generate long-term noise impacts to nearby sensitive receptors from rotating turbine blades.

6.5.2 Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 300 MW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation need to be considered in both design and operation. When waste heat that results from the finite efficiency of the power cycle is not recovered and

used as steam or hot water, it must be released to the atmosphere, and often uses a cooling tower as a cooling medium (especially for condensing steam). The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides. Furthermore, unlike the project, fossil fuel-powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) aesthetics and the local visual setting of the project area; (2) air quality and GHG emissions; (3) land use and planning conflicts with the rural development of the surrounding area; (4) noise from the plant operations; (5) traffic from increased employment at the facility; and (6) demand on public utilities, including water and waste disposal.

As noted above, some of the project's objectives are to assist California in meeting its GHG emission reduction goals through establishing solar PV power-generating facilities to produce reliable electricity in an economically feasible and commercially financeable while minimizing environmental impacts and using proven and established PV technology that is efficient, requires low maintenance and is recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would result in additional/greater impacts than the project including aesthetics, air quality, GHG emissions, land use and planning, noise, transportation, and public utilities, including water use and disposal.
- Depending on siting, it may also result in greater biological resources impacts than the project.
- It may conflict with the Mojave Air and Space Port, Kern County Airport Land Use Compatibility Plan, and the Edwards Air Force Base due to the heights of the cooling towers and smoke stacks.
- It would not contribute to the statewide renewable energy and GHG emission reduction objectives as this alternative would use nonrenewable energy to produce electricity.

6.5.3 Alternative Site

This alternative would involve the development of the project on another site located within Kern County, other than constructing rooftop distributed generation systems. Although undetermined at this time, the alternative project site would likely be located in western Antelope Valley, similar to the project. This alternative is assumed to involve construction of a 530 MW PV solar facility with up to 600 MW of energy storage on a site totaling 2,317 acres. CEQA Guidelines 15126.6(f)(2(a) states that the key and initial step in considering an alternative site is whether "any of the significant effects of the project would be avoided or substantially lessened" in relocating the project, while remaining consistent with the same basic objectives of the project.

Western Antelope Valley has attracted renewable energy development applications that are being proposed for vacant land or land with a history of agricultural uses. The availability of alternative sites is constrained by the renewable energy market itself. While other sites with similar size, configuration, and use history may exist in western Antelope Valley, alternative project sites in the area are likely to have similar project and cumulatively significant impacts after mitigation, including cumulatively significant impacts to

aesthetics, air quality, biological resources, hazards, and wildfire. This is based on the known general conditions in the area and the magnitude of the project.

In addition, alternative sites for the project are not considered to be "potentially feasible," as there are no suitable sites within the control of the project proponent that would reduce project impacts. The potential amount of available, similar sites is further reduced because unlike the project, alternative sites may not include sites with close proximity to transmission infrastructure. Therefore, this alternative was eliminated because it would not avoid or substantially reduce the significant environmental effects of the project.

6.6 Analysis Format

In accordance with CEQA *Guidelines* Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less, similar, or greater than the corresponding impacts of the project. Furthermore, each alternative is evaluated to determine whether the project objectives identified in Chapter 3, *Project Description,* of this EIR, would be mostly attained by the alternative. The project's impacts that form the basis of comparison in the alternatives analysis are those impacts which represent a conservative assessment of project impacts. The evaluation of each of the alternatives follows the process described below.

a) The net environmental impacts of the alternative after implementation of reasonable mitigation measures are determined for each environmental issue area analyzed in this EIR.

b) Post-mitigation significant and less than significant environmental impacts of the alternative and the project are compared for each environmental issue area as follows:

   – Less: Where the impact of the alternative after feasible mitigation would be clearly less adverse

     than the impact of the project, the comparative impact is said to be "less."

   – Greater: Where the impact of the alternative after feasible mitigation would be clearly more

     adverse than the impact of the project, the comparative impact is said to be "greater."

   – Similar: Where the impacts of the alternative after feasible mitigation and the project would be roughly equivalent, the comparative impact is said to be "similar."

c) The comparative analysis of the impacts is followed by a general discussion of whether the underlying purpose for the project, as well as the project's basic objectives would be substantially attained by the alternative.

Table 6-4, *Comparison of Alternatives,* provides a summary and side-by-side comparison of the proposed project with the impacts of each of the alternatives analyzed. Note that in Alternatives 1 through 4 in **Table 6-4**, the references to "less, similar, or greater," refer to the impact of the alternative compared to the project, and the impacts "no impact (NI), less than significant (LTS), or significant and unavoidable (SU)," in the parentheses refer to the significant impact of the specific alternative.

Table 6-4. Comparison of Alternatives

CEQA Issue Topic	Proposed Project Impacts	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Aesthetics	Significant and unavoidable (project and cumulative)	Less (NI)	Less (SU)	Less (SU)	Less (LTS)
Agriculture and Forestry Resources	Less than significant with mitigation	Less (NI)	Less (LTS)	Less (LTS)	Less (NI)
Air Quality	Significant and unavoidable (project and cumulative)	Less (NI)	Greater (SU)	Less (SU)	Less (LTS)
Biological Resources	Less than significant with mitigation (project) Significant and unavoidable (cumulative only)	Less (NI)	Greater (SU)	Less (SU)	Less (NI)
Cultural Resources	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)
Energy	Less than significant	Less (NI)	Greater (LTS)	Less (LTS)	Similar (LTS)
Geology and Soils	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)
Greenhouse Gas Emissions	Less than significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than significant with mitigation (project) Significant and unavoidable (cumulative only)	Less (NI)	Similar (SU)	Less (SU)	Less (LTS)
Hydrology and Water Quality	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)
Land Use and Planning	Less than significant (project) Less than significant with mitigation (cumulative)	Less (NI)	Less (NI)	Similar (LTS)	Less (NI)
Noise	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Public Services	Less than significant with mitigation	Less (NI)	Greater (SU)	Similar (LTS)	Less (LTS)
Transportation	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)

Table 6-4, continued

CEQA Issue Topic	Proposed Project Impacts	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Tribal Cultural Resources	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (NI)
Utilities and Service Systems	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Wildfire	Significant and unavoidable (cumulative only)	Less (NI)	Greater (SU)	Less (SU)	Less (SU)
Meet Project Objectives?	All	None	None	Partially	Partially
Reduce Significant and Unavoidable Impacts?	N/A	All	None	None	Some

Notes:

[a] It was determined in the IS/NOP that no impacts would occur from project implementation with regard to Mineral Resources, Recreation, and Population and Housing resource areas and, therefore, no further analysis was required in the EIR.

NI = No Impact

LTS = Less Than significant

SU = Significant and Unavoidable

6.7 Impact Analysis

6.7.1 Alternative 1: No Project Alternative

Environmental Impact Analysis

Aesthetics

Under the No Project Alternative, no development would take place on the project site. The project site would remain in its current state as undeveloped land and no change to the existing scenic quality, visual character, or glare conditions of the site would occur. Impacts to scenic resources and daytime and nighttime views in the area would not occur. Therefore, there would be no impact and the No Project Alternative would result in less impact to aesthetics compared to the project.

Agriculture and Forestry Resources

Under the No Project Alternative, the project site would remain undeveloped and solar panels and an energy storage system would not be installed. The project site would remain in its current state, as largely undeveloped desert land. As such, the No Project Alternative would not involve changes to the existing environment which could result in the conversion of Farmland or forest land to non-agricultural or non-forest uses. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to agriculture and forestry resources compared to the project.

Air Quality

Under the No Project Alternative, the project site would remain undeveloped and there would be no construction activities or operational activities that would generate air emissions. No exceedance of the EKAPCD's significance thresholds for PM10 and PM2.5 would occur, no confliction with the attainment standard, nor would the No Project Alternative contribute to a cumulative net increase of criteria pollutant in the projects' region. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to air quality compared to the project.

Biological Resources

Under the No Project Alternative, the project site would remain undeveloped and existing biological resources on the project site, including special-status plant and wildlife species would remain undisturbed since no construction or operation would occur. The project site would remain in its current state, as undeveloped land containing desert vegetation, and would not contribute to a cumulative loss of habitat that support special-status and rare species that have potential to occur on the project site, including Joshua trees, special-status plants, burrowing owls, Mojave ground squirrel, American badgers, desert tortoise, other raptors, and desert kit foxes. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to biological resources compared to the project.

Cultural Resources

Under the No Project Alternative, the project site would remain undeveloped and no ground disturbing activities would occur. Therefore, disturbance to potential historical resources, archeological resources, or human remains located on-site would not occur and this alternative would not require mitigation. There would be no impact and the No Project Alternative would result in less impacts related to cultural resource compared to the project.

Energy

Under the No Project Alternative, the project site would remain undeveloped and no energy consumption activities would occur. As such, the No Project Alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. However, it should be noted that the No Project Alternative would not support the goals of the Renewable Portfolio Standard. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to energy compared to the project.

Geology and Soils

Under the No Project Alternative, the project site would remain undeveloped and no ground disturbance would occur. As such, the No Project Alternative would not directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and landslides; result in substantial soil erosion or loss of topsoil; result in on- or off-site landslides, be located on expansive soil; or directly or indirectly destroy a unique paleontological resource or unique geologic feature. Therefore, there would be no impact and the No Project Alternative would result in less impact related to geology and soils compared to the project.

Greenhouse Gas Emissions

Under the No Project Alternative, emissions associated with construction and operation of a solar energy facility and energy storage system would not occur. Therefore, those emissions that contribute to GHGs would be eliminated and no impacts would occur related to generating emissions that may have a significant impact on the environment or consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. However, the potential offset of GHG emissions resulting from operation of the solar power generating facility would not be realized. Impacts would be less than significant under this alternative; however, impacts from implementation of this alternative would be greater than those of the project as it would not offset GHG emissions that would occur through nonrenewable energy generation.

Hazards and Hazardous Materials

Under the No Project Alternative, the project site would remain undeveloped, and no construction or operational activities would occur. The project site would remain in its current condition. As such, this alternative would not: involve the routine transport, use, or disposal of hazardous materials associated with the project site; 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; emit hazardous emissions or handing hazardous materials within 0.25 miles of an existing or proposed school; create a significant hazard to the public or environment; result in a safety hazard or excessive noise for

people residing or working in the project area for a project located within the vicinity of a private airstrip; impair implementation of or interfere with an adopted emergency response plan or emergency evacuation plan; expose people or structures to significant risk of loss, injury, or death involving wildland fires; or generate vectors or have a component that includes agricultural waste. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to hazards and hazardous materials compared to the project.

Hydrology and Water Quality

Under the No Project Alternative, the project site's existing hydrology and water quality would remain unchanged as no development or ground disturbance would occur on the project site. As such, this alternative would not violate water quality standards or waste discharge requirements; substantially alter the existing drainage patterns of the site or area in a manner that would result in substantial erosion and/or sedimentation on-site or off-site, result in flooding on-site or off-site; create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage system; impede or redirect flood flows. Therefore, there would be no impact and the No Project Alternative would result in less impact related to hydrology and water quality compared to the project.

Land Use and Planning

The No Project Alternative would not develop any new uses at the project site, and would thus not require issuance of CUPs, or amendments to the Circulation Element of the Kern County General Plan. As such, the No Project Alternative would not cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, there would be no impact and the No Project Alternative would result in less impact related to land use and planning compared to the project.

Noise

Under the No Project Alternative, the project site would remain undeveloped. Noise sources from construction and operation would not be present on-site, and existing noise conditions would remain the same. As such, the No Project Alternative would not result in generation of a substantial temporary or permanent increase in ambient noise levels or generate excessive ground-borne vibration. Therefore, there would be no impact and the No Project Alternative would result in less impact related to noise compared to the project.

Public Services

Under the No Project Alternative, the project site would remain undeveloped and no new demand for fire or police protection services would occur. As such, the No Project Alternative would not result in the need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and police protection. Therefore, there would be no impact and the No Project Alternative would result in less impact related to public services compared to the project.

Transportation

Under the No Project Alternative, the solar facilities would not be constructed and this alternative would not introduce construction and operational-related trips. Existing traffic patterns and volumes on nearby roadways would remain unchanged. As such, the No Project Alternative would not conflict with a program, plan, ordinance or policy addressing the circulation system, nor would the No Project Alternative conflict or be inconsistent with CEQA *Guidelines* Section 15064.3(b). In addition, the No Project Alternative would not substantially increase hazards due to a geometric design feature or result in inadequate emergency access. Therefore, there would be no impact and the No Project Alternative would result in less impact related to transportation than the project.

Tribal Cultural Resources

Under the No Project Alternative, the project site would remain undeveloped and no ground disturbing activities would occur. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to tribal cultural resources compared to the project.

Utilities and Service Systems

Under the No Project Alternative, the solar facilities would not be constructed and there would be no new demand for utilities and service systems on the project site. As such, the No Project Alternative would not 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; generate solid waste in excess of state or local standards; or conflict with federal, State, and local management and reduction statues and regulations related to solid waste. Therefore, there would be no impact and the No Project Alternative would result in less impact related to utilities and service systems compared to the project.

Wildfire

Under the No Project Alternative, the solar facilities would not be constructed and the project site would remain in an undeveloped condition. As such, the No Project Alternative would not expose occupants to pollutant concentrations from a wildfire; require the installation or maintenance of associated infrastructure; or expose people or structures to significant risks, in each case related to the project. Therefore, the No Project Alternative would not contribute to significant cumulative wildland fire hazards that could potentially result from the development of other past, present or reasonably foreseeable future projects in the vicinity.

Comparison of Impacts

The No Project Alternative would avoid creating nearly all of the significant and unavoidable impacts associated with the proposed project. This alternative would result in less impact to all remaining environmental issue areas with the exception GHGs; since this alternative would not offset GHGs through the operation of a solar energy facility, impacts to GHGs would be greater under this alternative.

Relationship to Project Objectives

The No Project Alternative would not achieve any of the project objectives listed above in Section 6.2, *Project Objectives*, including assisting California in meeting its GHG emissions reduction goals. Although this alternative would create less environmental impacts overall, the objectives that shape the project would not be realized under this alternative.

6.7.2 Alternative 2: General Plan and Zoning Build-Out Alternative

Environmental Impact Analysis

Aesthetics

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). This alternative would develop the project site into agricultural uses, residential uses, and light industrial uses. Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed. Development of the project site with agricultural, residential, and industrial uses would result in visual changes from the existing undeveloped site conditions. The potential impacts to visual character would be reduced under this alternative because residential and light industrial uses would appear visually similar to the surrounding residential and industrial uses in the viewshed and agricultural uses can appear similar to undeveloped land; however, the color and texture of the agricultural, residential, and industrial uses would change from the existing natural desert landscape due to the presence of new buildings/structures, and agricultural production. Significant and unavoidable impacts related to visual resources would likely be reduced; however, full build out of agricultural, residential, and industrial development of the project site would be expected to still result in a significant and unavoidable impact on visual quality due to the change from the undeveloped desert landscape and removal of desert vegetation including Joshua trees. The agricultural, residential, and industrial uses would not create a significant new source of light or glare due to compliance with the County's dark sky ordinance. Therefore, this alternative would not combine with cumulative projects to create a significant unavoidable cumulative impact related to light and glare. While significant and unavoidable impacts on visual quality under the General Plan and Zoning Build-Out Alternative would likely remain, this alternative would result in less aesthetic impacts compared to the project.

Agriculture and Forestry Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). This alternative would result in conversion of undeveloped land to agricultural uses within the project site with agricultural uses in areas zoned A-1 (Limited Agriculture). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed. Under this alternative, there would be no zoning change and

areas zoned as A-1 would be developed for agricultural use and there would be no conflicts with the existing agricultural zoning or loss of agricultural resources in Kern County. As noted in Section 4.2, Agricultural Resources, the project site is not under a Williamson Contract and any development under this alternative would not conflict with a Williamson Act contract. Because Alternative 2 would include agricultural development in areas zoned for agricultural use, impacts to agricultural resources would be reduced, compared to the project; in either case, there would be a less than significant impact.

Air Quality

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). This alternative would develop the project site into agricultural, residential, and industrial uses. Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

Both the proposed project and the General Plan and Zoning Build-Out Alternative would result in short-term construction emissions. The conversion of the project site to agricultural uses, construction of residential structures, and construction of industrial facilities over time is expected to result in less short-term construction air quality emissions than construction of the proposed solar facility and battery storage system due to reduced intensity of construction.

Over the operational life of Alternative 2, the agricultural, residential and industrial uses would result in greater vehicle travel and associated air quality emissions than the proposed project, which would require limited operation and maintenance trips. The agricultural use would also involve use of heavy equipment such as tractors or other vehicles to manage the agricultural production and trucks to ship agricultural products. Given this increase, this alternative would result in greater long-term air quality impacts in the air basin than the project. It is expected that the General Plan and Zoning Build-Out Alternative would comply with all applicable air quality planning goals and agriculture emission standards set forth by EKAPCD, as required. Therefore, impacts of the General Plan and Zoning Build-Out Alternative are expected to be result in a less than significant conflict with the applicable air quality plans.

Implementation of this alternative would expose sensitive receptors to substantial pollutant concentrations from use of heavy equipment during construction, and generation of dust over the life of the agricultural uses in areas zoned A-1. Whereas the proposed project would include Mitigation Measure MM 4.3-4 to install solid dust barriers in targeted locations to reduce the effects of windblown dust on the communities of Desert Lake and Boron, this alternative would not include such a measure. Alternative 2 could generate pollutants that could cause or exacerbate Valley Fever in a similar way as the proposed project. However, as this alternative would not require any permits, dust-minimizing techniques would not be implemented, and associated impacts related to Valley Fever would not be reduced to a less-than-significant level. Further, due to the unknown factors about COVID-19, the potential for agricultural activities and increased residential and industrial development to exacerbate the spread or severity of COVID-19 remains with the General Plan and Zoning Build-Out Alternative. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would result in significant and unavoidable project and cumulative impacts.

Overall, impacts on air quality under the General Plan and Zoning Build-Out Alternative would likely remain significant and unavoidable and result in greater long-term impacts to air quality than the project due to the greater operational emissions associated with the agricultural uses and increased vehicle travel

associated with the residential and industrial development. In addition, mitigation measures for air quality emissions would not be implemented because no mitigation would be required to implement projects consistent with the existing zoning.

Biological Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed. Conversion of the undeveloped sites to agricultural, residential, and industrial uses would affect biological resources on the project site as this alternative would replace native vegetation with agricultural crops, grazing areas, residences, and commercial or industrial structures consistent with light industrial zoning. Agricultural, residential, and industrial uses would also result in increased human presence as opposed to the unmanned solar facility that is only visited occasionally for maintenance and panel washing. As it relates to impacts on candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS, the General Plan and Zoning Build-Out Alternative would result in similar impacts as the proposed project on special-status and rare species and sensitive habitat, including Joshua trees, special-status plants, burrowing owl, Mojave ground squirrel, American badger, desert tortoise, other raptors, and desert kit fox (refer to Section 6.1.1, Biological Resources, above for full list). The alternative would involve more impervious surfaces and on-going human presence and disturbance due to the intensive grading and land conversion activities involved in residential and industrial uses and the regular disturbance involved in agricultural use. As this alternative would not require any permits, this alternative would not implement Mitigation Measures MM 4.4-1 through MM 4.4-22; therefore, impacts would be potentially significant and unavoidable as it is unknown if conversion of the land to agricultural uses could result in the take of candidate, sensitive, or a special-status species.

With regard to impacts on jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS, the conversion of land to agricultural, residential, and industrial uses under the General Plan and Zoning Build-Out Alternative has the potential to result in significant impacts on approximately 48 acres of CDFW- and RWQCB-jurisdictional areas present on the project site; however, impacts would be offset due to required compliance with state laws for the protection of waters and wetland resources, and obtaining required permits from CDFW and RWQCB. This alternative would result in impacts on sensitive natural communities including 728 acres of spinescale scrub and 40 acres of successional spinescale scrub similar to the proposed project. Mitigation Measures MM 4.9-1, MM 4.10-1, 4.10-2, MM 4.4-11, and MM 4.4-23through MM 4.4-25 would not be implemented; therefore, impacts would be potentially significant and unavoidable as conversion of the land to agricultural, residential, and industrial uses could result in the permanent loss of these vegetation communities.

Alternative 2 build out would not create a significant impact related to state or federally protected wetlands, the movement of any resident or migratory fish or wildlife species, disrupt established resident or migratory wildlife corridors, or conflict with local policies and ordinances protecting biological resources. The General Plan and Zoning Build-Out Alternative would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. These impacts would be avoided similar to the proposed project.

Based on the above, impacts under the General Plan and Zoning Build-Out Alternative has the potential to result in significant and unavoidable impacts on biological resources at the project-level and cumulative level as no mitigation measures would be required to reduce potential impacts to candidate, sensitive, or special-status species, or sensitive natural community. Therefore, the General Plan and Zoning Build-Out Alternative would result in greater impacts related to biological resources compared to the project.

Cultural Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zoning (Zone Classifications A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed. The full build-out of the project site for agricultural, residential and industrial uses could involve similar ground disturbance to the project where all areas of the project site would be disturbed during construction. While no historical or archaeological resources were identified on the project site, ground-disturbing activities associated with the project have the potential to encounter undocumented archaeological resources that could qualify as historical resources. The General Plan and Zoning Build-Out Alternative would not implement Mitigation Measures MM 4.5-1 through MM 4.5-6 because build out under the existing zoning designations would not require County CEQA review. Should buried archaeological deposits be uncovered during the alternative construction and ground disturbance, and should such resources qualify as historical resources under CEQA, they could be subject to significant impacts. Therefore, without implementation of mitigation measures, potential impacts to archaeological resources could be significant and unavoidable. In addition, there is no indication that any particular location within the project site has been used for purposes of human burial in the recent or distant past. However, in the unlikely event that human remains are inadvertently discovered during project construction activities, this alternative would comply with Health and Safety Code Section 7050.5 as required by law, which includes requirements similar to Mitigation Measure MM 4.5-7 and would ensure that any human remains encountered are appropriately addressed, therefore, impacts would be less than significant.

Based on the above, the General Plan and Zoning Build-Out Alternative would result in greater cultural resource impacts compared to the project as this alternative would not implement mitigation measures and the ground disturbance required under this alternative could affect undocumented subsurface cultural resources. Impacts to unknown cultural resources under this alternative could be significant and unavoidable.

Energy

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zoning (Zone Classifications A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

The portions of the project site that would be developed with agricultural, residential, and industrial uses would involve less-intensive construction activities and short-term electricity usage; however, the residences, industrial facilities, and agricultural uses would require more energy over the operational life

than the proposed project, due to higher levels of daily traffic and higher levels of energy usage compared to the project facilities.

Similar to the project, the General Plan and Zoning Build-Out Alternative would be required to comply with the California Air Resources Board's (CARB) Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes. Impacts involving the wasteful, inefficient, or unnecessary consumption of energy resources would be less than significant under this alternative or the proposed project. Furthermore, similar to the proposed project, the General Plan and Zoning Build-Out Alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This alternative would not, however, assist the state in meeting its renewable energy generation goals for investor-owned utilities.

Based on the above, impacts under the General Plan and Zoning Build-Out Alternative related to energy use would be less than significant, but greater than those of the project as the project site would not generate renewable energy, and would therefore, not assist the state in meeting its renewable energy generation goals to the fullest extent as compared to the proposed project.

Geology and Soils

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system would not be installed and solar energy would not be generated on the site. This alternative would involve construction of residential structures and industrial buildings consistent with the existing zoning.

Construction of the General Plan and Zoning Build-Out Alternative would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the CBC 2016 Edition (California Code of Regulations Title 24). Adherence to all applicable regulations would mitigate any potential fault rupture-related impacts associated with this alternative. The General Plan and Zoning Build-Out Alternative would adhere to requirements of the National Pollutant Discharge Elimination System (NPDES), which includes requirements similar to Mitigation Measure MM 4.10-1, and would comply with Kern County Grading Code (Section 17.28.070), which includes requirements similar to Mitigation Measure MM 4.10-2 in order to address potential soil erosion and loss of topsoil. The alternative could include installation of septic tanks at residential and industrial buildings, unless a cost effective sanitary sewer system could be devised. As it relates to unique paleontological resource or site or unique geologic feature, similar to the project, under the General Plan and Zoning Build-Out Alternative any ground disturbance within the project site could result in a potentially significant impact to paleontological resources. As this alternative would not require any permits, the General Plan and Zoning Build-Out Alternative would not implement Mitigation Measures MM 4.7-3 through MM 4.7-6 to prevent destruction of significant paleontological resources. Therefore, without implementation of mitigation measures, potential impacts to paleontological resources could be significant and unavoidable.

Based on the above, impacts to geology and soils would be slightly greater under this alternative compared to the project as the General Plan and Zoning Build-Out Alternative because mitigation measures would not be implemented to reduce potential impacts to paleontological resources and the alternative would involve construction of a greater number of buildings/structures.

Greenhouse Gas Emissions

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

As portions of the General Plan and Zoning Build-Out Alternative would develop land uses that would emit GHG emissions throughout the life of the project (from increased water usage, traffic, operation of agricultural equipment, residential use, industrial use, and livestock emissions), this would result in a net gain of GHG emissions within California. Unlike the project, the General Plan and Zoning Build-Out Alternative would not assist a utility-scale purveyor of electrical energy in reducing its GHG emissions as consistent with the California Global Warming Solutions Act. Therefore, although both this alternative and the project would result in less-than-significant GHG emissions impacts, impacts from the General Plan and Zoning Build-Out Alternative would be greater when compared to the project since the beneficial reduction in GHG emissions would not occur.

Hazards and Hazardous Materials

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

There are no known hazardous materials in the soil that would be disturbed during construction of the residential, industrial, or agricultural uses. Residential and light industrial uses are not expected to generate significant quantities of hazardous materials. Agricultural uses on the project site could require the use of hazardous materials during operation including herbicides and pesticides. However, as with the project, standard BMPs would ensure that exposure to potentially hazardous materials used or found on-site would be reduced or minimized. In addition, the General Plan and Zoning Build-Out Alternative would be required to use herbicides and pesticides that are approved by CDFW and USFWS for use in California, similar to the requirements under Mitigation Measure MM 4.9-2. Impacts related to significant hazards to the public or environment would be less than significant.

As it relates to wildland fires, the project site is not located within a high fire hazard severity zone. In addition, the General Plan and Zoning Build-Out Alternative includes the development of residential, industrial, and agricultural uses, which would not increase the potential for wildfires compared to the project. Due to the generally undeveloped rural character and limited infrastructure in this part of the County, cumulative impacts involving wildlife hazards would be significant and unavoidable, similar to the project. Since no discretionary permits would be required that would trigger a CEQA review for many individual projects, this alternative would not implement Mitigation Measure MM 4.13-1, which requires preparation of a fire safety plan.

Impacts under the General Plan and Zoning Build-Out Alternative and the project would result in less-than-significant impacts, except that cumulative impacts involving wildland fire hazards would remain significant and unavoidable.

Hydrology and Water Quality

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

The conversion of the project site to agricultural uses, residential, and industrial uses would increase impervious surfaces due to the construction of residential and industrial structures and associated paved parking and roadway areas. The alternative would result in a similar total area of ground disturbance, but a larger portion of the area would become impervious and would no longer allow for groundwater infiltration. The grading and development of industrial and commercial uses could also alter the drainage patterns of the site. Compliance with the NPDES Construction General Permit, including development and implementation of a SWPPP, would be required under the General Plan and Zoning Build-Out Alternative for any grading that disturbs more than one-acre of land. While the NPDES permit would reduce impacts on water quality, the alternative has the potential to substantially alter drainage patterns and infiltration due to development of the natural desert landscape with impervious surfaces. By contrast, the project would be required to prepare a detailed hydrology study to determine the specific drainage and water quality impacts from the final construction plan and to provide targeted control measures, specified in a Stormwater Pollution Prevention Plan (SWPPP), to ensure that the project's drainage alterations and developed runoff does not result in significant impacts. This would be ensured through Mitigation Measures MM 4.10-1, MM 4.10-2. The project would also be required by Mitigation Measure MM 4.9-1 to prepare and implement a Hazardous Materials Business Plan (HMBP). This would ensure that throughout the operating life of the project, storage, handling and disposal of hazardous materials is carefully managed to prevent accidental releases of such materials that could be carried off site during rainstorms. A similar requirement would apply to future industrial land uses that could occur in this alternative, when the volume of hazardous materials is large enough to trigger mandatory preparation/implementation of a HMBP.

The long-term agricultural, residential, and industrial uses proposed under this alternative would likely involve continued ground disturbance from activities such as grazing and plowing, use of herbicides and pesticides, and continued potential for leaks of hydrocarbons (e.g., oil and gas) on roadways whereas the project's operation would not. The alternative would, thereby, pose a greater threat to water quality. The General Plan and Zoning Build-Out Alternative residential, industrial, and agricultural uses would result in greater demand for water resources, including groundwater than the project. Similar to the project, water demands would be met by developing on-site groundwater and would draw from the Harper Valley Groundwater Basin or importing water from the Antelope Valley-East Kern Water Agency. Due to the long-term increased water demand for residential, industrial, and agricultural use, the alternative could result in unsustainable demand for groundwater resources and a significant impact.

Overall, the General Plan and Zoning Build-Out Alternative could result in potentially significant and greater impacts on hydrology and water quality compared with the project as operation of residential, industrial, and agricultural uses proposed under this alternative would involve increased impervious surfaces, greater demand for groundwater resources, less-controlled use of chemicals that could affect water quality, and continued ground disturbance from activities such as grazing and plowing. With piecemeal development of smaller development sites, it is more likely that there would not be a comprehensive approach to managing site runoff, resulting in a higher potential for significant impacts, compared to the

project, which would control runoff in a carefully designed and comprehensive manner for all developed areas.

Land Use and Planning

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

Unlike the project, the General Plan and Zoning Build-Out Alternative would not conflict with the existing land use policies and regulations at the project site, because the site would be developed with the current General Plan land use and zoning designations. This alternative would be consistent with current zoning as well as existing land use plans, policies, and regulations; however, some land uses may require approvals of Conditional Use Permits. Therefore, there would be no impact and the General Plan and Zoning Build-Out Alternative would result in less impact related to land use and planning compared to the project.

Noise

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

During construction, impacts under this alternative would be less than the impacts of the project, as the conversion of the project site to residential, industrial, and agricultural uses would occur in numerous, small-scale construction efforts, over a longer period of time, thus reducing the intensity of noise impacts and the extent to which neighboring land uses would be impacted by that noise. Since few, if any, future land uses that could be developed under this alternative would require approval of a discretionary land use permit, the construction noise control measures required for the project by Mitigation Measures MM 4.12-1 and 4.12-2 would not be implemented, except in limited instances. During operation, the residential uses would create new sensitive receptors in the area, as well as outdoor noise sources typical of rural residential and agricultural land uses, and the industrial uses could create new permanent noise sources that could result in a substantial increase in noise levels. Ambient noise levels would likely be higher, compared to the project, due to more noise sources and higher daily traffic volumes; however, impacts would likely be less than significant because of the low-intensity nature of these land uses and the required noise control standards for industrial uses already embedded in the County's zoning ordinance.

Based on the above, the alternative would result in somewhat lesser short-term construction noise impacts and somewhat greater long-term noise impacts than the project, however, it is unlikely that the higher operational noise levels would be significant and unavoidable.

Public Services

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5,

8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

Piecemeal construction of the General Plan and Zoning Build-Out for development of residential, industrial, and agricultural uses would also potentially generate new ignition sources. During operation, the alternative would introduce new populations into the residential area and create new employment opportunities with new industrial land uses. An increase in local population is not anticipated for new agricultural land uses, as those workers are expected to already live in the general area. This alternative would likely result in similar short-term impacts and greater long-term impact on fire safety services, compared to the project. In general, preparation of a fire safety plan for various small-scale individual development sites would not be required under this alternative, whereas the project must prepare and implement such a plan to mitigate potential impacts during construction, operations and decommissioning, as required by Mitigation Measure MM 4.13-1.

With regard to police protection, while the project site is located in an area that is unlikely to attract attention, construction activities related to installation of new structures would increase traffic volumes along SR 58 and SR 14, similar to the proposed project. The increase in traffic related to development of agricultural, industrial and residential uses during construction would be temporary and, thus, would not have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. During operation of this alternative, agricultural and industrial uses would increase operational traffic to a larger extent than the project, due to the increase employees travelling to the project site, and residential uses would increase daily traffic due to residential activity. However, the increase is not likely to have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways.

With a larger residential population and a higher number of employees, this alternative would result in a greater demand on other public services, compared to the project, including schools, parks and possibly other government facilities that provide services to a residential population.

Under this alternative, there would be no requirement to pay fees and taxes to offset potential impacts to fire, Sheriff, and other public services, as would be required for the project by Mitigation Measures MM 4.13-2, MM4.13-3 and MM 4.13-4. As a result, this alternative would result in greater and possibly significant and unavoidable impacts to public services.

Transportation

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

Construction of the residential, agricultural and industrial land uses would result in increased construction-related traffic. Because this would likely occur over a longer period of time, in a dispersed manner, the level of construction traffic and potential disruptions to traffic flow and the level of service on local streets and highways would likely be reduced, compared to the proposed project. Once operational, the General Plan and Zoning Build-Out Alternative would involve more routine vehicle trips associated with residential, industrial, and agricultural uses. Due to the number of new residences that could be constructed, the increase

in vehicle miles traveled could potentially be significant, and the increased traffic volumes could also potentially result in significant level of service (LOS) impact at some intersections, over the long-term.

As it relates to increasing hazards due to a geometric design feature or incompatible use, as the General Plan and Zoning Build-Out Alternative does not include the installation of large arrays of ground-mounted solar panels on the project site, this alternative would not require the use of oversized vehicles operating on roadways and, as such, would not create a hazard to the public from use of oversized vehicles. Implementation of Mitigation Measure MM 4.14-1 would not be required. With regard to emergency access, this alternative would not be expected to cause a significant increase in congestion or significantly worsen the existing service levels at intersection roadways, therefore, the General Plan and Zoning Build-Out Alternative would have a less-than significant impact on emergency access during construction and operation.

Therefore, the General Plan and Zoning Build-Out Alternative would result in greater impacts on transportation than the project as operational residential, industrial, and agricultural uses would increase the amount of trips and vehicle miles traveled to the project site as compared to the project. Because this alternative is consistent with the General Plan and Zoning regulations which are intended to provide consistency with the capacity of the transportation network, significant and unavoidable impacts are not anticipated. It is possible that there could be locations where there are significant LOS problems form periods of time, until capacity improvements are funded and constructed.

Tribal Cultural Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed. According to record searches and tribal resource consultations, no tribal resources have been recorded within or are known to be present on the project site. However, similar to the proposed project, there could potentially be significant impacts to unknown tribal cultural resources due to grading activities under the General Plan and Zoning Build-Out Alternative, but since there would be no actions to trigger review under CEQA, the same mitigation measures required for the project would not be required for the land uses that could occur under this Alternative. Impacts to tribal cultural resources, therefore, could be greater than with the proposed project, and are potentially significant and unavoidable.

Utilities and Service Systems

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed.

The proposed residential, industrial, and agricultural uses would create new impervious surfaces for new roadways, homes, and buildings/structures that may require construction of one or more municipal storm drainage systems. The residential, industrial, and agricultural uses would also increase solid waste generation and disposal at landfills. The long-term commitment for water supply and wastewater treatment

would increase due to the increased demands for residential, industrial, and agricultural uses. Due to the increased population in the area, the overall demand and impact on utilities and service systems would be greater under the General Plan and Zoning Build-Out Alternative than the proposed project, but less than significant.

Wildfire

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed to the maximum extent possible in accordance with the existing General Plan (Map Codes 7.1, 7.3, 8.3, 8.5, 8.5/2.5) and zone designations (Zones A-1, R-1, and M-1) for agricultural, residential, and industrial uses (refer to Section 6.4.2 for additional details). Solar panels and an energy storage system to provide 530 MW of electrical energy to the regional electricity grid would not be installed. As with the project, this alternative is not classified as being within a high fire hazard severity zone and is not anticipated to physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The site is located in a rural, sparsely developed area with limited population. The project site is not located along an identified emergency evacuation route and is not identified in any adopted emergency evacuation plan. Therefore, the General Plan and Zoning Build-Out Alternative would not substantially impair an adopted emergency response plan or emergency evacuation plan.

The project site has low topographic relief and is relatively flat. A majority of the project site is located within a Local Responsibility Area (LRA) Moderate zone, with a small section of the gen-tie study area in a State Responsibility Area (SRA) Moderate zone, which are considered wildland areas with low fire frequency and relatively modest fire behavior. As such, the impacts of the alternative residential, industrial, and agricultural uses would be less than significant. However, the General Plan and Zoning Build-Out Alternative would result in new residential areas adjacent to wildlands, which would result in greater risk of wildland fire threats to homes than the proposed project.

Given the location of the project site in a rural area and with limited infrastructure, the alternative and related projects have the potential to result in significant and unavoidable cumulative impacts related to wildfire hazards. By introducing more homes and an increase in permanent population into this area, impacts under the General Plan and Zoning Build-Out Alternative would be greater than the proposed project.

Comparison of Impacts

The General Plan and Zoning Build-Out Alternative would result in less impact to aesthetics, agriculture and forestry resources, and land use and planning. This alternative would result in greater impacts in all remaining environmental issue areas. Greater impacts on air quality would result from emissions from the proposed residential, industrial, and agricultural uses on-site, such as livestock emissions, as well as higher vehicle exhausts from higher traffic volumes. As mitigation measures would not be implemented to avoid impacts on candidate, sensitive, or a special-status species and sensitive natural communities, impacts to biological resources would be greater. Given the ground disturbance required and no implementation of mitigation, greater impacts would occur to potentially undiscovered cultural and tribal resources. This alternative would result in greater energy impacts as the project site would not generate renewable energy as compared to the project, and would therefore, not assist the state in meeting its renewable energy generation goals. Greater impacts to geology and soils related to paleontological resources would result from greater initial soil disturbance during construction and no implementation of mitigation. This alternative would result in greater GHG emission impacts than the project because the potential offset or

displacement of GHG emissions from operation of the solar power generating facility, compared with traditional gas- or coal-fired power plants, would not be realized. Greater impacts to hydrology and water quality would result from a higher level of impervious surfaces and groundwater use and ground disturbance from activities such as grazing and plowing and the application of herbicides or pesticides from the proposed agricultural uses. The increase in human population on-site during operation is also responsible for greater impacts to noise, public services, utilities and service systems, and transportation. This alternative would not avoid significant cumulative impacts on aesthetics, would not eliminate significant and unavoidable impacts associated with air quality (project and cumulative), biological resources (cumulative only), hazards and hazardous materials (cumulative only), and wildfire (cumulative only). This alternative would also create additional significant and unavoidable impacts related to biological resources (project), cultural resources (project), geology and soils – paleontological resources (project), hydrology and water quality (project), and tribal cultural resources (project).

Relationship to Project Objectives

The General Plan and Zoning Build-Out Alternative would not achieve any of the project objectives listed above in Section 6.2, including the project objective related to assisting California in meeting its GHG emissions reduction goals by 2020 and 2030 as required by the California Global Warming Solutions Act (Assembly Bill [AB] 32), as amended by Senate Bill 32 in 2016.

6.7.3 Alternative 3: Reduced Acreage Alternative

Environmental Impact Analysis

Aesthetics

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). With regard to impacts related to scenic vistas, there are no designated or widely recognized scenic vistas in the project vicinity. The Reduced Acreage Alternative sites and the surrounding area are within a flat valley and away from vantages of the project site, except for a few topographical features to the north and south; however, these features are subject to significant mining or other industrial activities. Consistent with the proposed project, solar facility features may be visible to some degree from the viewshed of distant elevated views, such as from the mountain peaks located approximately 10 miles away. While implementation of the Reduced Acreage Alternative would add new manmade elements to the landscape, these changes would not substantially change the quality of any scenic vistas. As such, impacts would be less than significant.

While there are no officially designated state scenic highways in the County, the Reduced Acreage Alternative sites would be located approximately 0.5 mile from highway SR 58, which is an eligible state scenic highway. Sites 4 and 5 of the proposed project that are located immediately adjacent to the SR 58 highway corridor would be removed from construction. Sites 1, 2b, and 3b would be positioned away from the immediate views of motorists and the direction of travel. Further, residential and commercial development within the communities of Desert Lake and Boron would be positioned between the highway

and the solar facilities, screening the majority of the project from view. Vegetation that contributes to scenic quality would be removed from Sites 1, 2b, 3b, including Joshua trees; however, these areas do not provide a significant contribution to the highway's scenic resources and other similar vegetation would remain at closer proximities along the highway corridor. The gen-tie line may still be visible and potentially cross SR 58, if connected to the Holgate Substation; however, views from the highway would be affected form a very short period and the poles would be viewed with other existing utility infrastructure in the immediate vicinity. Visual impacts on the eligible state scenic highway would be less than significant under the Reduced Acreage Alternative.

While this alternative would avoid development of a portion of the project site (Sites 2a, 3a, 4, and 5), this alternative does include the installation of solar panels, energy storage system facilities, and other O&M facilities in Sites 1, 2b, and 3b, as well as a gen-tie line along one of the same routes identified for the proposed project. These facilities would be installed within generally undeveloped areas and would result in adverse effects on existing scenic quality and visual character for viewers in the area, including motorists, residents, and users of Boron Park. Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.1-1 through MM 4.1-3, which would be incorporated to reduce visual impacts that would occur from the collection of debris along the site boundary, to require appropriately blending color treatments for all buildings and structures, and to retain existing natural vegetation to the extent feasible. In addition, similar to the project, screening of the project development areas would be provided by installation of solid dust barriers, as required by Mitigation Measure MM 4.3-4. However, similar to the project, there are no feasible mitigation measures that can be implemented to maintain the existing open and undeveloped desert landscape character of the project site, impacts on existing scenic quality and visual character would remain significant and unavoidable.

As the Reduced Acreage Alternative includes the installation of solar panels over a large area, as with the proposed project, the potential for the solar panels to result in light and glare impacts would be similar to the project during construction and operation. Potentially substantial levels of glare and exposure durations from solar panels could impact daytime views for receptors in the area for periods of the day and multiple months of the year. The removal of Sites 4 and 5 would reduce the extent of glare effects and potentially reduce the overall areas affected by glare; however, substantial glare levels and exposure durations would remain with Sites 1, 2b, and 3b due to their proximities to receptors. As with the proposed project, Mitigation Measures MM 4.1-6 through MM 4.1-9 would be implemented to minimize glare to the extent possible. Regardless, significant and unavoidable impacts on daytime views associated with glare would remain.

The Reduced Acreage Alternative would have less overall impacts on aesthetics compared to the proposed project due to the reduction in project site size under this alternative; however, impacts would remain significant and unavoidable.

Agriculture and Forestry Resources

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). The proposed project and the Reduced Acreage Alternative would both involve the installation of solar facilities on areas of land zoned for agriculture to non-agricultural uses.

Similar to the project, the Reduced Acreage Alternative would not directly or indirectly impact farmland, as there is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project area. In addition, according to available data, none of the parcels included as part of the project or any property in the vicinity of the project are subject to a Williamson Act Land Use contract or would result in the cancellation of an open space contract. There are no existing agricultural uses or any forestry resources on or adjacent to the project site; therefore, this alternative would also not affect such resources.

Impacts to agriculture and forestry resources would remain less than significant. As the Reduced Acreage Alternative would include a smaller footprint, the Reduced Acreage Alternative would result in less impact to agriculture and forestry resources compared to the proposed project.

Air Quality

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). This area reduction would reduce the extent of construction-related impacts on air quality roughly proportionally. The use of construction vehicles, heavy equipment operation, and worker trips would be similar but less than the proposed project, but grading and other construction activities would not occur on Sites 2a, 3a, 4, and 5, which would reduce the extent of ground disturbance by approximately 774 acres. Similar to the proposed project, this alternative would require implementation of Mitigation Measures MM 4.3-1, MM 4.3-2, MM 4.3-3 and MM 4.3-4 in order to minimize dust and construction-related emissions. Impacts after mitigation would be less than significant.

Implementation of this alternative would expose sensitive receptors to substantial pollutant concentrations. In particular, during construction of this alternative, it is possible that on-site workers could be exposed to Valley Fever as fugitive dust is generated during construction. However, dust-minimizing techniques, as implemented through Mitigation Measures MM 4.3-1, MM 4.3-2, and MM 4.3-4 would reduce these impacts to less than significant. As with the project, the Reduced Acreage Alternative would result in less-than-significant impacts related to toxic air contaminants, localized pollutant concentrations, asbestos, carbon monoxide (CO) hotspots, and Valley Fever.

As with the proposed project, the Reduced Acreage Alternative would involve the dispersal of criteria air pollutants such as $PM_{2.5}$ which have the potential to contribute to the transmission of respiratory diseases like COVID-19. While construction dust suppression measures would be implemented in Mitigation Measure MM 4.3-1, exposure to dust resulting from construction could still occur, which could increase the susceptibility of contracting COVID-19 and increase the severity of the disease. Consistent with the proposed project Mitigation Measure MM 4.3-4 would be implemented, which requires implementation of a COVID-19 Health and Safety Plan in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. Implementation of Mitigation Measures MM 4.3-1, MM 4.3-2, and MM 4.3-4 would be required to reduce the regional and localized health effects associated with criteria air pollutants and COVID-19; however, the exact reduction from implementation of these mitigation measures cannot be quantified given existing scientific constraints. As such, the impacts are conservatively considered to be significant and unavoidable for both the project and cumulatively for both the proposed project and the Reduced Acreage Alternative.

Overall, the Reduced Acreage Alternative would reduce dust generation and project emissions compared to the proposed project and most air quality impacts would be less than significant with mitigation, as with

the proposed project; however, due to the unknown factors that contribute to COVID-19, impacts are conservatively determined to remain significant and unavoidable.

Biological Resources

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). As it relates to impacts on candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS, the Reduced Acreage Alternative would result in similar, but lesser impacts as the proposed project on special-status and rare species and sensitive habitat, including Joshua trees, special-status plants, burrowing owl, Mojave ground squirrel, American badger, desert tortoise, other raptors, and desert kit fox (refer to Section 6.1.1, Biological Resources, above for full list). Special-status plants and habitat that occur within Sites 2a, 3a, 4, and 5 would be avoided, including impacts on approximately 774 acres of mostly vegetation land and roughly 700 Joshua trees. Nonetheless, a considerable amount of habitat and vegetation would be impacted within Sites 1, 2b, and 3b. Similar to the proposed project, Mitigation Measures MM 4.4-1 through MM 4.4-22 would be implemented and would reduce or avoid impacts to less-than-significant levels.

With regard to impacts on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS, the Reduced Acreage Alternative could result in significant impacts related to approximately 44 acres of CDFW-jurisdictional waters and 11 acres of RWQCB-jurisdictional waters that occur in Site 2b. In contrast to the proposed project, approximately 4 acres of CDFW-jurisdictional waters and 3 acres of RWQCB-jurisdictional waters that occur in Sites 4 and 5 would not be impacted. Regarding CDFW-designated natural vegetation communities, the Reduced Acreage Alternative would result in impacts on 295 acres of spinescale scrub, which is 433 acres less than the proposed project. As with the proposed project, implementation of Mitigation Measures MM 4.9-1, MM 4.10-1, 4.10-2, MM 4.4-11, and MM 4.4-23 through MM 4.4-25 would reduce impacts to less-than-significant levels under the Reduced Acreage Alternative.

Based on the above, project-level impacts under the Reduced Acreage Alternative would be less than significant with implementation of mitigation and similar to those of the project. However, cumulatively, this alternative would still result in significant and unavoidable impacts on biological resources. Regardless of the type of development, biological resources are being impacted throughout the Antelope Valley due to the number of large projects, many of which are solar energy facilities. However, as this alternative would avoid disturbing approximately 774 acres of vegetated land within Sites 2a, 3a, 4, and 5, the Reduced Acreage Alternative would result in less impact on biological resources compared to the project, for that undeveloped land area. All other impacts related to biological resources would remain similar to the proposed project, where the development footprints are the same.

Cultural Resources

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). One potentially eligible site (S-008) located within project Site 4. The only other eligible or potentially eligible sites identified in the full project area, including P-15-000560, P-15-017304, S-004, and S-006, all of which are located along the gen-tie route to Holgate Substation. If the gen-tie route option to

Holgate Substation was selected then these sites would not be avoided by the Reduced Acreage Alternative; therefore, Mitigation Measures MM 4.5-1 through MM 4.5-6 would be implemented to reduce impacts to less-than-significant levels. In addition, there is no indication that any particular location within the project site has been used for purposes of human burial in the recent or distant past. However, in the unlikely event that human remains are inadvertently discovered during project construction activities, implementation of Mitigation Measure MM 4.5-7 would ensure that any human remains encountered are appropriately addressed and impacts would be less than significant.

Based on the above, implementing mitigation similar to the mitigation proposed for the project, impacts to cultural resources under this alternative would be less than significant. However, the Reduced Acreage Alternative would result in less overall impacts related to cultural resources compared to the project due to the avoidance of Site 4 where S-008 is located and the reduction in total ground disturbance.

Energy

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Eliminating 774 acres from project development would result in reduced energy use, as the Reduced Acreage Alternative would generate approximately 355 MW, a 33% reduction from 530 MW targeted under the proposed project with up to 402 MW of energy storage (a reduction in 33% from the project's 600 MW of storage), based on the proportional reduction in acreage. Therefore, all construction and operational methods, workforce, and timing for the Reduced Acreage Alternative would be reduced as compared with the project. Similar to the proposed project, the Reduced Acreage Alternative would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes. The fuel efficiency of the vehicles being used by the employees and visitors under this alternative would be similar to the project; however, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. Similar to the proposed project, this alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, impacts would be less than significant. The Reduced Acreage Alternative would result in less energy impacts compared to the project.

Geology and Soils

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Construction of the Reduced Acreage Alternative would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the CBC 2016 Edition (California Code of Regulations Title 24). Adherence to all applicable regulations would mitigate any potential fault rupture-related impacts associated with this alternative. In addition, similar to the project, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.7-1 and MM 4.7-2. Mitigation Measure MM 4.7-1 requires that a geotechnical study to evaluate soil conditions and geologic hazards be performed by a qualified geotechnical engineer on the project site. Mitigation Measures MM 4.7-2 requires that all structures proposed under this alternative, including the O&M facility, energy storage facility and associated infrastructure, and on-site substation adhere to the specifications, procedures, and site conditions contained in the final design plans. Implementation of these mitigation measures, as with

the project, would serve to reduce impacts to less-than-significant levels related to strong seismic ground shaking, unstable geologic units, and expansive soils. In addition, with regard to soil erosion and loss of topsoil, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.10-1 and MM 4.10-2. As it relates to a unique paleontological resource or site or unique geologic feature, similar to the project, under the Reduced Acreage Alternative any ground disturbance within the project site could result in a potentially significant impact to paleontological resources. As such, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.7-3 through MM 4.7-6 to reduce impacts on paleontological resources. Therefore, impacts would be less than significant.

As discussed above, with implementation of mitigation similar to that required for the proposed project, impacts on geology and soils and paleontological resources would be less than significant. However, impacts of the Reduced Acreage Alternative would result in less impacts compared to the proposed project due to the reduction in overall ground disturbance.

Greenhouse Gas Emissions

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Construction and operational GHG emissions with the Reduced Acreage Alternative would be lower based on the smaller footprint; however, the smaller footprint would also reduce the solar energy generation and storage capacities. Eliminating 774 acres would reduce the project's clean and renewable energy generation capacity by approximately 33% from 530 MW to approximately 355 MW, and the storage capacity from approximately 600 MW to 402 MW. Reducing the project's renewable energy contribution would offset less GHG emissions and increase the need for other projects in the region to meet demand. As such, impacts involving GHG emissions would be greater under this alternative, but less than significant.

Hazards and Hazardous Materials

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Construction, operation, and decommissioning of the project under the Reduced Acreage Alternative would involve the use of the same types of hazardous materials (i.e., fuels, lubricants, pesticides, CdTe, etc.) as the proposed project. In addition, as with the proposed project, Site 1 and 2 include known hazard areas, including the Boron Landfill and shooting range in Site 1 and the Historical Target Site PB-9 in Site 2. Similar to the project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.16-1 in order to avoid spills and minimize impacts in the event of a spill; regulate the use of hazardous materials during construction and operation, including the use of pesticides and herbicides; and ensure that wastes requiring special disposal are handled according to state and county regulations that are in effect at the time of disposal, respectively. Implementation of these mitigation measures would reduce impacts related to a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

With regard to hazardous emissions within 0.25 miles of a school, the nearest school to the proposed project site (West Boron Elementary School) is located approximately 0.25 mile north of Site 3a that is part of the

proposed project. This portion of Site 3 would be eliminated from the Reduced Acreage Alternative and ultimately increase the project's distance to the school to approximately 0.5 mile. Impacts of the proposed project and Reduced Acreage Alternative would be less than significant. In addition, consistent with the proposed project, the Reduced Acreage Alternative would not physically impede an existing emergency response plan, emergency vehicle access, or personnel access to the project site; impacts would be less than significant.

As it relates to wildland fires, the project site is not within an area of high or very high fire hazard. However, similar to the project, the Reduced Acreage Alternative would include an energy storage component which, while they generally burn with difficulty, can in fact burn or become damaged by fire and generate fumes and gases that are extremely corrosive. Mitigation Measure MM 4.13-1 would be implemented to reduce impacts to less-than-significant levels, which includes the development and implementation of a Fire Safety Plan for construction and operation of the project in the event of a fire on the project site. Consistent with the proposed project and the analysis for wildlife, the Reduced Acreage Alternative is expected to result in cumulative impacts associated with wildland fires. As such, similar to the project, Mitigation Measure MM 4.13-1 would be implemented to minimize cumulative impacts; however, due to the number of projects occurring in Antelope valley and the potential for the dispersed project components to exacerbate fire risk, cumulative impacts associated with an increase fire risk would remain, as with the project.

Impacts under the Reduced Acreage Alternative and the proposed project would result in reduced, less-than-significant impacts after implementation of mitigation measures and the potential cumulative impacts involving wildland fire hazards under the Reduced Acreage Alternative would be similar to the proposed project, i.e. significant and unavoidable.

Hydrology and Water Quality

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). The Reduced Acreage Alternative would result in reduced, but similar impacts on hydrology and water quality as the proposed project, including impacts involving water quality standards and discharge requirements; groundwater supplies; alteration of the existing drainage pattern; risk the release of pollutants due to project inundation; and conflicts with water quality control plans or sustainable groundwater management plans. By reducing the footprint of the project site by 774 acres, impacts on hydrology and water quality would be lower than the proposed project based on a reduction of ground disturbance, area occupied by project facilities, stormwater collection area and runoff volume, and water demand and use. Water used for the alternative would be obtained from the same sources identified for the proposed project, which could include local groundwater and surface flows. Nevertheless, mitigation measures would be required similar to the proposed project to ensure impacts would be less than significant. Mitigation Measure MM 4.9-1, MM 4.10-1, and MM 4.10-2 would be implemented to reduce impacts regarding water quality standards to less-than-significant levels.

Overall, impacts related to hydrology and water quality would be less than significant with implementation of mitigation measures similar to those implemented under the proposed project. However, the Reduced Acreage Alternative would have less impact related to hydrology and water quality compared to the proposed project due to the reduced footprint, which would result in reduced grading activities, the amount of impervious surface, and water use when compared to the proposed project.

Land Use and Planning

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Nevertheless, development of the Reduced Acreage Alternative would still require changes in zone classifications, issuance of CUPs, and amendments to the Circulation Element of the Kern County General Plan in order to operate a solar facility and energy storage facility on the project site. Impacts would be less than significant under this alternative. Land use and planning impacts would be similar under the Reduced Acreage Alternative when compared to the proposed project.

Noise

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Under the Reduced Acreage Alternative all overall construction and operational methods, workforce, and timing would be reduced when compared with the proposed project. Under this alternative, as the number of on-site construction equipment is assumed to be similar under this alternative on a daily basis, as with the proposed project, construction and decommissioning activities could generate noise greater than the standard 65 dB(a) for the Kern County General Plan and 55 dB(A) for short periods of time. The Reduced Acreage Alternative would implement similar mitigation measures as the project. Mitigation Measure MM 4.12-1 and MM 4.12-2 would be implemented to ensure construction noise and disturbances are minimized and any noise complaints are addressed. Mitigation Measure MM 4.12-3 would be implemented to ensure operational noise from project transformers at substations would not increase ambient noise levels by more than 5 dBA. Impacts associated with construction and operation noise would be less than significant with mitigation for both the proposed project and the Reduced Acreage Alternative. Similar to the proposed project, potential ground-borne vibration or ground-borne noise levels would be less than significant and no mitigation would be required.

Based on the above discussion, the Reduced Acreage Alternative would reduce the number of sensitive receptors that may be exposed to construction and noise impacts as well as the duration of potential noise exposure during construction. In addition, the elimination of Site 3a would increase the distance between the project and residences in Desert Lake, further reducing the level of less than significant-with mitigation noise impacts, compared to the project.

Public Services

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). The Reduced Acreage Alternative would have a similar construction schedule and require a similar or possibly a lower number of construction workers. Up to 5 full-time staff would be employed to operate each site, and by reducing the total number of developed sites from 5 to 3, the number of operational staff would be reduced. The alternative would increase fire service demands similar to the proposed project during construction and operation. As with the proposed project, Mitigation Measures MM 4.13-1 and MM 4.13-2 would be required. Mitigation Measure MM 4.13-1 requires the development of a Fire Safety Plan

to minimize fire risks during construction and operation. Mitigation Measure MM 4.13-2 requires the project operator to pay Kern County development impact fees to compensate for any permanent impacts to fire protection services and facilities resulting from the operation of this alternative.

With regard to police protection, while the project site is located in an area that is unlikely to attract attention, construction activities would increase traffic volumes along SR-58 and SR-14, similar to the project. The increase in traffic would be temporary and thus would not have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. In addition, fences would be installed around the perimeter of the northern site, substation, and other areas requiring controlled access, for safety and security purposes. During operation of this alternative, the additional volume of vehicles associated with workers commuting to the project site during routine maintenance would be minor and is not expected to adversely affect traffic. Therefore, the increase is not likely to have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. Impacts would be less than significant.

Based on the above, impacts would be less than significant under this alternative following implementation of similar mitigation measures proposed for the project and impacts related to public services would be similar compared to the project.

Transportation

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Under the Reduced Acreage Alternative all construction and operational methods, workforce, and timing would be reduced when compared with the project. Similar to the proposed project, during construction of the Reduced Acreage Alternative, which would require similar construction trips and travel distances for installation of the solar facilities, the level of service impacts and the volume of vehicle miles traveled would be less, due to the reduced amount of materials and equipment that would be used to construct the project. During operation of this alternative, distances of day-to-day O&M trips would be the same, while total trips and total vehicle miles traveled would be reduced in comparison with those of the project. Similar to the project, the total number of daily trips and distances traveled for O&M of the solar panels would be substantially less than during construction. Both the proposed project and Reduced Acreage Alternative would result in less-than-significant impacts regarding conflicts with a program, plan, ordinance or policy establishing the circulation system, including transit, roadway, bicycle, and pedestrian facilities; and conflicts or inconsistencies with CEQA *Guidelines* Section 15064.3, subdivision (b).

As it relates to increasing hazards due to a geometric design feature or incompatible use, similar to the proposed project, the Reduced Acreage Alternative would also require the use of oversized vehicles during construction which could create a hazard to the public by limiting motorist views and by the obstruction of space. As with the proposed project, this alternative would also implement Mitigation Measure MM 4.14-1, which would reduce impacts from oversized construction vehicles and would also provide further assurances for emergency access.

Based on the above, impacts would be less than significant. Given the reduction in total construction and operational vehicle trips under this alternative as compared to those of the proposed project, the Reduced Acreage Alternative impacts related to transportation would be less compared to the proposed project.

Tribal Cultural Resources

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). No tribal cultural resources were identified within or immediately adjacent to the project site; however, there is a potential to encounter and disturb unknown resources during site clearing and grading activities, which would require implementation of avoidance measures specified in Mitigation Measures MM 4.5-1, MM 4.5-2 and MM 4.5-6 to MM 4.5-7. Therefore, potential impacts to tribal cultural resources would be reduced, and with the same mitigation measures, would also result in a less than significant impact.

Utilities and Service Systems

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). Eliminating 774 acres from project development would result in reduced demand for utilities and service systems, as the Reduced Acreage Alternative would provide approximately 355 MW of energy generation capacity and approximately 402 MW of energy storage capacity, a reduction from approximately 530 MW and 600 MW, respectively. Therefore, all construction and operational methods, workforce, and timing for the Reduced Acreage Alternative would be reduced in comparison with the proposed project.

As with the project, installation of solar panels would require water usage for dust suppression as well as minimal generation of wastewater, usage of electrical power, natural gas, and telecommunications. In addition, construction of the Reduced Acreage Alternative would not substantially alter stormwater drainage. With regard to operation, the solar panels installed under the Reduced Acreage Alternative would require a reduced water demand in comparison with the project. Wastewater and solid waste generation associated with this alternative would also be reduced compared to the proposed project due to the reduced number of employees required for maintenance of the solar facilities. As the Reduced Acreage Alternative would develop the project site, impervious surfaces would be minimized as much as possible, as with the proposed project. Similar to the project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.10-1, MM 4.10-2, and MM 4.16-1 to reduce impacts to less-than-significant levels. Mitigation Measure MM 4.10-1 requires implementation of a SWPPP, which would include best management practices to manage stormwater drainage and runoff from the site. Mitigation Measure MM 4.10-2 requires preparation of a final hydrologic study and drainage plan to detail engineering design measures to manage stormwater flows and reduce potential increases in stormwater runoff. Measure MM 4.16-1 requires that debris and waste generated shall be recycled to the extent feasible, and an on-site recycling coordinator be designated by the project proponent to facilitate recycling efforts.

This alternative is expected to result in less-than-significant impacts to utilities and service systems and impacts would be less compared to the proposed project due to the reduced number of employees required for maintenance of the solar panels.

Wildfire

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's

footprint from approximately 2,317 acres to approximately 1,544 acres (refer to Section 6.4.3 for additional details). The project site is located in a rural, sparsely developed area and adjacent to residential areas in the communities of Desert Lake and Boron. As with the proposed project, this alternative is not classified as being within a high fire hazard severity zone and is not anticipated to physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The project site is not located along an identified emergency evacuation route and is not identified in any adopted emergency evacuation plan. Therefore, the Reduced Acreage Alternative would not substantially impair an adopted emergency response plan or emergency evacuation plan.

The project site has low topographic relief and is relatively flat. A majority of the project site is located within an LRA Moderate zone, which are considered wildland areas with low fire frequency and moderate fire risk. Similar to the project, the energy storage facility developed under this alternative has the potential to burn and, should this occur, has the potential to expose workers and environment to pollutants and fire. As such, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.13-1, which would require the development and implementation of a Fire Safety Plan for use during construction, operation, and decommissioning of the project, which would further reduce the fire risks on-site. As such, impacts under this alternative related to exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire would be less than significant.

With regard to the installation or maintenance of associated infrastructure, solar panels would require installation of the electrical collector and gen-tie lines, similar to the project. The installation of the electrical lines would not be placed within a high fire hazard zone and the vegetation would be cleared and thus would not result in increased fire risks that could result in temporary or ongoing impacts to the environment. No slopes are located within proximity to the project site. As such, similar to the project, the Reduced Acreage Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

With implementation of similar mitigation proposed for the project, this alternative is expected to result in less-than-significant impacts associated with wildfire. However, given the location in a rural area and limited infrastructure, the project and related projects have the potential to result in significant and unavoidable cumulative impacts related to exacerbating wildfire risks and adverse post-fire conditions. The Reduced Acreage Alternative would likely result in less impact than the project due to the reduced footprint compared to the project, but significant and unavoidable cumulative impacts would remain.

Comparison of Impacts

The Reduced Acreage Alternative footprint would reduce the proposed project footprint by approximately 33%, and thus reduce impacts of the proposed project roughly proportionally associated with ground disturbance, traffic, noise, water use, waste generation, and emissions. The overall duration of construction and the workforce needed during construction and operation of the project would be similar to the proposed project but are ultimately expected to be less due to fewer facilities being installed and maintained. The generation capacity would also change roughly proportionally from approximately 530 MW to 355 MW, and the storage capacity would change from approximately 600 MW to 402 MW, based on the footprint reduction. Similar to the project, this alternative would require plan amendments and permits upon project approval for construction and operation of a commercial solar electrical generating facility. Due to the reduced footprint, the Reduced Acreage Alternative would result in less or similar impacts for the majority of environmental issue areas, depending on the physical location of environmental resources and the selected footprint of the Reduced Acreage Alternative. However, this alternative would offset fewer GHG

emissions from fossil fuel-based electrical generating facilities, given the reduced solar energy output, and the need for other projects in the region to meet demand. In addition, the Reduced Acreage Alternative would not eliminate significant and unavoidable impacts associated with aesthetics (project and cumulative), air quality (project and cumulative), biological resources (cumulative only), hazards and hazardous materials (cumulative only), and wildfire (cumulative only).

Relationship to Project Objectives

Under the Reduced Acreage Alternative, Sites 2a, 3a, 4, and 5 would be eliminated from the project, and Site 1, 2b, and 3b would be developed similar to the proposed project, which would reduce the project's footprint from approximately 2,317 acres to approximately 1,544 acres. Although this alternative would achieve some of the project objectives, it would not achieve the goals of developing facilities to produce the necessary amount of clean electricity to help achieve California's renewable energy goals to the degree associated with the proposed project. This alternative would meet the objective of developing a solar energy generation and storage facility; providing energy to the electric grid to meet increasing demand for in-state generation; assisting Kern County in promoting its role as the State's leading producer of renewable energy; siting and designing the project in an environmentally responsible manner consistent with current Kern County guidelines; and supporting California's GHG emission reduction goals and RPS Program. However, the Reduced Project Alterative would not achieve the project objectives of constructing and operating a solar energy facility to produce (up to) 530 MW of reliable electricity and 600 MW of energy storage. It is unknown if this alternative would achieve the project objective of producing and transmitting electricity in an economically feasible and commercially financeable manner that can be marketed to different power utility companies.

6.7.4 Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only

Environmental Impact Analysis

Aesthetics

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities throughout the Antelope Valley.

With regard to impacts related to scenic vistas, there are no local areas that are designated as scenic vistas within the vicinity of the site. With the No Ground-Mounted Utility-Solar Development Alternative, solar installation would occur on the roofs of the existing buildings. In addition, while the Pacific Crest Trail, an important regional recreational facility and long-distance hiking and equestrian trail, has views of the entire Antelope Valley, installation of solar panels on rooftops of commercial and industrial facilities dispersed throughout the Antelope Valley would not substantially change the quality of the view. Thus, given that no local areas are designed as scenic vistas and development under this alternative would be dispersed throughout western Antelope Valley, the No Ground-Mounted Utility-Solar Development Alternative would not have a substantial adverse effect on a scenic vista.

The project would not be visible from any Officially Designated State or County Scenic Highway. Although SR-58 between SR 14 and Barstow is designated as an eligible State Scenic Highway, it has not yet been officially designated as a State Scenic Highway. Given the fact that development under this alternative would be dispersed throughout western Antelope Valley, this alternative would not substantially damage scenic resources. Impacts would be less than significant under the No Ground-Mounted Utility-Solar Development Alternative and impacts would be less than those of the project.

The installation of small to medium solar PV systems on large commercial and industrial rooftops would be visually unobtrusive or unnoticeable from receptors at ground level. However, from other vantage points, the installation of rooftop small to medium solar PV systems may be visible, but would not likely affect the visual character or quality of an area, because the character or quality of an area has already been altered as a result of the existing building's construction. The exceptions may be if rooftop solar were proposed on historic buildings, which could affect the historic character and integrity of the buildings. Implementation of this alternative would require historic surveys and investigations to evaluate the eligibility of potentially historic structures that are over 50 years old, and either avoidance of such buildings, or incorporation of design measures to minimize impacts on historic integrity of historically significant structures.

With regard to light and glare, construction and operation of the No Ground-Mounted Utility-Solar Development Alternative would require implementation of Mitigation Measures MM 4.1-5 through MM 4.1-9, similar to the project. As development of the No Ground-Mounted Utility-Solar Development Alternative would be dispersed throughout the Antelope Valley and not concentrated within proximity to other solar and wind developments, this alternative would eliminate the significant and unavoidable impacts of the proposed project associated scenic quality, visual character, and glare.

Based on the above, this alternative would avoid significant and unavoidable aesthetic impacts that would occur under the proposed project. With implementation of mitigation measures to address impacts related to historic buildings, impacts would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to aesthetics compared to the project.

Agriculture and Forestry Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Since the solar PV systems proposed for this alternative would be constructed on existing structures, this alternative would not create any changes in the existing environment that would convert land that is designated Farmland or forest land to non-agricultural or non-forest uses. As such, no impacts to agriculture or forestry resources would occur. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to agriculture and forestry resources compared to the proposed project, as this alternative would not require ground disturbance.

Air Quality

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Under this alternative, no construction activities associated with ground disturbance would occur. Thus, this alternative would eliminate the significant and unavoidable project-level and cumulative construction impacts related to regional air quality emissions and implementation of applicable air quality plans. Emissions would be limited to trucks transporting the solar

panels, passenger vehicles driven by construction crews, and minor ground disturbance. Mitigation measures would be implemented as necessary to ensure that impacts are reduced as it relates to regional and localized construction emissions and valley fever exposure. Implementation of Mitigation Measure MM 4.3-1, MM 4.3-2, MM 4.3-3, and MM 4.3-4 would not be required. The potential for dispersing concentrations of criteria air pollutants such as $PM_{2.5}$ would be substantially lower than the proposed project, and therefore the concern over impacts associated with exacerbating the spread or severity of COVID-19 would be less than significant. Implementation of Mitigation Measure MM 4.3-5 would not be required. During operation, this alternative would have similar impacts on air quality as the project related to occasional vehicular visits for maintenance. As such, operational impacts would also be less than significant. Overall, air quality impacts under the No Ground-Mounted Utility-Solar Development Alternative would be less than significant. Therefore, this alternative would result in less impacts related to air quality compared to the project as this alternative would result in a substantial reduction in construction activities and negligible emissions associated with long-term maintenance activities.

Biological Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. The project site would remain undeveloped and only developed areas, typically on the rooftops of commercial and industrial facilities, in the Antelope Valley would be modified. Given that rooftops of existing commercial and industrial facilities would be used for solar PV system installation, these areas would be unlikely to provide habitat for special-status species. Development of this alternative would not disturb any land or remove habitat for special-status plants and wildlife or have a substantial adverse effect on sensitive habitat or other natural communities. As such, Mitigation Measures MM 4.4-1 through MM 4.4-24 would not be required. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would not contribute to a cumulative loss of habitat that supports special-status and rare species that have potential to occur on the project site, including Joshua trees, special-status plants, burrowing owl, Mojave ground squirrel, American badger, desert tortoise, other raptors, and desert kit fox (refer to Section 6.1.1, Biological Resources, above for full list). As such, significant and unavoidable cumulative impacts would be eliminated as well. The No Ground-Mounted Utility-Solar Development Alternative would result in no impacts related to biological resources compared to the project as this alternative would not require ground disturbance or other landscape alterations that could adversely impact sensitive plants, wildlife, natural communities, or wetlands resources.

Cultural Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. Given that development would occur on the rooftops of existing structures, there would be no potential for disturbance or damage to buried archaeological resources and human remains. If rooftop solar systems were proposed on historic buildings, this alternative could affect the historic character and integrity of these buildings, as well as the character and views of adjacent historical resources. However, historic surveys and investigations would be conducted prior to project construction to identify known eligible historical resources and to evaluate the eligibility of potentially historic structures that are 45-years or older; historic structures would be either avoided or the alternative would be required to incorporate mitigation and design measures to minimize the

impact on these structures. In the case of eligible historical resources, design measures must be in accordance with the Secretary of the Interior standards and the impact must not affect the eligibility of such resources or adjacent resources. Therefore, unanticipated impacts to unknown or known cultural resources would not occur under this alternative. Impacts would be less than significant. With the appropriate mitigation measures in place to reduce impacts to historical resources, the potential to disturb or discover unknown cultural resources within the project area would be less than significant. However, given the inability to impact archaeological resources under this alternative, the No Ground-Mounted Utility-Solar Development Alternative would result in fewer impacts related to cultural resources compared to the proposed project as this alternative would not require ground disturbance.

Energy

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. As such, construction energy consumption would be limited to fuels to power trucks transporting the solar panels and installation of the solar panels on the rooftops of existing buildings, and would be lower, compared to the amount of transportation fuel required to construct the project. Over the long-term, there would be negligible consumption of energy involving maintenance activities with some minimal traffic to transport special workers and/or equipment. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would have a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources and this alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As similar renewable solar energy generation capabilities would be provided, long-term impacts would be similar compared to the proposed project.

Geology and Soils

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. Given that only developed areas would be modified, there would be no potential for the No Ground-Mounted Utility-Solar Development Alternative would not directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault, strong seismic ground shaking, seismic- related ground failure, and landslides; result in substantial soil erosion or loss of topsoil; result in on- or off-site landslides, be located on expansive soil; or directly or indirectly destroy a unique paleontological resource or unique geologic feature. The No Ground-Mounted Utility-Solar Development Alternative would not require implementation of Mitigation Measures MM 4.7-1 through MM 4.7-6, and MM 4.10-1 and MM 4.10-2. Development of rooftop solar would require adherence to all requirements of the Kern County Building Ordinance. Therefore, impacts would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to geology and soils compared to the proposed project as this alternative would not require ground disturbance.

Greenhouse Gas Emissions

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. This alternative would generate substantially less GHG emissions from

heavy equipment required for ground disturbing activities, but distributed systems on rooftops would lack tracking systems and be less efficient. As such, this alternative's overall electricity generating potential and associated GHG emission offset potential would be lower than the proposed project. Further, this alternative would have less or no energy storage, whereas the project would provide 600 MW storage to maintain energy generating capacity when sunlight is not available. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would have less-than-significant impacts related to generating GHG emissions that may have a significant impact on the environment or consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. However, impacts related to GHG emissions would be greater under this alternative due to the lower efficiency of the distributed systems, which would not include solar tracking technology, and because of the general absence of energy storage.

Hazards and Hazardous Materials

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. The installation of rooftop solar equipment on existing structures would involve fewer hazardous materials (such as chemicals and fuels) than the project construction on the undeveloped project site. Similar to the project, the No Ground-Mounted Utility-Solar Development Alternative would implement Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, MM 4.13-1, and MM 4.16-1 in order to avoid spills and minimize impacts in the event of a spill; regulate the use of hazardous materials during construction and operation; and ensure that wastes requiring special disposal are handled according to state and county regulations that are in effect at the time of disposal, respectively. Implementation of these mitigation measures would reduce impacts related to the routine transport, use, or disposal of hazardous materials associated with the project site; and creating 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.

While it is unknown where the solar PV systems would be located within the Antelope Valley, the No Ground-Mounted Utility-Solar Development Alternative, similar to the project, would adhere to any applicable notification requirements related to the Airport Land Use Compatibility Plan.

As it relates to wildland fires, as the small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley, it is expected that these areas where the solar PV systems would be installed would be in more urbanized areas that would not involve a battery storage component. The installation of solar panels on existing buildings would not exacerbate fire risk and would have less potential to induce a wildfire than the project.

Based on the above, impacts under this alternative would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to hazards and hazardous materials compared to the proposed project, as this alternative would require usage of fewer hazardous materials and would result in less potential fire risk.

Hydrology and Water Quality

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing

commercial and industrial facilities situated throughout the Antelope Valley. No ground disturbance related to construction would be required under this alternative.

Compliance with the NPDES Construction General Permit, including development and implementation of a SWPPP, would not be required under the No Ground-Mounted Utility-Solar Development Alternative, thus eliminating implementation of Mitigation Measure MM 4.10-1. Similar to the proposed project, this alternative would require implementation of Mitigation Measure MM 4.9-1, which, as described above, would require a Hazardous Materials Business Plan to delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires. Implementation of this mitigation measure would reduce potential impacts related to violating water quality standards or degradation of surface or groundwater quality during construction and operation of the No Ground-Mounted Utility-Solar Development Alternative. However, implementation of Mitigation Measure MM 4.10-2 would not be required as this alternative would not disturb soils such that drainage patterns would not be altered.

As it relates to groundwater supplies, water requirements under the No Ground-Mounted Utility-Solar Development Alternative, would be reduced as compared to the water requirements of the project as limited dust suppression or concrete mixing would be required during construction and operational panel washing is expected to be less frequent given the location of panels on top of buildings throughout the Antelope Valley (rather than directly on sediment). As such, this alternative would not substantially deplete groundwater levels in comparison to existing conditions. In addition, as solar panels would be installed on rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley, no change in pervious surfaces would occur. As such, impacts would be less than significant.

With regard to existing drainage patterns, as small to medium solar PV systems would be developed on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley, drainage patterns and flow paths would not be altered. As such, impacts related to drainage patterns would be less than significant.

The Antelope Valley is located well inland and far from the ocean or any enclosed or semi-enclosed water body such that there would be no potential threat from tsunami or seiche hazards and impacts would be less than significant. The use of water to construct and clean the solar panels would be less than the proposed project; water that would be needed would be sourced from locations similar to the proposed project or from the buildings' water connections on which they are installed. Therefore, the project would not conflict with the groundwater management of the area and the potential impacts would be less than significant.

Overall, impacts related to hydrology and water quality would be less than significant. However, the No Ground-Mounted Utility-Solar Development Alternative would result in less overall impacts related to hydrology and water quality compared to the project. This alternative would not require ground disturbance, which would otherwise potentially introduce more pollutants to stormwater. Water requirements during construction and operation of this alternative would be reduced as no dust suppression or concrete mixing would be required during construction. Furthermore, operational panel washing is expected to be less frequent.

Land Use and Planning

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. Under this alternative, there would be no zone changes or General Plan amendments that would be required. Installation of rooftop solar would be consistent with current zoning as well as existing land use plans, policies, and regulations. The No Ground-Mounted Utility-Solar Development Alternative would also achieve the County's goals and policies relative to accommodating renewable energy facilities. However, the placement of solar panels on other structures throughout the region would result in unknown entitlement requirements, depending on the project location, zoning, land use, and potential environmental impacts on the site and surrounding areas. Nonetheless, to allow such development, the project proponent would be required to comply with the specific entitlements needed to construct solar PV systems consistent with this alternative. This alternative would have no impact involving conflicts with land use plans, policies or regulations and thus have less impact than the project.

Noise

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Rooftops of existing commercial and industrial buildings that would be developed under this alternative would be in developed areas. As a result, noise related to construction activities could also impact sensitive receptors, albeit in less intensive ways than the larger-scale construction of the project. The operational noise generated from these solar PV systems would be low level and similar to that of the project and would result in less-than-significant impacts. With regard to vibration, construction of the No Ground-Mounted Utility-Solar Development Alternative would not require the use of vibratory rollers or other construction equipment with high ground-borne vibration levels. Therefore, it is likely that construction vibration would have a less than significant construction vibration impact. Similar to the project, operation of the No Ground-Mounted Utility-Solar Development Alternative would require regular maintenance trucks (0.076 in/sec PPV) and panel washing activities. Whether rooftop solar systems are proposed on historic buildings, which are more susceptible to vibration damage, or other types of newer buildings, this level of vibration would not exceed vibration thresholds and, as such, would result in less-than-significant impacts.

The No Ground-Mounted Utility-Solar Development Alternative would result in reduced and less than significant impacts related to construction and operational noise, compared to the proposed project.

Public Services

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley and the project site would remain undeveloped. Unlike the project, the No Ground-Mounted Utility-Solar Development Alternative would not introduce structures into a currently undeveloped area and is not expected to temporarily or permanently increase the concentration of persons in an area.

With regard to fire protection, it is expected that the areas where the solar PV systems would be installed in more urbanized areas. The installation of solar panels on existing structures would not result in increased

fire risk and would not require additional fire services. With regard to police protection, as the proposed small to medium solar PV systems would be installed in more urbanized areas on existing buildings, it is unlikely that construction and operation of the No Ground-Mounted Utility-Solar Development Alternative would attract attention. Similar to the project, this alternative would increase traffic with truck trips during construction and routine maintenance during operation of this alternative. However, the additional volume of trips during construction and operation would be minimal and would not likely have a significant and adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. Impacts would be less than significant.

Based on the above, impacts are expected to be less than significant with mitigation. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to public services compared to the project as the proposed small to medium solar PV systems would be developed in urbanized areas that already receive fire protection and police protection services.

Transportation

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley.

Similar to the project, this alternative would require vehicular trips during construction to transport and install the solar panels. However, the trips would be more dispersed than the project given the location of the existing facilities, thereby reducing impacts on the roadways surrounding the project site. As such, roadway segments within the Antelope Valley are not expected to operate at levels that would trigger a significant transportation impact during construction of this alternative. During operation of this alternative, day-to-day O&M trips would be similar to those of the project. However, as with construction, these maintenance trips would be more dispersed than the project given the location of the existing facilities. It is also estimated that the total number of daily trips for maintenance of the solar panels are less than the number of trips generated during construction. As construction impacts would be less than significant, operation of this alternative would also have a less-than-significant impact on area roadways.

With regard to consistency with CEQA *Guidelines* Section 15064.3(b), the No Ground-Mounted Utility-Solar Development Alternative would not increase vehicle trips or distances for the workforce already occupying the buildings which host the rooftop panels. There would be some increase in vehicle trips and thus vehicle miles traveled to perform occasional maintenance activities, unless those were to be performed by already on-site workers. Therefore, impacts related to vehicle miles traveled would be less than significant under the No Ground-Mounted Utility-Solar Development Alternative, as with the project.

Based on the above, impacts would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to transportation compared to the proposed project due to the dispersed nature of the construction and operational trips.

Tribal Cultural Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities situated throughout the Antelope Valley. It is unlikely that the proposed rooftop solar systems would have an impact on tribal cultural resources, which do not occur on building rooftops.

As such, the No Ground-Mounted Utility-Solar Development Alternative would have no impact to tribal cultural resources and no mitigation would be required. As such, the No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to tribal cultural resources compared to the proposed project.

Utilities and Service Systems

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley.

With regard to water demand, the No Ground-Mounted Utility-Solar Development Alternative would likely require minimal water for construction as no dust suppression or concrete mixing would be required during rooftop solar panel installations. This alternative would also require minimal generation of wastewater and usage of electrical power, natural gas, and telecommunications. In addition, construction of the No Ground-Mounted Utility-Solar Development Alternative would not substantially alter stormwater drainage. With regard to operation, solar panel washing is expected to be less frequent, as compared to the project, given the location of panels on top of buildings throughout the Antelope Valley (rather than directly on sediment). As the No Ground-Mounted Utility-Solar Development Alternative would not develop the project site, this alternative would not result in an increase of impervious surfaces and implementation of Mitigation Measure MM 4.10-1, which requires implementation of a SWPPP, and Mitigation Measure MM 4.10-2, which would require preparation of a drainage plan to reduce potential increases in stormwater runoff on-site, would not be required. Wastewater and solid waste generation associated with this alternative would be similar to the project due to the similar number of employees required for maintenance of the solar panels. This alternative would implement Mitigation Measure MM 4.16-1, which would reduce impacts related to solid waste.

Based on the above, impacts to utilities and service systems would be less than significant. This alternative would result in less overall impacts related to utilities and service systems than the proposed project due to the reduction in construction activities.

Wildfire

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley and would not introduce infrastructure that would result in increased fire risk. Development of the No Ground-Mounted Utility-Solar Development Alternative would not require grading and excavation to reduce the overall slope of the project site. As such, the No Ground-Mounted Utility-Solar Development Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Because this alternative would occur on existing structures, the impact would be less than the project, on both a project level and with respect to cumulative impacts. With regard to cumulative wildfire impacts, given the location in a rural area and limited infrastructure, the No Ground-Mounted Utility-Solar Development Alternative and related projects have the potential to result in a cumulative impact related to conflict with an adopted emergency response plan or emergency evacuation plan, exposing people to pollutant concentrations from a wildfire, the installation or maintenance of associated infrastructure,

exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

Comparison of Impacts

The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to aesthetics, agriculture and forestry resources, air quality, cultural resources, biological resources, energy consumption, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, public services, transportation, tribal cultural resources, utilities and service systems, and wildfire. Further, this alternative would avoid the significant and unavoidable impacts to aesthetics (project and cumulative), air quality (project and cumulative), and biological resources (cumulative only) that would occur under the project.

Relationship to Project Objectives

This alternative would partially satisfy the project objective of assisting California in meeting its GHG emissions reduction goals by 2020 and 2030 as required by the California Global Warming Solutions Act (AB 32), as amended by Senate Bill 32 in 2016. However, up to 600 MW of energy storage (a component of the proposed project) would not be constructed under this alternative. This alternative would not achieve other project objectives including developing on a previously disturbed site that is close to transmission infrastructure in order to minimize environmental impacts and maximizing the use of existing transmission infrastructure. Additionally, there are some drawbacks to this alternative that include, but are not limited to those listed below.

- Up to 600 MW of energy storage would not be included.
- The system would not likely be built out within a time frame that would be similar to that of the project.
- The project proponent does not have immediate control or access to potential urban sites with existing or proposed commercial or industrial buildings that could accommodate rooftop facilities to generate 530 MW of solar power.
- A distributed system of the scale of the project would be cost-prohibitive to implement under a Power Purchase Agreement (PPA) due to competitive pricing of PPAs and reduced cost-efficiency of distributed solar.

This alternative theoretically has the potential to generate up to 530 MW of electricity but it would be used on the sites generating the power and would not achieve the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Additionally, this alternative does not include up to 600 MW of energy storage. Given the size of the project, the project objectives, and the need to arrange a suitable assemblage of participating commercial and industrial properties, it is impractical and infeasible to propose a distributed generation project of this type and still proceed within a reasonably similar time frame.

6.8 Environmentally Superior Alternative

As presented in the comparative analysis above, and as shown in **Table 6-4**, there are a number of factors in selecting the environmentally superior alternative. An EIR must identify the environmentally superior alternative to the project. Alternative 1, the No Project Alternative, would be environmentally superior to the project on the basis of its minimization or avoidance of physical environmental impacts. However, CEQA *Guidelines* Section 15126.6(e)(2) states:

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be the No Ground-Mounted Utility-Solar Development Alternative. This alternative would avoid significant and unavoidable impacts to aesthetics, air quality, biological resources, and noise. Offsets of GHG emissions generated at fossil fuel-based electrical generating facilities would be reduced under this alternative due to the lower efficiency of the distributed systems, which would not include solar tracking technology or up to 600 MW of energy storage. However, this alternative would result in less impact to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, public services, transportation, tribal cultural resources, utilities and service systems, and wildfire hazards. Thus, this alternative would result in fewer environmental impacts, both short-term and long-term, when compared to the project.

It is important to note that it is considered to be impracticable and infeasible to construct the No Ground-Mounted Utility-Solar Development Alternative within the same time frame and/or with the same efficiency as the project because the project proponent lacks control and access to the sites required to develop 530 MW of distributed solar generated electricity on building rooftops and the required land to support up to 600 MW of energy storage. In addition, this alternative would not achieve the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because this alternative reduces impacts to a greater degree than the General Plan and Zoning Build-Out Alternative and Reduced Acreage Alternative, the No Ground-Mounted Utility-Solar Development Alternative is considered the Environmentally Superior Alternative.

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Chapter 7
Response to Comments

This chapter is being reserved for, and will be included with, the Final EIR.

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Chapter 8
Organizations and Persons Consulted

8.1 Federal

Edwards Air Force Base

China Lake Naval Weapons Center Federal Aviation Administration Federal Communications Commission

U.S. Air Force

U.S. Army

U.S. Army Corps of Engineers

U.S. Bureau of Land Management

U.S. Department of Agriculture, Natural Resource Conservation Service

U.S. Environmental Protection Agency Region IX

U.S. Fish and Wildlife Service

U.S. Marine Corps

U.S. Navy

8.2 State of California

California Air Resources Board California Department of Conservation

California Department of Conservation, Geologic Energy Management Division

California Department of Fish & Wildlife, Fresno Region

California Department of Parks and Recreation

California Department of Toxic Substances Control, Region 1

California Department of Water Resources San Joaquin District

California Energy Commission

California Highway Patrol

California Native American Heritage Commission California Public Utilities Commission

California Regional Water Quality Control Board, Lahontan Region

California State Lands Commission

Caltrans Division of Aeronautics Caltrans District 6

Caltrans District 9

8.3 Regional and Local

Adams, Broadwell, Joseph & Cardozo
AES Midwest Wind Generation
Antelope Valley-East Kern Water Agency
Bakersfield City Planning Department
Bakersfield City Public Works Department
Basin and Range Watch
Boron Bible Church
Boron Chamber of Commerce
Boron Community Service District
Burlington Northern & Santa Fe Railroad
California City Airport
California City Planning Department
California Department of Fish and Wildlife (Region 4)
California Department of Transportation
California Native Plant Society
California State University Bakersfield
Carol Vaughn
Center for Biological Diversity
Center on Race, Poverty, & the Environment
City of Arvin
City of Maricopa
City of McFarland
City of Ridgecrest
City of Shafter
City of Taft
City of Tehachapi
City of Wasco
Congentrix Sunshine, LLC David Laughing Horse Robinson David Walsh
Council of Kern County
Defenders of Wildlife
Delano City Planning Department
Desert Tortoise Council
Desert Tortoise Preserve Committee
East Kern Air Pollution Control District
East Kern Airport District Engineer
East Kern Airport District- Mojave Air and Space Port
Eastern Kern Resource Conservation District
EDP Renewables Company
Fotowatio Renewable Ventures
Iberdrola Renewables
IBEW Labor Union
Integrated Waste Management
Inyo County Planning Department
Joyce LoBasso
Kelly Group
Kern Audubon Society
Kern County Administrative Officer
Kern County Agriculture Department
Kern County Airports Department
Kern County Council of Governments
Kern County Environmental Health Services Department
Kern County Fire Department
Kern County Library
Kern County Library, California City Branch
Kern County Parks and Recreation
Kern County Public Works Department
Kern County Public Works Department – Floodplain Management Section
Kern County Sheriff's Department
Kern County Superintendent of Schools
Kern County Water Agency
Kings County Planning Agency
LiUNA Labor Union
Local Agency Formation Commission
Los Angeles Audubon

Los Angeles County Regional Planning Department
Mojave Airport
Mojave Foundation
Mojave Unified School District
Muroc Unified School District
National Public Lands News
Native American Heritage
Northcutt and Associates
Pacific Gas & Electric Company
Pleistocene Foundation
Recurrent Energy
Renewal Resources, Group Holding Company
Robert Burgett
San Bernardino County Planning Department
San Luis Obispo County Planning Department
Santa Barbara County Resource Management Department
Santa Rosa Rancheria
Sierra Club
Southern California Edison
Southern San Joaquin Valley Information Center
Structure Cast
Tehachapi Area Association of Realtors
Terra-Gen Power, LLC
The Gorman Law Firm
Tulare County Planning & Development Department
Ventura County RMA Planning Division
Verizon California, Inc.
Wind Stream, LLC

8.4 Individuals

Bob and Pat Jennings
Broc Job
Charlene Sims
Charles Kennedy
Crystal Job
David Eyre
Debbie Brown
Debora Ephriam
Deburah Brown
Deric English
James Hanson
James Lyon
Joe Barnard
Joyce Nash
Melba Kennedy
Melissa Munoz
Mille and Rob Ashpaugh
Patricia Eyre
Tina Hanson
Randy Tolle
Roger Sowersby
Roy Richards
Shannon Burgess
Thomas Bahrs

8.5 Other

Big Pine Paiute Tribe of Owens Valley
Chumash Council of Bakersfield
Ferandeño Tataviam Band of Mission Indians
Kern Valley Indian Community
Kitanemuk & Yowlumne Tejon Indians
Northern Chumash Tribe
San Fernando Band of Mission Indians
San Manuel Band of Mission Indians
Santa Rosa Rancheria Tachi Yokut Tribe
Twenty-Nine Palms Band of Mission Indians
Tejon Indian Tribe
Torres Martinez Desert Cahuilla Indians
Tubatulabals of Kern County
Tule River Indian Tribe
Wuksache Indian Tribe/Eshom Valley Band

Chapter 9
List of Preparers

9.1 Lead Agency

Kern County Planning and Natural Resources Department

Lorelei H. Oviatt, AICP – Director
Craig M. Murphy – Assistant Director
Katrina A. Slayton – Advanced Planning Division Chief
Ronelle Candia – Supervising Planner
Mark Tolentino – Planner 2
Johnathan Jensen – Planner 2

9.2 Technical Assistance

Michael Baker International (MBI)

Randy Nichols – Project Director
Nicole Marotz – Senior Environmental Planner/Project Manager
Jennifer Wu – Senior Environmental Planner/Project Manager
John Bellas – Senior Advisor/Department Manager
Zhe Chen – Senior Air Quality and Noise Specialist
Ryan Winkleman – Senior Biologist/Project Manager
Tim Tidwell – Regulatory Specialist/Project Manager
Nick Hearth – Senior Archaeologist/Principal Investigator
Madonna Marcelo – Principal Environmental Planner/Senior Project Manager
Pei-Ming Chou – Senior Environmental Planner
Julianne Frabizio – Project Manager – Surface Water
Alex Maher – Project Manager - Water
Dawn Wilson – Transportation Planning Department Manager
Brent Schleck – Senior Environmental Planner
Hilary Ellis – Associate Planner
Garett Peterson – Associate Environmental Planner
Nathan Levey – Assistant Environmental Planner

Panorama Environmental

Susanne Heim - Principal
Aaron Lui – Visual Resources Specialist

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Chapter 10
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