Draft
Environmental Impact Report

SCH# 2021110076

Volume 1

Chapters 1 through 11

GEM HILL QUARRY PROJECT

by CalPortland Company *(PP21404)*

Conditional Use Permit No. 45, Map No. 214

Kern County
Planning and Natural Resources Department
Bakersfield, California

August 2022

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Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 **TTY Relay 1-800-735-2929**
Email: planning@kerncounty.com
Web Address: http://kernplanning.com/

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: August 23, 2022

TO: See Attached Mailing List

FROM: Kern County Planning and Natural Resources Department
Attn: Randall Cates
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661)862-8612; CatesR@kerncounty.com

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE GEM HILL QUARRY PROJECT BY CALPORTLAND COMPANY (PP21404)

Dear Interested Party:

The Kern County Planning and Natural Resources Department as Lead Agency has prepared a Draft Environmental Impact Report (DEIR) to allow a surface mining operation and development of a reclamation plan on approximately 82 acres of an approximately 210-acre reclamation plan boundary, which would utilize a 0.75-acre primary access road outside of such reclamation plan boundary to provide access to/from Mojave Tropico Road.

The life of the operation is proposed to be 30 years. Annual mineral production is estimated to be 500,000 tons of naturally occurring pozzolan (volcanic tuff), and the maximum total mineral production is estimated to be 15 million tons. The total anticipated production of mine waste (overburden) is estimated to be 600,000 tons, which would be disposed in two onsite overburden stockpiles. The proposed maximum depth of excavation is 300 feet below original grade. No phasing of mining is proposed.

The project site is located on the west side of Mojave Tropico Road, approximately two miles south of Backus Road; approximately four miles northwest of the unincorporated community of Rosamond; also being located within portions of Sections 25, 26, 35 and 36 of Township 10 North, Range 13 West, San Bernardino Base and Meridian (SBBM), County of Kern, State of California.

Operations would typically be conducted between 7:00 a.m. and 7:00 p.m., Monday through Saturday, with the understanding that additional shifts or longer/alternative hours may be required due to operational constraints.

As proposed, there would be a maximum of 20 employees onsite at any one time. These 20 employees would include haul truck drivers, who would haul overburden onsite (from the quarry to the overburden stockpiles), as well as hauling naturally occurring pozzolan (volcanic tuff) offsite to clients.

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 **October 7, 2022, 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 catesr@kerncounty.com or (661) 862-8612.

Sincerely,



Randall Cates, Planner III
Advanced Planning Division

Gem Hill Quarry Project
CUP 45, Map 214 PP21404
I:\Planning\WORKGRPS\WP\LABELS\Gem Hill Quarry.docx
cc 8/8/2022

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
Tim Fox, RLA - 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

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. Postal Service
Address Management Systems
28201 Franklin Parkway
Santa Clarita, CA 91383-9321

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

State Dept of Conservation
Director's Office
715 P Street, MS 1900
Sacramento, CA 95814

State Dept of Conservation
Geologic Energy Management Division
11000 River Run Blvd.
Bakersfield, CA 93311

Office of the State Geologist
Headquarters
715 P Street, MS 1901
Sacramento, CA 95814

State Dept of Conservation
Division of Land Resource Protection
715 P Street, MS 1904
Sacramento, CA 95814

State Dept of Conservation
Office of Mine Reclamation
715 P Street, MS 1905
Sacramento, CA 95814

CalRecycle
Dept. of Resources, Recycling, and Recovery
P.O. Box 4025
Sacramento, CA 95812-4025

State Mining and Geology Board
715 P Street, MS 1909
Sacramento, CA 95814

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

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

California Regional Water Quality
Control Board/Lahontan Region
15095 Amargosa Road - Bld 2, Suite 210
Victorville, CA 92394

State Lands Commission
Attn. Cynthia Herzog
100 Howe Avenue, Ste 100-South
Sacramento, CA 95825

Kern County Administrative Officer

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept
David Witt, Fire Chief

Kern County Fire Dept
Cary Wright, Fire Marshall

Kern County Library/Beale
Local History Room

Kern County Library/Beale
Andie Sullivan

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

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

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

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

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

Southern Kern Unified School Dist
P.O. Box CC
Rosamond, CA 93560

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

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

Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308

East Kern Air Pollution
Control District

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

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

U.S. Army
Attn: Philip Crosbie, Chief
Strategic Plans, S3, NTC
P.O. Box 10172
Fort Irwin, CA 92310

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

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

U.S. Marine Corps
Command Gen MCIWEST-MCB CamPen
Attn: A/CS, G7
Box 555010, Bldg 1160, Rm 280
Camp Pendleton, CA 92055-5246

AT&T California
OSP Engineering/Right-of-Way
4901 Ashe Road
Bakersfield, CA 93313

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

Center on Race, Poverty
& the Environment
5901 Christie Avenue, Suite 208
Emeryville, CA 94608

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

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

Mojave Chamber of Commerce
P.O. Box 935
Mojave, CA 93502

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

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

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

Chumash Council of Bakersfield
729 Texas Street
Bakersfield, CA 93307

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

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

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

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

Tejon Indian Tribe
Octavio Escobedo III, Chairman
P.O. 640
Arvin, CA 93203

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

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

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

Joyce LoBasso
P.O. Box 6003
Bakersfield, CA 93386

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

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

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

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

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

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

CalPortland Company
Attn. Desirea Haggard
2025 E. Financial Way
Glendora, CA 91741-4692

Lilburn Corporation
Attn. Marty Derus
1905 Business Center Drive
San Bernardino, CA 92408

Harrison, Temblador Hungerford & Guernsey
Attn. Adam Guernsey
2801 T Street
Sacramento, CA 95816

Benchmark Resources
Attn. Bob Delp
2515 East Bidwell Street
Folsom, CA 95630

California Native American Heritage Commission
1550 Harbor Boulevard
West Sacramento, CA 95691

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

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

MSHA/District Office
991 Nut Tree Road
Vacaville, CA 95687

MSHA/Field Office
991 Nut Tree Road
Vacaville, CA 95687

MSHA/Field Office
720 Carnegie Drive, Bld A, Ste 100 San Bernardino, CA 92408

State Department of Industrial Relations
CAL/OSHA – Mining & Tunneling
6150 Van Nuys Blvd., Suite 310
Van Nuys, CA 91401

State Department of Industrial Relations CAL/OSHA – Mining & Tunneling
1750 Howe Avenue, Suite 470
Sacramento, CA 95825

Tejon Indian Tribe
Attn. Colin Rambo
Cultural Resource Mgmt. Technician
P.O. Box 640
Arvin, CA 93203

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

Carol and Michael Dumin
8938 Stagecoach Lane
Mojave, CA 93501

Sherri Dumin-Timm
PO Box 308
Rosamond, CA 93560

San Manuel Band of Mission Indians
Attn. Ryan Nordness
Cultural Resource Analyst
26569 Community Center Dr.
Highland, California 92346

NOTICE OF AVAILABILITY FOR PUBLIC REVIEW AND HEARING ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED GEM HILL QUARRY 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: Gem Hill Quarry Project by CalPortland Company (PP21404); CUP No. 45, Map No. 214 (SCH #2021110076).

PROJECT LOCATION: The project site is located on the west side of Mojave Tropico Road, approximately two (2) miles south of Backus Road; approximately four (4) miles northwest of the unincorporated community of Rosamond; also being located within portions of Sections 25, 26, 35 and 36 of Township 10 North, Range 13 West, San Bernardino Base and Meridian (SBBM), County of Kern, State of California.

DOCUMENT AVAILABILITY: The document and documents referenced in the Draft EIR are available for review at the Planning and 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:	**November 10, 2022**
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 October 7, 2022, 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 October 7, 2022, at 5:00 p.m. to:

Kern County Planning and Natural Resources Department
ATTN: Randall Cates, Planner III
2700 "M" Street, Suite 100, Bakersfield, CA 93301
Phone: (661) 862-8612
E-mail: catesr@kerncounty.com

PROJECT DESCRIPTION: The proposed project is a Conditional Use Permit (CUP No. 45, Map No. 214) to allow a surface mining operation and development of a reclamation plan on approximately 82 acres of an

approximately 210-acre reclamation plan boundary, which would utilize a 0.75-acre primary access road outside of such reclamation plan boundary to provide access to/from Mojave Tropico Road.

Access to the site would be obtained via two (2) access roads to Mojave Tropico Road, specifically the aforementioned access road and a secondary access road to the north thereof. The project proponent proposes to employ open pit, multibench, and drill and blast mining techniques to mine naturally occurring pozzolan (volcanic tuff), which is used in the production of cement. No crushing or processing of mined material would occur on-site.

The life of the operation is proposed to be 30 years. Annual mineral production is estimated to be 500,000 tons, and the maximum total mineral production is estimated to be 15 million tons. The total anticipated production of mine waste (overburden) is estimated to be 600,000 tons, which would be disposed in two onsite overburden stockpiles. The proposed maximum depth of excavation is 300 feet below original grade. No phasing of mining is proposed.

Maximum operational inter-bench slopes (also referred to as bench face slopes) for the quarry will be 0.25:1 (horizontal:vertical (H:V)) with overall slopes of 1:1 (H:V). Maximum final reclaimed inter-bench slopes for the quarry will be 0.25:1 (H:V). Overall final reclaimed slopes for the quarry will be a maximum of 1:1 (H:V).

Maximum operational slopes for the overburden stockpiles will be 1.5:1 (H:V). Maximum and overall final reclaimed slopes for the overburden stockpiles will be 2:1 (H:V).

Operations would typically be conducted between 7:00 a.m. and 7:00 p.m., Monday through Saturday, with the understanding that additional shifts or longer/alternative hours may be required due to operational constraints.

As proposed, there would be a maximum of 20 employees on-site at any one time. These 20 employees would include haul truck drivers, who would haul overburden on-site (from the quarry to the overburden stockpiles), as well as hauling naturally occurring pozzolan (volcanic tuff) off-site to clients.

ENVIRONMENTAL REVIEW FINDINGS: Anticipated significant and unavoidable impacts on Aesthetics (Project and Cumulative) and Biological Resources (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

RPC:cc (08/9/22)

cc: County Clerk (2) (with fee)
Environmental Status Board
Sierra Club/Kern Kaweah Chapter
LiUNA
Supervisorial District No. 2
California Native Plant Society/Kern Chapter
Kern County Archaeological Society
Native American Heritage Pres. Council/Kern County
Center on Race, Poverty and Environment (2)

Gem Hill Quarry Project
CUP 45, Map 214 PP21404
I:\Planning\WORKGRPS\WP\LABELS\Gem Hill Quarry.docx
cc 09/13/2021

345 272 04 00 9
ACHIVIDA HILARION M & L A
1703 WEST AVE 0-4
PALMDALE CA 93551

345 272 02 00 3
ANA PROPERTIES LLC
P O BOX 1510
LA MIRADA CA 90637

345 262 03 00 3
ARMSTRONG GARY K & ANNIE S TR
2226 WOODCREST LN
CARSON CITY NV 89701-5441

345 262 11 00 6
BARTL LEE A & JACKIE S
605 LURLINE PL
SANTA ROSA CA 95405-5263

345 031 02 00 6
CALPORTLAND CO
2025 E FINANCIAL WY
GLENDORA CA 91741-4692

345 262 04 00 6
CARTER WAYNE R
910 N HINDEMAN ST
SISTERS OR 97759-3128

345 294 13 00 5
CASTER FAMILY TRUST
18531 OAKMOOR ST
CANYON COUNTRY CA 91351

345 272 28 00 9
CRUMPACKER TRUST
2687 SAUSALITO AV
CARLSBAD CA 92010-7903

345 032 36 00 2
DE MONTE FAMILY REVOCABLE TRUST 1990
2423 NICKLAUS DR
SANTA MARIA CA 93455-1524

345 293 10 00 9
AEK GLOBAL INV LLC
4603 HURFORD TR
ENCINO CA 91436-3345

345 272 05 00 2
ANDRADA GERARDO E SR & ARSENIA
35751 GATEWAY DR UNIT L-1226
*

345 262 31 00 4
ARSENAULT MICHAEL G & KAREN E
PO BOX 505
BEDFORD MA 01730-3005

345 262 26 00 0
BATSEL BRIANNA L
6036 E BUTTERFIELD LN
ANAHEIM CA 92807

345 294 01 00 0
CALPORTLAND CO
10655 PARK RUN DR STE 275
LAS VEGAS NV 89144

345 272 03 00 6
CAMPBELL DENNIS J
13655 ESPLANADE AV
SANTA ANA CA 92705-2635

345 294 16 00 4
CASH CARL L & TORCHY R
7167 MOJAVE TROPICO RD
MOJAVE CA 93501-7211

345 031 06 00 8
CHEN REALTY CO INC
PO BOX 361213
BIRMINGHAM AL 35236-1213

345 272 23 00 4
DALUMPINES RENATO & EVANGELINE TRUST
14049 BURTON ST
PANORAMA CITY CA 91402-4202

345 291 15 00 0
DIAZ ROGELIO S
9479 VISTA DR
SPRING VALLEY CA 91977

345 272 27 00 6
AMIROVA ELVIRA R
11340 SIR FRANCIS DRAKE DR
LA MESA CA 91941-7268

345 272 18 00 0
AQUINO ABRAHAM F JR & MELINDA
2475 GOLFCREST LOOP
CHULA VISTA CA 91915-1411

345 272 26 00 3
BACHINI MIGUEL & VIOLETA ET AL
25827 LONDON PL
STEVENSON RANCH CA 91381-1281

345 291 14 00 7
BROWN PAUL
P O BOX 1734
ROSAMOND CA 93560

345 293 27 00 9
CANTU ROBERT LEE
P O BOX 1344
ROSAMOND CA 93560

345 294 10 00 6
CASTER BETTY LOU
18531 OAKMOOR ST
CANYON COUNTRY CA 91351-2934

345 294 06 00 5
CHENG WILLIE T
1590 ROSECRANS AV STE D213
MANHATTAN BEACH CA 90266-3716

345 262 09 00 1 **INC**
DE GUZMAN WARLITO & JOSEPHINE
919-A ONGPIN ST
*

345 262 22 00 8
EAGLE DESERT VISTA CORP
PO BOX 2470
VICTORVILLE CA 92393

345 262 02 00 0
FLORES TERESITA N
4712 QUANTANA CT
LAS VEGAS NV 89102

345 262 10 00 3
ESTIVA ANITA B
1128 E JAY ST
CARSON CA 90745-3520

345 272 01 00 0
FIRST BAPTIST CHR-LA CRESCENTA
4441 LA CRESCENTA AV
LA CRESCENTA CA 91214

345 272 17 00 7
GALL CHARLES P & PALMIRA L
1201 YALE PL APT 508
MINNEAPOLIS MN 55403

345 262 32 00 7
FORECAST LAND CORP
PO BOX 36
WOODLAND HILLS CA 91365-0036

345 294 05 00 2
FRANCIA FEDERICO & MILAGROS TR
3823 STAFFORD SPRINGS WY
FAIRFIELD CA 94533

345 262 07 00 5
GOMEZ LORI NICKEL
PO BOX 73
DUNCANS MILLS CA 95430-0073

345 272 11 00 9
GARDNER NANCY TRUST
2274 SHANNON LN
WALNUT CREEK CA 94598-1230

345 272 10 00 6
GERALDE JEREMIAS JR & FE
44550 SANDHURST LN
LANCASTER CA 93536-6467

345 272 16 00 4
HORTON MILDRED I
2050 W DUNLAP AV # B158
PHOENIX AZ 85021

345 032 10 00 6
GORJIYAN FARAHNAZ
4004 PACHECO DR
SHERMAN OAKS CA 91403-4421

345 291 16 00 3
GREEN FAMILY TR
3086 GRAVE ST
VENTURA CA 93003

345 262 29 00 9
JOHNSON BERKELEY N
940 ALSTON RD
SANTA BARBARA CA 93108

345 282 02 00 6
HUR FAMILY TRUST
18744 VINTAGE ST
NORTHRIDGE CA 91324-1528

345 262 18 00 7
HUSEBY LEIGH J REVOCABLE
LIVING TRUST
2518 S 279TH PL
FEDERAL WAY WA 98003-6938

345 282 01 00 3
KEASLER KAHN ANN REVOCABLE
LIVING TRUST
1112 OXFORD HILLS DR
MARYVILLE TN 37803

345 272 15 00 1
JULIAN DELORES D TR
5554 ROSAMOND BL
ROSAMOND CA 93560

345 262 15 00 8
KAZEROUNI YVONNE
320 THE VILLAGE 104
REDONDO BEACH CA 90277

345 272 20 00 5
KUIDA MINORU & MACHIKO TR
1632 RAMONA DR
NEWBURY PARK CA 91320-3459

345 282 07 00 1
KIM MATTHEW & DWIGHT
1112 N SCREENLAND DR
BURBANK CA 91505-2503

345 281 06 00 1
KNIGHT JAMES E
5 CINNAMON LN
RANCHO PLS VERD CA 90275

345 262 21 00 5
LAGRIMAS DEMPSEY & FLORDELIZA
ET AL
1706 MULFORD ST
EVANSTON IL 60202-3243

345 281 02 00 9
KUPERS JEFFREY B
PO BOX 666
HEALDSBURG CA 95448-0666

345 281 04 00 5
KUPERS LAWRENCE B
605 DALE DR
SILVER SPRING MD 20910

345 294 22 00 1
LICO MICHAEL & KAREN ELENA
6328 NW MIDTOWNE LN
HUNTSVILLE AL 35806-1796

345 272 25 00 0
LAND DREAM LP
3104 E CAMELBACK RD 2104
PHOENIX AZ 85016

345 272 21 00 8
LEDWELL RUSSELL A
16810 RANGER CT
MORGAN HILL CA 95037-3827

345 272 29 00 2
MILES JOHN & LINDA REVOCABLE
TRUST
355 BAY FOREST DR
NAPLES FL 34110

345 272 19 00 3
MACALALAD LYDIA B
PO BOX 250913
GLENDALE CA 91225-0913

345 272 24 00 7
MC LYMAN FAMILY TRUST
P O BOX 3703
IDYLLWILD CA 92549

345 281 03 00 2
NARDI ANTHONY V & CHRISTINE
44022 FENNER AV
LANCASTER CA 93536

345 293 06 00 8
MOORES PHILLIP
7288 MOJAVE TROPICO RD
MOJAVE CA 93501-7283

345 294 07 00 8
MULLIGAN THOMAS C
80 LYME RD APT 245
HANOVER NH 03755-1246

345 294 02 00 3
PABST FAMILY TR
7862 MARIN LN
VENTURA CA 93004

345 032 06 00 5
NEWMAN GORDON W & LINDA L
27050 SANTA CLARITA RD
SAUGUS CA 91350-1558

345 281 19 00 9
OAK INVS LLC
P O BOX 2016
BEVERLY HILLS CA 90213

345 272 22 00 1
PARSONS CHARLOTTE E
9241 W BROWARD BL # 3302
PLANTATION FL 33324

345 272 30 00 4
PADILLA ALICIA HERNANDEZ
38015 65TH STREET E SP D 3
PALMDALE CA 93552

345 294 15 00 1
PANTELE FAMILY TRUST
1847 S STARFIRE AV
CORONA CA 92879-2935

345 281 07 00 4
PLANK CHARLES E
3524 GRAND AV U 206
DES MOINES IA 50312-4315

345 262 16 00 1
PATTON FAMILY TRUST
1135 EASTSIDE LN
COLEVILLE CA 96107

345 272 06 00 5
PETERSON LOIS C & CHARLES T
16 ROCKLEDGE AV APT 5A1
OSSINING NY 10562

345 262 17 00 4
REDKEY APRIL ANN
116 ELMWOOD RD
LUNENBURG MA 01462-1465

345 272 08 00 1
PORNILLOSA GREGORIO L JR ET AL
12321 ALLIN ST
CULVER CITY CA 90230-5808

345 262 05 00 9
POSERIO ARNULFO F
314 E BUFFALO AV
SANTA ANA CA 92706-2950

345 262 06 00 2
SHER EDELLE
3800 KAMEHAMEHA RD APT 6
PRINCEVILLE HI 96722-5328

345 262 08 00 8
RICHARD ADOLPH DAVIS INC
P O BOX 935
RANCHO MIRAGE CA 92270

345 294 20 00 5
SANTOS DAVID C
4978 MONTAIR AV
LAKEWOOD CA 90712

345 294 18 00 0
STARLING LELAND & DARLINE TRS
2932 MAUDE ST
RIVERSIDE CA 92506-4418

345 272 07 00 8
SIERRA SANTIAGO V & ELMA A
6534 BROOK HOLLOW CI
STOCKTON CA 95219-2437

345 262 01 00 7
SMITH TIMOTHY E & LOURIE A
2675 DONEGAL AV
S SAN FRANCISCO CA 94080-5311

345 262 13 00 2
TALBOTT SYLVIA R
546 JUDI DR
MISSOULA MT 59802

345 272 09 00 4
THUDIUM ANNETTE ET AL
1220 HAMPEL ST
OAKLAND CA 94602-1112

345 294 12 00 2
TONG NHIEM & LY-HUONG P
PO BOX 2411
LA HABRA CA 90632-2411

345 262 23 00 1
TOPPETA MICHAEL
PO BOX 875
TEHACHAPI CA 93581-0875

345 282 06 00 8
TRAN TRAC NGOC & TRUONG THINH THI
418 PATRICK LN
HERNDON VA 20170

345 032 02 00 3 **INC**
U S A
*
*

345 294 08 00 1
US TR IRREV TR
711 N PRISCILLA LN
BURBANK CA 91505-3139

345 293 26 00 6
VELARDE FAMILY TRUST
3837 W MORGAN LN
QUEEN CREEK AZ 85142-3107

345 272 14 00 8
VELA TR
18767 LAMSON RD
CASTRO VALLEY CA 94546-2100

345 293 23 00 7
VELARDE FAMILY TRUST
29117 THOUSAND OAKS BL U A
AGOURA HILLS CA 91301-5705

345 262 25 00 7
WHEELER W & V LIVING TRUST
1154 CHEATGRASS DR
DAYTON NV 89403-6322

345 272 12 00 2
VIDAL TEOFILO U
3640 E AVENUE H9
LANCASTER CA 93535-2272

345 272 32 00 0
WALTERS BUD TRUST
RR2 2050 RD 150
LAKIN KS 67860

345 262 27 00 3
STEPHENSON DOUGLAS & PAGE
2359 W 100TH ST
ROSAMOND CA 93560-7011

345 262 19 00 0
STRONG RUSSELL G TR
3128 PATTIZ AV
LONG BEACH CA 90808

345 272 32 00 0
WALTERS BUD TRUST
RR2 2050 RD 150
LAKIN KS 67860

345 262 30 00 1
WOOD ROBBIN RENEE
214 MAIN ST APT 430
EL SEGUNDO CA 90245-3803

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 # 2021110076

Project Title: Gem Hill Quarry Project by CalPortland Company (PP21404)

Lead Agency: Kern County Planning and Natural Resources Department — Contact Person: Randall Cates

Mailing Address: 2700 "M" Street Suite 100 — Phone: 661-862-8612

City: Bakersfield — Zip: 93301-2323 — County: Kern

Project Location: County: Kern — City/Nearest Community: Rosamond

Cross Streets: The project site is located on the west side of Mojave Tropico Road, approximately two miles south of Backus Road; approximately four miles northwest of the unincorporated community of Rosamond; also being located within portions of Sections 25, 26, 35 and 36 of Township 10 North, Range 13 West, San Bernardino Base and Meridian (SBBM), County of Kern, State of California.

Lat. / Long.: 34° 55′ 19.57488″ N/ 118° 13′ 15.75640″ W — Total Acres: 210.75 acres (210-acre reclamation plan boundary plus .75-acre primary access road)

Assessor's Parcel No.: portion of 345-032-02 (primary access road); portions of APN 345-031-02, APN 345-032-05 and APN 345-294-17, all of 345-032-31 — Section: portions of Sections 25, 26, 35 and 36

Twp.: 10N — Range: 13W — Base: SBB&M

Within 2 Miles: State Hwy #: N/A — Waterways: multiple ephemeral drainage features

Airports: N/A — Railways: N/A — Schools: N/A

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 ☐ Other
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit

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: naturally occurring pozzolan (volcanic tuff)
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

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 Energy, Greenhouse Gas Emissions, Tribal Cultural Resources, Wildfire

Present Land Use/Zoning/General Plan Designation:

- Undeveloped / *Zoning*: A (Exclusive Agriculture) / *Kern County General Plan*: 8.3 (Extensive Agriculture), 8.4 (Mineral and Petroleum), 8.4/2.4 (Mineral and Petroleum – Steep Slope), 8.5/2.4 (Resource Management – Steep Slope)

Project Description: *(please use a separate page if necessary)*

The project proponent has submitted: (a) a Conditional Use Permit (CUP 45, Map 214) application, to allow a surface mining operation and development of a reclamation plan on approximately 82 acres of an approximately 210-acre reclamation plan boundary, which would utilize a 0.75-acre primary access road outside of such reclamation plan boundary to provide access to/from Mojave Tropico Road.

Access to the site would be obtained via two access roads to Mojave Tropico Road, specifically the aforementioned access road and a secondary access road to the north thereof. The project proponent proposes to employ open pit, multibench, and drill and blast mining techniques to mine naturally occurring pozzolan (volcanic tuff), which is used in the production of cement. No crushing or processing of mined material would occur onsite.

The life of the operation is proposed to be 30 years. Annual mineral production is estimated to be 500,000 tons, and the maximum total mineral production is estimated to be 15 million tons. The total anticipated production of mine waste (overburden) is estimated to be 600,000 tons, which would be disposed in two onsite overburden stockpiles. The proposed maximum depth of excavation is 300 feet below original grade. No phasing of mining is proposed.

Maximum operational inter-bench slopes (also referred to as bench face slopes) for the quarry will be 0.25:1 (horizontal:vertical (H:V)) with overall slopes of 1:1 (H:V). Maximum final reclaimed inter-bench slopes for the quarry will be 0.25:1 (H:V). Overall final reclaimed slopes for the quarry will be a maximum of 1:1 (H:V).

Maximum operational slopes for the overburden stockpiles will be 1.5:1 (H:V). Maximum and overall final reclaimed slopes for the overburden stockpiles will be 2:1 (H:V).

Operations would typically be conducted between 7:00 a.m. and 7:00 p.m., Monday through Saturday, with the understanding that additional shifts or longer/alternative hours may be required due to operational constraints. As proposed, there would be a maximum of 20 employees onsite at any one time. These 20 employees would include haul truck drivers, who would haul overburden onsite (from the quarry to the overburden stockpiles), as well as hauling naturally occurring pozzolan (volcanic tuff) offsite to clients.

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		Parks & Recreation
S	Caltrans District # 6 & 9		Pesticide Regulation, Department of
	Caltrans Division of Aeronautics		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
	Energy Commission		SWRCB: Water Rights
S	Fish & Game Region # Fresno		Tahoe Regional Planning Agency
	Food & Agriculture, Department of		Toxic Substances Control, Department of
	General Services, Department of		Water Resources, Department of

_____	Health Services, Department of		
_____	Housing & Community Development	S	Other So. San Joaquin Arch. Info. Ctr.
_____	Integrated Waste Management Board	S	Other CalGEM - Bakersfield
S	Native American Heritage Commission	_____	Other _____

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

Starting Date August 23, 2022 Ending Date October 7, 2022

Lead Agency (Complete if applicable):

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

Signature of Lead Agency Representative: **/s/** **Date:** August 23, 2022

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

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Draft
Environmental Impact Report

SCH# 2021110076

Volume 1

Chapters 1 through 11

GEM HILL QUARRY PROJECT

by CalPortland Company (PP21404*)*

Conditional Use Permit No. 45, Map No. 214

Kern County
Planning and Natural Resources Department
Bakersfield, California

Technical Assistance by:
Benchmark Resources

August 2022

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Table of Contents

VOLUME 1

Page

Chapter 1 Executive Summary 1-1

1.1 Introduction 1-1
1.2 Purpose and Use of the Draft EIR 1-8
1.3 Project Overview 1-8
1.3.1 Local and Regional Setting 1-8
1.3.2 Project Objectives 1-12
1.4 Environmental Impacts 1-12
1.4.1 Impacts Not Further Considered in this EIR 1-13
1.4.2 Impacts of the Proposed Project 1-13
1.4.3 Significant and Unavoidable Impacts 1-14
1.4.4 Significant Cumulative Impacts 1-16
1.4.5 Growth Inducement 1-17
1.4.6 Irreversible Impacts 1-17
1.5 Alternatives to the Proposed Project 1-17
1.5.1 Alternatives Eliminated from Further Consideration 1-18
1.5.2 Alternatives Analyzed in this EIR 1-18
1.5.3 Environmentally Superior Alternative 1-20
1.6 Areas of Controversy 1-21
1.7 Issues to Be Resolved 1-21
1.8 Summary of Environmental Impacts and Mitigation Measures 1-21

Chapter 2 Introduction 2-1

2.1 Intent of the California Environmental Quality Act 2-1
2.1.1 Purpose of the California Environmental Quality Act Process 2-2
2.2 Purpose of this Environmental Impact Report 2-2
2.2.1 Issues to Be Resolved 2-3
2.3 Terminology 2-3
2.4 Decision-Making Process 2-5
2.4.1 Notice of Preparation/Initial Study 2-6
2.4.2 Scoping Meeting 2-6
2.4.3 Availability of the Draft EIR 2-15
2.5 Format and Content 2-15

2.5.1 Required EIR Content and Organization 2-16
2.6 Responsible and Trustee Agencies 2-18
2.7 Incorporation by Reference 2-19
2.7.1 Kern County General Plan 2-19
2.7.2 Kern County Zoning Ordinance 2-20
2.7.3 Kern County Zoning Ordinance, Chapter 19.100, Surface Mining Operations 2-20
2.7.4 Regional Transportation Plan and Sustainable Communities Strategy 2-20
2.8 Sources 2-21

Chapter 3 Project Description 3-1

3.1 Project Overview 3-1
3.2 Project Site 3-2
3.2.1 Regional Setting 3-2
3.2.2 Project Location 3-4
3.3 Surface Mining and Reclamation Act Process 3-13
3.4 Project Characteristics 3-13
3.4.1 Project Summary 3-13
3.4.2 Mining Plan 3-17
3.4.3 Reclamation Plan 3-20
3.4.4 Schedule and Workforce 3-24
3.4.5 Drainage and Flood Control Measures 3-24
3.4.6 Utilities 3-24
3.4.7 Trip Generation and Distribution 3-25
3.4.8 Water Use 3-26
3.5 Project Objectives 3-27
3.6 Proposed Discretionary Actions/Required Approvals 3-28
3.7 Cumulative Effects Overview 3-28

Section 4.1 Aesthetics 4.1-1

4.1.1 Introduction 4.1-1
4.1.2 Environmental Setting 4.1-2
4.1.3 Regulatory Setting 4.1-3
4.1.4 Impacts and Mitigation Measures 4.1-7

Section 4.2 Air Quality 4.2-1

4.2.1 Introduction 4.2-1
4.2.2 Environmental Setting 4.2-1

4.2.3 Regulatory Setting 4.2-26
4.2.4 Impacts and Mitigation Measures 4.2-34

Section 4.3 Biological Resources 4.3-1

4.3.1 Introduction 4.3-1
4.3.2 Environmental Setting 4.3-2
4.3.3 Regulatory Setting 4.3-15
4.3.4 Impacts and Mitigation Measures 4.3-21

Section 4.4 Cultural Resources 4.4-1

4.4.1 Introduction 4.4-1
4.4.2 Environmental Setting 4.4-4
4.4.3 Cultural Setting 4.4-4
4.4.4 Regulatory Setting 4.4-16
4.4.5 Impacts and Mitigation Measures 4.4-24

Section 4.5 Energy 4.5-1

4.5.1 Introduction 4.5-1
4.5.2 Environmental Setting 4.5-1
4.5.3 Regulatory Setting 4.5-3
4.5.4 Impacts and Mitigation Measures 4.5-7

Section 4.6 Geology and Soils 4.6-1

4.6.1 Introduction 4.6-1
4.6.2 Environmental Setting 4.6-3
4.6.3 Regulatory Setting 4.6-11
4.6.4 Impacts and Mitigation Measures 4.6-19

Section 4.7 Greenhouse Gas Emissions 4.7-1

4.7.1 Introduction 4.7-1
4.7.2 Environmental Setting 4.7-1
4.7.3 Regulatory Setting 4.7-8
4.7.4 Impacts and Mitigation Measures 4.7-22

Section 4.8 Hazards and Hazardous Materials 4.8-1

4.8.1 Introduction 4.8-1
4.8.2 Environmental Setting 4.8-1
4.8.3 Regulatory Setting 4.8-6
4.8.4 Impacts and Mitigation Measures 4.8-16

Section 4.9 Hydrology and Water Quality 4.9-1
4.9.1 Introduction 4.9-1
4.9.2 Environmental Setting 4.9-1
4.9.3 Regulatory Setting 4.9-6
4.9.4 Impacts and Mitigation Measures 4.9-16

Section 4.10 Land Use and Planning 4.10-1
4.10.1 Introduction 4.10-1
4.10.2 Environmental Setting 4.10-1
4.10.3 Regulatory Setting 4.10-8
4.10.4 Impacts and Mitigation Measures 4.10-16

Section 4.11 Mineral Resources 4.11-1
4.11.1 Introduction 4.11-1
4.11.2 Environmental Setting 4.11-1
4.11.3 Regulatory Setting 4.11-3
4.11.4 Impacts and Mitigation Measures 4.11-4

Section 4.12 Noise 4.12-1
4.12.1 Introduction 4.12-1
4.12.2 Environmental Setting 4.12-5
4.12.3 Regulatory Setting 4.12-7
4.12.4 Impacts and Mitigation Measures 4.12-11

Section 4.13 Public Services 4.13-1
4.13.1 Introduction 4.13-1
4.13.2 Environmental Setting 4.13-1
4.13.3 Regulatory Setting 4.13-4
4.13.4 Impacts and Mitigation Measures 4.13-7

Section 4.14 Transportation 4.14-1
4.14.1 Introduction 4.14-1
4.14.2 Environmental Setting 4.14-1
4.14.3 Regulatory Setting 4.14-4
4.14.4 Impacts and Mitigation Measures 4.14-10

Section 4.15 Tribal Cultural Resources 4.15-1
4.15.1 Introduction 4.15-1
4.15.2 Environmental Setting 4.15-2
4.15.3 Regulatory Setting 4.15-4

4.15.4 Impacts and Mitigation Measures 4.15-12

Section 4.16 Utilities and Service Systems 4.16-1

4.16.1 Introduction 4.16-1
4.16.2 Environmental Setting 4.16-1
4.16.3 Regulatory Setting 4.16-4
4.16.4 Impacts and Mitigation Measures 4.16-7

Section 4.17 Wildfire 4.17-1

4.17.1 Introduction 4.17-1
4.17.2 Environmental Setting 4.17-1
4.17.3 Regulatory Setting 4.17-3
4.17.4 Impacts and Mitigation Measures 4.17-5

Chapter 5 Consequences of Project Implementation 5-1

5.1 Environmental Effects Found to be Less than Significant 5-1
5.2 Significant Environmental Effects that Cannot Be Avoided 5-2
5.3 Significant Irreversible Impacts 5-2
5.4 Significant Cumulative Impacts 5-3
5.5 Growth Inducement 5-4
5.5.1 Evaluation Methods 5-4
5.5.2 Growth Effects of the Project 5-5

Chapter 6 Alternatives 6-1

6.1 Introduction 6-1
6.2 Alternatives Eliminated from Further Consideration 6-2
6.2.1 Alternative Locations 6-2
6.2.2 Phased Approach 6-3
6.3 Alternatives Analyzed in this EIR 6-4
6.3.1 Alternative A: No-Project Alternative 6-4
6.3.2 Alternative B: Reduced Footprint Alternative 6-5
6.3.3 Alternative C: Reduced Depth of Mining Alternative 6-8
6.4 Summary of Alternatives Comparison 6-11
6.5 Environmentally Superior Alternative 6-11

Chapter 7 Response to Comments 7-1

Chapter 8 Organizations and Persons Consulted 8-1

8.1 Federal 8-1
8.2 State of California 8-1

8.3 Regional and Local 8-2

Chapter 9 List of Preparers 9-1

9.1 Lead Agency 9-1

9.2 Technical Assistance 9-1

Chapter 10 Bibliography 10-1

Chapter 11 Acronyms and Abbreviations 11-1

FIGURES

Chapter 1 – Executive Summary

Figure 1-1 Site Vicinity 1-4
Figure 1-2 Project Boundary and Parcels 1-5
Figure 1-3 Aerial Photograph Map 1-6
Figure 1-4 Proposed Mine Plan 1-7

Chapter 3 – Project Description

Figure 3-1 Site Vicinity 3-3
Figure 3-2 Project Boundary and Parcels 3-8
Figure 3-3 Aerial Photograph Map 3-9
Figure 3-4 Proposed Mine Plan 3-10
Figure 3-5 Kern County General Plan Land Use Designations 3-11
Figure 3-6 Kern County Zoning Classifications 3-12
Figure 3-7 Proposed Reclamation Plan 3-15
Figure 3-8 Proposed Reclamation Plan Cross-Sections 3-16
Figure 3-9 Cumulative Projects Map 3-34

Section 4.1 – Aesthetics

Figure 4.1-1 Existing View of Project Site from Mojave-Tropico Road Facing Northwest 4.1-5
Figure 4.1-2 Key Observation Points Map 4.1-10
Figure 4.1-3 Proposed Mine Plan 4.1-11
Figure 4.1-4 KOP-1: Existing Conditions (Mining Has Not Commenced) 4.1-22
Figure 4.1-5 KOP-1: Fully Mined but Reclamation Has Not Commenced 4.1-22
Figure 4.1-6 KOP-1: Fully Mined and Fully Reclaimed 4.1-23
Figure 4.1-7 KOP-2: Existing Conditions (Mining has not Commenced) 4.1-23
Figure 4.1-8 KOP-2: Fully Mined but Reclamation Has Not Commenced 4.1-24
Figure 4.1-9 KOP-2: Fully Mined and Fully Reclaimed 4.1-24
Figure 4.1-10 KOP-3: Existing Conditions (Mining Has Not Commenced) 4.1-25
Figure 4.1-11 KOP-3: Fully Mined but Reclamation Has Not Commenced 4.1-25
Figure 4.1-12 KOP-3: Fully Mined and Fully Reclaimed 4.1-26
Figure 4.1-13 KOP-4: Existing Conditions (Mining Has Not Commenced) 4.1-26
Figure 4.1-14 KOP-4: Fully Mined but Reclamation Has Not Commenced 4.1-27
Figure 4.1-15 KOP-4: Mined and Fully Reclaimed 4.1-27
Figure 4.1-16 KOP-5: Existing Conditions (Mining Has Not Commenced) 4.1-28
Figure 4.1-17 KOP-5: Fully Mined but Reclamation Has Not Commenced 4.1-28
Figure 4.1-18 KOP-5: Fully Mined and Fully Reclaimed 4.1-29

Section 4.2 – Air Quality

Figure 4.2-1 Air Quality Analysis Sensitive Receptor Locations 4.2-3

Section 4.3 – Biological Resources

Figure 4.3-1 Water Resources Map 4.3-29

Section 4.4 – Cultural Resources

Figure 4.4-1 Coverage Areas of Project Cultural Resources Studies 4.4-7

Section 4.6 – Geology and Soils

Figure 4.6-1 Fault Map 4.6-4
Figure 4.6-2 Soils Map 4.6-10

Section 4.9 – Hydrology and Water Quality

Figure 4.9-1 Gem Hill Quarry Modeled Drainage Areas – Existing Conditions 4.9-4
Figure 4.9-2 Flood Zone Map 4.9-7
Figure 4.9-3 Gem Hill Quarry Modeled Drainage Areas – Project Conditions 4.9-22

Section 4.10 – Land Use and Planning

Figure 4.10-1 Kern County General Plan Land Use Designations 4.10-5
Figure 4.10-2 Kern County Zoning Classifications 4.10-6

Section 4.12 – Noise

Figure 4.12-1 Noise Monitoring Locations and Sensitive Receptors Map 4.12-8

Section 4.14 – Transportation and Traffic

Figure 4.14-1 Project Location and Existing Street Network 4.14-3

Section 4.17 – Wildfire

Figure 4.17-1 Fire Hazard Severity Zones for Local Responsibility Areas 4.17-2

TABLES

Chapter 1 – Executive Summary

Table 1-1 Existing Uses, Zoning, and Land Use Designations 1-9
Table 1-2 Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation 1-14
Table 1-3 Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation 1-15
Table 1-4 Alternatives Impact Comparison Summary 1-19
Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation 1-22

Chapter 2 – Introduction

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021 2-7
Table 2-2 Summary of Public Comments Received on the NOP/IS Subsequent to the November 4, 2021 to December 6, 2021 Public Notice Period 2-13
Table 2-3 Required EIR Contents 2-16

Chapter 3 – Project Description

Table 3-1 Existing Uses, Zoning, and Land Use Designations 3-4
Table 3-2 Planned Surface Disturbance and Estimated Ore and Overburden Production 3-17
Table 3-3 Project Operations Equipment and Usage 3-19
Table 3-4 Proposed Revegetation Plant Seed Mix 3-23
Table 3-5 Vehicles and Average Daily Trips 3-25
Table 3-6 Trip Generation: Average Daily Traffic, AM and PM Peak Hour, and Breakdown of Arrivals and Departures 3-26
Table 3-7 Proposed Water Use 3-27
Table 3-8 Proposed Discretionary Actions/Required Approvals 3-28
Table 3-9 Cumulative Projects List 3-30

Section 4.1 – Aesthetics

Table 4.1-1 Visual Quality Rating System 4.1-13
Table 4.1-2 Visual Quality Rating Analysis 4.1-14

Section 4.2 – Air Quality

Table 4.2 1 National and California Ambient Air Quality Standards 4.2-5
Table 4.2 2 Air Quality Data Summary (2016–2018) 4.2-8
Table 4.2 3 Range of Valley Fever Cases 4.2-24
Table 4.2 4 EKAPCD Emission Thresholds 4.2-36
Table 4.2 5 Construction-Related Emissions 4.2-41

Table 4.2 6 Typical Quarry Equipment 4.2-42
Table 4.2 7 Operational Emissions Summary 4.2-43
Table 4.2 8 Carcinogenic Health Risk Summary 4.2-55
Table 4.2 9 Non-Carcinogenic Health Risk Summary 4.2-56

Section 4.3 – Biological Resources

Table 4.3-1 Potentially Occurring Special-Status Species 4.3-10

Section 4.4 – Cultural Resources

Table 4.4-1 Previously Recorded Cultural Resources within 1 Mile of Project Site 4.4-10
Table 4.4-2 Summary of AB 52 Consultation Efforts 4.4-14

Section 4.5 – Energy

Table 4.5-1 SCE Electric Power Generation Mix (2017) 4.5-2
Table 4.5-2 Construction Phase Fuel Usage 4.5-9
Table 4.5-3 Operational Phase Diesel Fuel Usage 4.5-9
Table 4.5-4 Operational Phase Gasoline Fuel Usage (Employee Trips-One Way) 4.5-11
Table 4.5-5 Reclamation Phase Fuel Usage 4.5-11

Section 4.6 – Geology and Soils

Table 4.6-1 Regional Faults in the Vicinity of the Project Site 4.6-6
Table 4.6-2 Summary of Global Slope Stability Results 4.6-21

Section 4.7 – Greenhouse Gas Emissions and Global Climate Change

Table 4.7-1 California Greenhouse Gas Emissions Inventory by Economic Sector 4.7-6
Table 4.7-2 2005 Kern County Baseline Greenhouse Gas Emissions 4.7-7
Table 4.7-3 Daily and Annual Project GHG Emissions 4.7-25
Table 4.7-4 2017 Climate Change Scoping Plan: Climate Change Policies and Measures 4.7-27

Section 4.9 – Hydrology and Water Quality

Table 4.9-1 Gem Hill Quarry Site Modeled Drainage Areas – Existing Conditions 4.9-3
Table 4.9-2 Gem Hill Quarry Site Drainage Areas – Project Conditions 4.9-20

Section 4.10 – Land Use and Planning

Table 4.10-1 Existing Uses, Zoning, and Land Use Designations 4.10-2
Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations 4.10-10

Section 4.11 – Mineral Resources

Table 4.11-1 Classified Mineral Resources Within Kern County 4.11-2

Section 4.12 – Noise

Table 4.12-1 Typical Noise Levels 4.12-2
Table 4.12-2 Noise Level Changes with Distance from Source 4.12-3
Table 4.12-3 Typical Levels of Ground-Borne Vibration....4.12-4
Table 4.12-4 Ambient Noise Monitoring Results 4.12-5
Table 4.12-5 Off-Site Haul Route Traffic Noise – Existing Conditions....4.12-6
Table 4.12-6 Predicted On-Site Operations Noise Levels at Receptor Locations....4.12-14
Table 4.12-7 Predicted On-Site Operations Noise Level Increases at Receptor Locations 4.12-15
Table 4.12-8 Predicted Project Airblast Levels at Receptor Locations....4.12-16
Table 4.12-9 Off-Site Haul Route Traffic Noise – with Project 4.12-16
Table 4.12-10 Off-Site Haul Route Traffic Noise Increases....4.12-17
Table 4.12-11 Predicted Project Blasting Vibration Levels at Receptor Locations....4.12-19

Section 4.16 – Transportation and Traffic

Table 4.14-1 Project Trip Generation Summary....4.14-11
Table 4.14-2 Project Daily and Annual Vehicle Miles Traveled....4.14-13

Section 4.15 – Tribal Cultural Resources

Table 4.15-1 Summary of AB 52 Consultation Efforts....4.15-2

Section 4.16 – Utilities and Service Systems

Table 4.16-1 Proposed Water Use....4.16-9

Section 4.17 – Wildlife

Table 4.17-1 Proposed Revegetation Plant Seed Mix....4.17-8

Chapter 5 – Consequences of Project Implementation

Table 5-1 Summary of Significant and Unavoidable Impacts of the Project....5-2

Chapter 6 – Alternatives

Table 6-1 Alternatives Impact Comparison Summary....6-11

APPENDICES

The following Appendices are included on the digital media that is inserted in the front cover of this EIR.

VOLUME 2

Appendix A: Notice of Preparation/Initial Study and Comment Letters

Appendix A.1: Notice of Preparation/Initial Study

Appendix A.2: Scoping Meeting Summary

Appendix A.3: Notice of Preparation/Initial Study Comments

Appendix B: Surface Mining and Reclamation Plan

Appendix B.1: Reclamation Plan for Gem Hill Quarry (updated July 2022)

Appendix B.2: Kern County SMARA Application

Appendix B.3: Gem Hill Project Revegetation Plan

Appendix B.4: Reclamation Plan Exhibit – Map Sheet 1 of 4 (Existing Conditions)

Appendix B.5: Reclamation Plan Exhibit – Map Sheet 2 of 4 (Mine Plan)

Appendix B.6: Reclamation Plan Exhibit – Map Sheet 3 of 4 (Reclamation Plan)

Appendix B.7: Reclamation Plan Exhibit – Map Sheet 4 of 4 (Reclamation Plan Cross Sections)

Appendix C: Air Quality Impact Assessment

Appendix C.1: Air Quality and Greenhouse Gas Assessment

Appendix C.2 Gem Hill Quarry Project Health Risk Assessment Analysis

Appendix C.3 SJVAPCD and SCAQMD Amicus Curiae Brief

Appendix D: Biological Resources Technical Studies

Appendix D.1: Gem Hill Project Habitat Assessment and Desert Tortoise Presence/Absence Survey Report

Appendix D.2: Gem Hill Quary Project Delineation of State and Federal Jurisdictional Waters

VOLUME 3

Appendix E: Cultural Resources Technical Studies

Appendix E.1: Phase I Historical/Archaeological Resources Survey, Rosamond Hills Mine Project, Assessor's Parcel Nos. 345-294-17, 0345-031-02, and 0345-032-02, -05, and -31 (redacted version)

Appendix E.2: A Phase II Cultural Resources Investigation of the Cal-Portland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County (redacted version)

Appendix E.3: Addendum Report: A Phase II Cultural Resources Investigation of the CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County (redacted version)

Appendix E.4: Supplemental Report: Cultural Resource Investigations of Additional Acreage At The CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County, California (redacted version)

Appendix F: Energy Utilization Study

Appendix G: Geotechnical Engineering, Soil, and Paleontological Resources Reports

Appendix G.1: Slope Stability Evaluation Report, Proposed Gem Hill Pozzolan Quarry-North Pit

Appendix G.2: Gem Hill Supplemental (McKenna 2020), including attached Paleontological resources for the proposed Gem Hill Portland Cement Project (McLeod 2020)

Appendix H: Phase I Environmental Site Assessment

Appendix I: Hydrology and Water Supply Studies

Appendix I.1: Drainage Report for Gem Hill Quarry

Appendix I.2: Water Supply Assessment Gem Hill Project

Appendix I.3: Technical Memorandum in Support of the Gem Hill Water Supply Assessment

Appendix J: Noise and Vibration Impact Analysis

Appendix K: Trip Generation Assessment

Appendix L: Land Survey Map

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Chapter 1
Executive Summary

1.1 Introduction

The Gem Hill Quarry Project (project) is a proposal by CalPortland Company (CalPortland; the project proponent) which proposes a Conditional Use Permit (CUP 45, Map 214) to allow a surface mining operation and development of a reclamation plan on approximately 82.2 acres of an approximately 210-acre reclamation plan boundary, which would utilize a 0.75-acre primary access road outside of such reclamation plan boundary to provide access to/from Mojave Tropico Road (**Figure 1-1**, *Site Vicinity*, **Figure 1-2**, *Project Boundary and Parcels*, **Figure 1-3**, *Proposed Mine Plan* and **Figure 1-4**, *Proposed Mine Plan*).

A draft Environmental Impact Report (EIR) has been prepared by Kern County as the Lead Agency under the California Environmental Quality Act (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 federal, state, and local permitting agencies that are required to consider the project. The EIR will be used by Kern County to determine whether to approve the requested project entitlements.

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

The project proponent is requesting the following discretionary action from Kern County:

(a) approval of a Conditional Use Permit (CUP) for an approximately 35-acre quarry with a planned disturbance area of approximately 82.2 acres, within an approximately 210.75-acre project site boundary (which includes the .75-acre primary access road which is located on land administered by the CSLC); and

(b) approval of a reclamation plan for the 210.75-acre project site boundary in accordance with the Surface Mining and Reclamation Act (SMARA) of 1975.

The project site is in a rural area in southeastern Kern County identified as portions of Kern County Assessor's Parcel Numbers (APNs) 345-294-17, 345-032-05, 345-032-31, 345-031-02 and 345-032-02. The proposed project would utilize the primary access road which crosses land administered by the CSLC within APN 345-032-02. The project proponent is proposing to mine an estimated 500,000 tons of volcanic tuff annually (for an estimated total of 15,000,000 tons from a single open pit). The life of the operation is proposed to be 30 years.

The proposed project surface mining area is approximately 35 acres of the total approximately 82.2-acre project disturbance area. The quarry would be mined to a maximum depth of

approximately 300 feet from 2,750 feet amsl to a floor depth of 2,450 feet amsl. The quarry is designed to avoid mining the ridgelines to the north and west to reduce the potential for visual impacts. A safety berm six feet high and 12 feet wide at its base would be constructed around the quarry rim for operational and public safety purposes.

Of the approximately 82.2 total acres of disturbance, 16.2 acres has previously been disturbed in accordance with Grading Permit K201806271 issued by the Kern County Public Works Department; the remaining 66 acres is proposed to be disturbed. The reclamation plan boundary encompasses all areas of disturbance except the 0.75-acre area within which the primary access road would be located. Within the reclamation plan boundary, some areas of access road disturbance would remain after the site has been deemed fully reclaimed, as the roads would continue to be used for site access.

The quarry would be excavated utilizing conventional open pit methods and would involve drilling and blasting benches 25 feet high with inter bench slopes of 70 degrees. The height of proposed benching is based on the site geology and deposit. The 70-degree inter bench would create a bench offset of approximately 9 feet with a 16-foot-wide horizontal bench sloped slightly towards the back of slope to retain precipitation. The overall slope for operations and reclamation is approximately 45 degrees or 1 horizontal:1 vertical (1H:1V). Quarry haul roads would be 30 feet wide with a grade of 8 percent or less depending on locations and conditions. A slope stability evaluation prepared for the project determined that the proposed quarry slopes (and overburden stockpiles, discussed below) would achieve static factors of safety (FS) in excess of 1.5 and seismic factors of safety at or greater than 1.1.

Maximum final reclaimed inter-bench slopes for the quarry will be 0.25:1 (horizontal: vertical (H:V)). Overall final reclaimed slopes for the quarry will be a maximum of 1:1 (H:V). Maximum operational slopes for the overburden stockpiles will be 1.5:1 (H:V). Maximum and overall final reclaimed slopes for the overburden stockpiles will be 2:1 (H:V).

The project proponent documents that the project has proven/probable reserves of approximately 16 million tons (mt). The project proponent plans to extract up to 15,000,000 tons of volcanic tuff (500,000 tons per year for a mine life of 30 years). Volcanic tuff is a type of volcanic material that can be utilized as a pozzolan to replace a portion of clinker used in the manufacturing of portland cement as well as replace a portion of portland cement in ready-mix concrete. Pozzolan is defined as a cementitious material that increases the long-term strength and improves other material properties of portland cement concrete and reduces emissions of carbon dioxide (CO_2), a greenhouse gas (GHG) that contributes to global warming or climate change, in the production of cement. Cement clinker is defined as a solid material produced in the manufacture of Portland cement as an intermediary product, which occurs as lumps or nodules; it is produced by sintering (fusing together without melting to the point of liquefaction) limestone and aluminosilicate materials such as clay during the cement kiln stage.

After blasting, the pozzolan material would be loosened by an excavator and dozer and loaded into on-road haul trucks for transport to existing cement production facilities. No crushing or processing would be conducted on-site. Operations would typically occur during one shift per day during daylight hours (generally 7:00 a.m. to 7:00 p.m. Monday through Saturday depending on the season), 6 days per week. Based on product demand and other market and

operational factors, additional shifts or longer or alternative hours could also occur. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations.

Overburden and Topsoil Management

Overburden is made up of interspersed layers of basalt and some alluvium at the surface of the mining area that would require removal but would not be transported offsite. The estimated life of mine excavation ratio of overburden to pozzolan is approximately 4 percent, which would result in an average of approximately 1 ton of overburden for each 25 tons of pozzolan produced. Overburden would be loaded into haul trucks with 25-ton capacity and transported along interior haul roads to the two overburden stockpiles (as identified and labeled on **Figure 1-4,** *Proposed Mine Plan*) that would be located in the southwestern portion of the project site.

Overburden stockpiling would take place throughout the life of the mine. The proposed South Overburden Stockpile would be developed on approximately 2.7 acres. The South Overburden Stockpile would have a maximum height of approximately 75 feet (approximately 2,750 feet amsl) and a total storage volume of approximately 80,000 cubic yards (cy). The North Overburden Stockpile would be developed as needed on approximately 8.5 acres. The North Overburden Stockpile would have a total estimated volume of up to approximately 350,000 cy and would be developed up to a maximum height of approximately 100 feet (2,800 feet amsl).

In addition to overburden that would be permanently deposited in the overburden stockpiles discussed above, surface alluvium would be salvaged separately and stored in a topsoil stockpile (as identified and labeled on **Figure 1-4**) that would be located south of the quarry. The alluvium would be stored during the mining operation for use in reclamation.

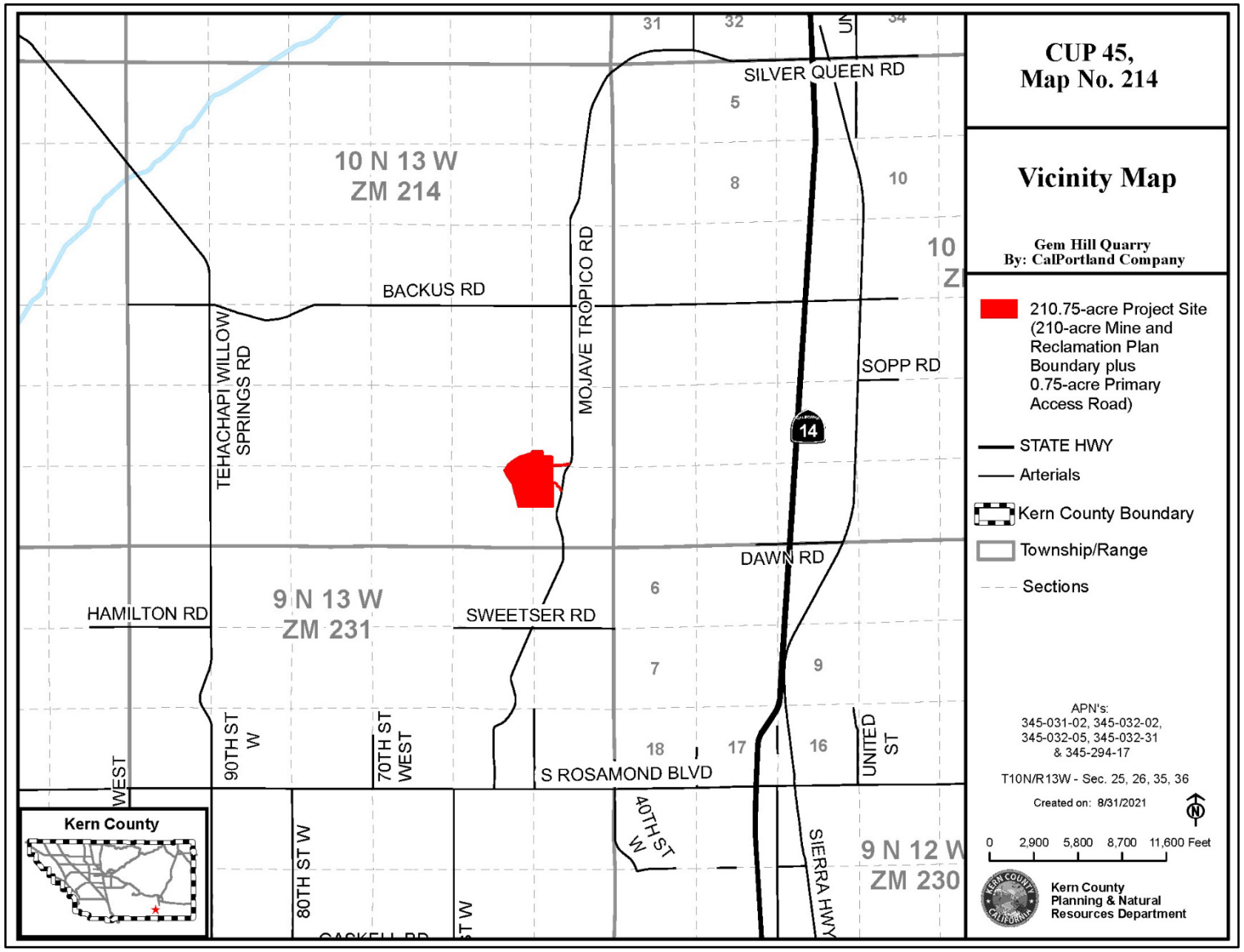


Figure 1-1
Site Vicinity



Figure 1-2
Project Boundary and Parcels

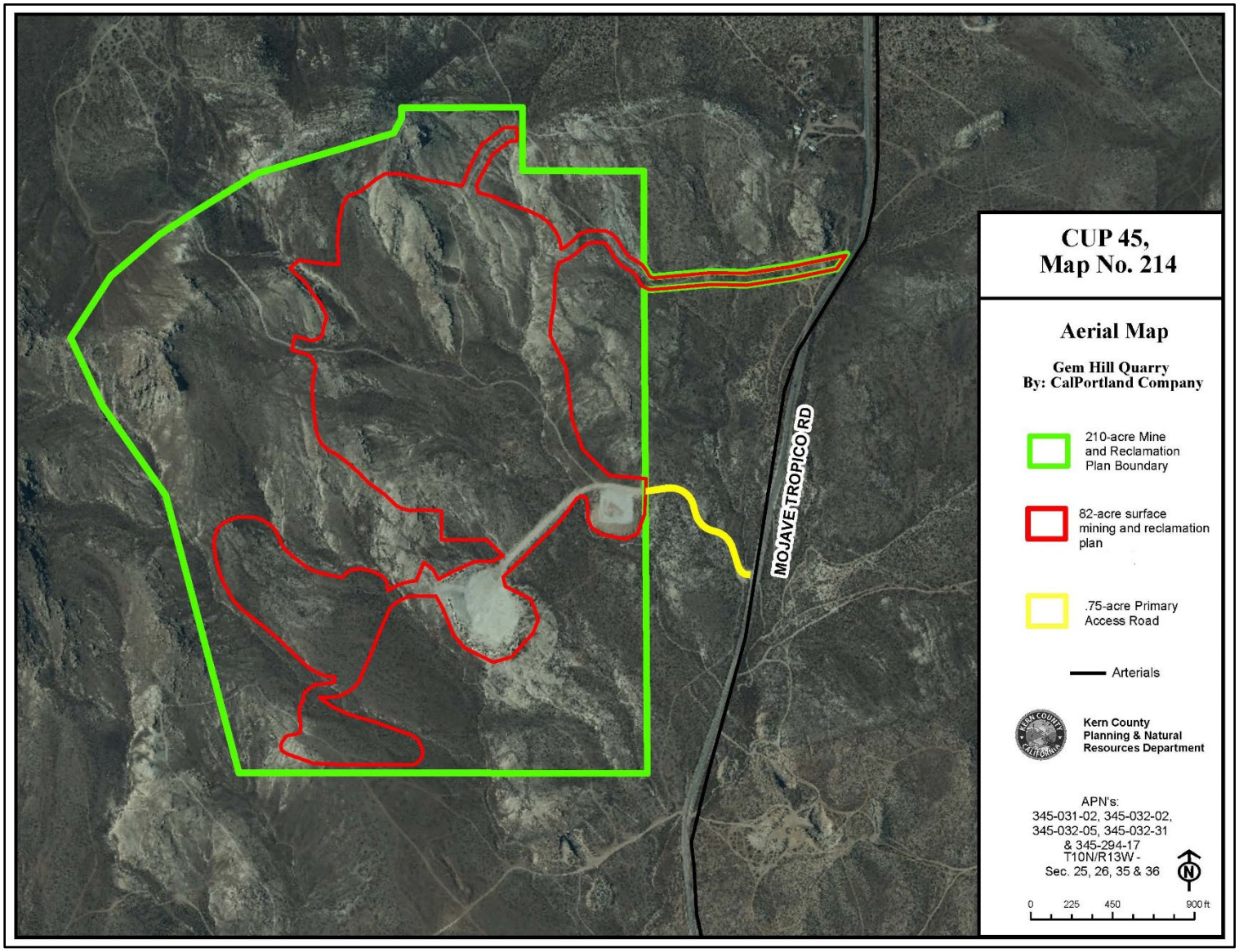


Figure 1-3
Aerial Photograph Map

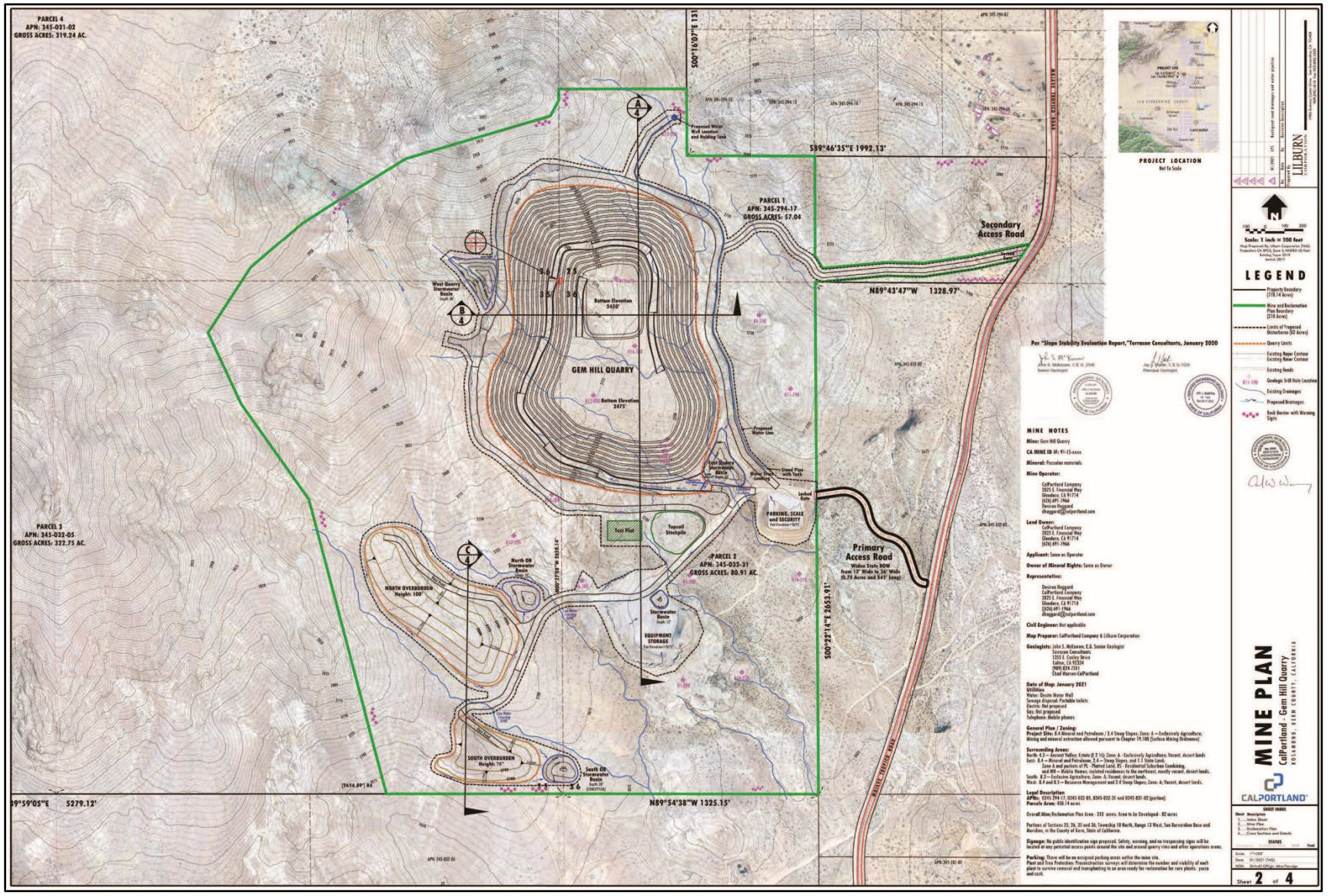


Figure 1-4
Proposed Mine Plan

1.2 Purpose and Use of the Draft EIR

An EIR is a public informational document used for planning and decision-making purposes. The Kern County Planning Commission 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 Planning Commission (unless the decision of the Planning Commission is appealed to 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 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 past, present, and reasonably anticipated future projects. CEQA requires an EIR be prepared 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 effects 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 draft 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 State CEQA *Guidelines*. The EIR process, including means by which members of the public can comment on the EIR, is discussed further in **Chapter 2**, *Introduction*.

1.3 Project Overview

This section describes the project location and setting, surrounding land uses, project objectives, and project characteristics. The project is described in further detail in **Chapter 3**, *Project Description*.

1.3.1 Local and Regional Setting

The project site is located in a mostly undeveloped portion of the western Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The Antelope Valley is formed by the Tehachapi

Mountains to the northwest and San Gabriel Mountains to the southwest. The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Clay, silver, and gold mining have been conducted at various locations in the area since the 1890s with gold and silver mining continuing at the Soledad Mountain Golden Queen Mine located approximately 5 miles north of the project site. The historic Tropico Gold Mine is located approximately 3 miles southwest of the project site. The Mojave Cement Plant and Quarry, owned and operated by the project proponent, CalPortland, are located approximately 10 miles northwest of the project site. Other active and inactive mine sites are also in the vicinity.

The existing land use, General Plan Land Use Designations, and Zoning Classifications for the project site and surrounding land are identified in **Table 1-1,** *Existing Uses, Zoning, and Land Use Designations*, and shown on **Figure 3-5,** *Kern County General Plan Land Use Designations*, and **Figure 3-6,** *Kern County Zoning Classifications*.

Table 1-1 Existing Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
Project Site			
345-294-17	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-032-05	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act	A (Exclusive Agriculture)

Table 1-1 Existing Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
		Contract) / Steep Slope Overlay)	
345-032-31	Undeveloped	8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-031-02	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-032-02	Undeveloped	8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
Surrounding Parcels			
North	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay), 4.3 - Specific Plan Required (Ancient Valley Specific Plan)	A (Exclusive Agriculture), PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining)
South	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)),	A (Exclusive Agriculture)

Table 1-1 Existing Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
		8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 1.1 – State or Federal land 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract))	
East	Undeveloped; dispersed residences 858 to 4,000 feet to the northeast	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act	A (Exclusive Agriculture), PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining
West	Undeveloped	1.1 – State or Federal land, 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A – Exclusive Agriculture

Residences nearest to the site are to the northeast, with the nearest approximately 858 feet from the northeast corner of the site. Additional residences are located 1 mile and further to the south, southeast, and southwest, and the unincorporated community of Rosamond is about 4 miles to the southeast of the site. A solar photovoltaic power generating facility is located about 1 mile southwest of the project site.

The project site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two recently graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. No groundwater, gas, oil, or other wells are present on the site. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation with more level areas at slope bottoms supporting moderately denser vegetation cover. Creosote bush scrub represents the predominant vegetation cover throughout the site.

The Project site is predominantly undeveloped. In 2019, the property owner and current project proponent obtained a grading permit from Kern County allowing for the construction of an access road and two graded pads of the site totaling an area of 16.2 acres. The road and pad grading was completed in 2019.

According to the California Department of Conservation/ Geologic Energy Management Division (CalGEM), there are no records of abandoned wells located within the project site.

1.3.2 Project Objectives

The proposed project is intended to achieve the following objectives as identified by the project proponent:

- Provide a reliable, sustainable, local source of high-quality pozzolanic volcanic tuff materials to help reduce CalPortland's CO_2 emissions by up to 20% by using the resource as a replacement for cement clinker and scarce and undependable supplies of fly ash.
- Provide for maximum annual production of up to 500,000 tons of pozzolanic volcanic tuff materials, which would reduce CalPortland's CO_2 footprint by as much as 500,000 tons of CO_2 annually.
- Create an environmentally sound project that would balance the recovery of the pozzolanic volcanic tuff resource with the protection of other resources including wildlife habitat, sensitive and special-status species, groundwater, surface water, and air quality.
- Mine in a location that contains sufficient land with surrounding compatible uses.
- Mine in an area in proximity to CalPortland's cement plants and other users of pozzolanic volcanic tuff, and near the intended market areas, thereby alleviating current and future traffic and associated impacts.
- Provide a final reclamation land surface that is consistent with the proposed end use as open space and the adjacent desert areas.
- Create new and maintain existing levels of employment into the future.

1.4 Environmental Impacts

State CEQA *Guidelines* Section 15128 requires that an EIR contain a statement briefly indicating the reasons that various, possible, new 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 to participate in the scoping of the environmental document.

The contents of this draft EIR were established based on a Notice of Preparation/Initial Study (NOP/IS) prepared in accordance with the State CEQA *Guidelines*, as well as public and agency input that were received during the scoping process. Comments on the NOP/IS are found in **Appendix A**, *Notice of Preparation/Initial Study and Comment Letters*, of this document. 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 environmental issues identified in Appendix G of the State CEQA *Guidelines*, with the exception of the three resource topics identified in Section 1.4.1, below, for which the NOP/IS concluded that no impact would occur as a result of the proposed project.

1.4.1 Impacts Not Further Considered in this EIR

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

- Agriculture/Forestry
- Population and Housing
- Recreation

1.4.2 Impacts of the Proposed 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
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Less than Significant Impacts

Table 1-2, *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 analyses of these impacts and describe the means by which

the mitigation measures listed in **Table 1-2** would reduce impacts to a less-than-significant level.

Table 1-2 Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation

Impact	Mitigation Measures
Air Quality (Project and Cumulative)	MM 4.2-1 through MM 4.2-10
Biological Resources (Project)	MM 4.1-2, MM 4.1-3, and MM 4.3-1 through MM 4.3-6
Cultural Resources (Project and Cumulative)	MM 4.4-1 through MM 4.4-4
Energy (Project and Cumulative)	No mitigation required
Geology and Soils (Project and Cumulative)	MM 4.6-1 and MM 4.9-1
Greenhouse Gas Emissions (Project and Cumulative)	No mitigation required
Hazards and Hazardous Materials (Project and Cumulative)	MM 4.8-1 through MM 4.8-7
Hydrology and Water Quality (Project and Cumulative)	MM 4.9-1 through MM 4.9-2
Land Use and Planning (Project and Cumulative)	MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-6; MM 4.4-1 through MM 4.4-4; MM 4.6-1 through MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 and MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1.
Mineral Resources (Project and Cumulative)	No mitigation required
Noise (Project and Cumulative)	MM 4.12-1 through MM 4.12-3
Public Services (Project and Cumulative)	MM 4.13-1
Transportation (Project and Cumulative)	MM 4.14-1
Tribal Cultural Resources (Project and Cumulative)	MM 4.4-1 through MM 4.4-4
Utilities and Service Systems (Project and Cumulative)	MM 4.16-1
Wildfire (Project and Cumulative)	MM 4.6-1 and MM 4.9-1 through MM 4.9-2

1.4.3 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 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 potential project-specific impacts and potential cumulative effects of the project along with other current and reasonably foreseeable projects. Impacts for the following have been found to be significant and unavoidable:

- Aesthetics (project and cumulative)
- Biological Resources (cumulative)

Table 1-3, *Summary of Significant and Unavoidable Project-Level and Cumulative Impacts*, summarizes the project level and cumulative impact. Section 4.1 of this EIR presents detailed analyses of the impacts and describes the means by which the mitigation measures listed in Table 1-4 would reduce the severity of impacts to the extent feasible.

Table 1-3 Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation

Resource	Project Impact	Cumulative Impact	Mitigation Measures
Aesthetics	The project would result in adverse changes to the visual quality and character of the site would occur due to visibility of an active mining operation and long-term visibility of engineered slopes and unnatural landforms. Mitigation Measure MM 4.1-1 would reduce the visual impact, but is not considered sufficient to reduce the project's visual impact to less than significant. Thus, even with implementation of MM 4.1-1, the impact is considered significant and unavoidable.	Development of other projects in the vicinity of the project site would result in varying degrees of changes in the visual character of the project region. Although individually these projects may not result in significant visual impacts, development of the proposed project in combination with existing, proposed, approved, and reasonably foreseeable development is considered to have the potential to result in a substantial contribution to cumulative changes in the visual character of the project region. Mitigation Measure MM 4.1-1 would reduce the visual impact of the project, but is not considered sufficient to reduce the project's visual impact to less than significant and the project's cumulative visual impact is also considered significant and unavoidable.	MM 4.1-1
Biological		Given the number of present, and reasonably foreseeable future development projects in the Antelope Valley, the proposed	MM 4.1-2, MM 4.1-3, and MM 4.3-1 through MM 4.3-7

Table 1-3 Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation

Resource	Project Impact	Cumulative Impact	Mitigation Measures
		project, when combined with these projects, would contribute to an incremental cumulative loss of potential habitat for special-status species, even though none were observed onsite. 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.	

1.4.4 Significant Cumulative Impacts

According to Section 15355 of the State CEQA *Guidelines*, 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 nearly projects, including newly proposed projects, the effects could be cumulatively considerable.

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

- Aesthetics (Project and Cumulative)
- Biological Resources (Cumulative)

Table 1-3, *Summary of Project Impacts that are Less than Significant or Less than Significant with Mitigation*, presents those impacts at the project level and cumulatively. Sections 4.1 Aesthetics, and 4.3 Biological Resources of this EIR present detailed analyses 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 the severity of impacts to the extent feasible.

1.4.5 Growth Inducement

Evaluation of the growth-inducing impacts of the project is based on a qualitative analysis of the direct impacts associated with construction and operation of the project and the indirect impacts that could result from the project. This evaluation of potential growth-inducing impacts addresses whether the project would directly or indirectly:

- foster economic, population, or housing growth;
- remove obstacles to growth;
- increase population growth that would tax community service facilities; or
- encourage or facilitate other activities that cause significant environmental impacts.

State CEQA *Guidelines* Section 15126.2(d) states specifically, "It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment." In other words, growth inducement is not to be considered adverse *per se*; impacts on resources resulting from growth may be too far removed from the actions of the agency to require mitigation by the agency. The goal of the EIR in this regard, therefore, is one of disclosure.

There are no growth-inducing impacts of the proposed project identified in **Chapter 5**, *Consequences of Project Implementation*, of this EIR.

1.4.6 Irreversible Impacts

State 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. Implementation of the proposed project would irretrievably commit energy to the mining project as proposed. Renewable, nonrenewable, and limited resources that would likely be consumed as a result of project implementation would include, but are not limited to, water, oil, diesel, and gasoline. Additionally, mined volcanic tuff would be utilized as a pozzolan in the production of cement. Irreversible impacts associated with the proposed project are discussed in detail in Chapter 5, of this EIR.

1.5 Alternatives to the Proposed Project

State 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 and unavoidable aesthetic impacts of the project, and in consideration of the objectives of the proposed project, the following alternatives were considered as summarized below and discussed in detail in **Chapter 6**, *Alternatives*.

1.5.1 Alternatives Eliminated from Further Consideration

Kern County considered several alternatives to reduce the project's environmental impacts. In identifying potential alternatives, potential alternative project locations were considered. The project proponent provided input regarding research of other existing pozzolan sources and review mine operations in eastern Kern, western San Bernardino, Mono and Inyo counties to determine if there are any existing pozzolan mines or sources that could supply material to the market area in adequate quality and quantity to meet the proposed project's production goals. The research concluded that there are no existing operation sites closer to the market than the proposed project site. Furthermore, most of the known sites are small operations that produce low amounts of mostly pumice or cinder; approved production levels and reserves are unknown, and the quality of available material is unknown and would require lab and product testing to assess potential suitability. Additionally, it is unlikely that any of the existing sites would be able to supply the 500,000 tons/year or have reserves approaching 15 million tons as estimated for the proposed project.

Kern County also considered a phased approach alternative to reduce adverse visual impacts. The phased approach alternative would have required mining to be restricted to certain areas within the 30-acre quarry footprint and for overburden placement to be restricted to certain areas within the overburden stockpile areas with restricted areas adjusted over time as operations progressed. However, it is unknown whether the size of the site and proposed quarry would allow for a phased approach and the County anticipates that mining to the proposed depth within the 30-acre quarry footprint may be infeasible to accomplish with limited and phased areas of disturbance. Therefore, the phased approach alternative is not considered to be a feasible option for implementation of proposed mining activities and an ineffective solution to address potential visual impacts.

1.5.2 Alternatives Analyzed in this EIR

The following alternatives have been evaluated for their feasibility and ability to achieve the project objectives while avoiding, reducing, or minimizing the potentially significant and unavoidable impacts identified for the project. These alternatives (with the exception of the No Project Alternative) could meet some of the project objectives. The degree to which these alternatives substantially lower the significant impacts identified for the project is discussed in more detail in Chapter 6 of this EIR, and summarized in **Table 1-4,** *Alternatives Impact Comparison Summary.*

Alternative A: No Project

Implementation of the No-Project Alternative (Alternative A) would mean that the project site would remain as it is under existing conditions, and mining and reclamation would not occur. As such, Lead Agency approval of a Conditional Use Permit (CUP) for a surface mining operation and reclamation plan would not be applicable. Under this alternative, none of the project objectives discussed above would be met.

Alternative B: Reduced Footprint

The Reduced Footprint Alternative (Alternative B) would reduce the proposed project's quarry footprint, thereby reducing the total amount of project-related disturbance within the project site. By reducing the quarry footprint, Alternative B would reduce the availability of access to overall mineral reserves as compared to the proposed project. However, even with reduced access to mineral reserves, this alternative could still meet most of the project's objectives including providing a reliable, sustainable, local source of high-quality pozzolanic volcanic tuff, although to a lesser extent that the proposed project. Alternative B would not reduce hourly, daily, or annual production and, thus, would not reduce operational-related impacts as measured for these durations. Nonetheless, this alternative is anticipated to reduce the intensity of impacts over the life of the operation, as mining operations are anticipated to cease earlier under Alternative B as compared to the proposed project. The impacts from implementing Alternative B would be similar to the proposed project but of a lesser intensity (based on the reduced acreage for operations), specifically related to aesthetics. Alternative B further incorporates all mitigation measures recommended for the proposed project in Chapter 4.

Alternative C: Reduced Depth of Mining

The Reduced Depth of Mining Alternative (Alternative C) would reduce the final pit depths in the project area. For the EIR, this alternative does not specifically define a reduced quarry depth, but qualitatively discusses the concept for this alternative and the potential change in impacts as compared to the proposed project. By reducing the depth of mining, Alternative C would limit the overall permitted mineral reserves as compared to the proposed project. This alternative would not change the surface acreage disturbed; however, it would increase the surface area disturbance in proportion to the amount of material excavated. Although this alternative would reduce the amount of material mined and the overall life of the operation, it would still achieve the project objectives including providing a reliable, sustainable, local source of high-quality pozzolanic volcanic tuff, although to a lesser extent that the proposed project. Alternative C would not reduce hourly, daily, or annual production and, thus, would not reduce operational-related impacts as measured for these durations. Nonetheless, this alternative is anticipated to reduce the intensity of impacts over the life of the operation, as mining operations are anticipated to cease earlier under Alternative C as compared to the proposed project. Alternative C further incorporates all mitigation measures recommended for the proposed project in Chapter 4.

Table 1-4 Alternatives Impact Comparison Summary

Resource Area	Alternative A (No Project)	Alternative B (Reduced Footprint)	Alternative C (Reduced Depth of Mining)
Aesthetics	-	-	=
Air Quality	-	-	-
Biological Resources	-	-	=
Cultural Resources	-	-	=
Energy	-	-	-

Table 1-4 Alternatives Impact Comparison Summary

Resource Area	Alternative A (No Project)	Alternative B (Reduced Footprint)	Alternative C (Reduced Depth of Mining)
Geology and Soils	-	-	-
Greenhouse Gas Emissions	-	-	-
Hazards and Hazardous Materials	-	=	=
Hydrology and Water Quality	-	-	-
Land Use and Planning	-	=	=
Mineral Resources	-	+	+
Noise	-	-	-
Public Services	-	=	=
Transportation	-	-	-
Tribal Cultural Resources	-	-	=
Utilities and Service Systems	-	-	-
Wildfire	-	-	-

Notes:
"-" = impact is less than proposed project
"+" = impact is greater than proposed project
"=" = impact is same as the proposed project

1.5.3 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative to the proposed project. Alternative A, the No-Project Alternative, is environmentally superior to the proposed project and would not result in the physical environmental impacts identified for the proposed project. However, the No-Project Alternative would not meet any of the objectives of the proposed project. Under State CEQA *Guidelines* Section 15126.6(e)(2), if the environmentally superior alternative is the No-Project Alternative, then an environmentally superior alternative must be identified among the other alternatives.

Alternative B would reduce environmental impacts related to aesthetics, air quality, biological resources, cultural resources, energy, greenhouse gas emissions, hydrology and water quality, noise, transportation, tribal cultural resources, utilities and service systems, and wildfire compared to the proposed project.

Alternative B would result in a disadvantage as compared to the project because it would reduce the amount of reserves and mineral resource production over the life of the project; however, Alternative B would be a feasible alternative that meets all of the project objectives while reducing potential impacts of the proposed project. Alternative B, Reduced Footprint Alternative, is therefore considered to be the environmentally superior alternative.

1.6 Areas of Controversy

Written agency and public comments received during the public review period for the NOP/IS are included in Appendix A. Although not controversial, key issues were identified during scoping as necessitating further description or evaluation. Those issues are discussed as they relate to the various environmental topics in Chapter 4.

1.7 Issues to Be Resolved

State CEQA *Guidelines* Section 15123(b)(3) requires that an EIR include issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects. The following major issues are to be resolved:

- Determine whether the Draft EIR adequately describes the environmental impacts of the project;
- 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 project.

1.8 Summary of Environmental Impacts and Mitigation Measures

State CEQA *Guidelines* Section 15123 requires that an EIR contain a brief summary of the proposed actions and its consequences. **Table 1-5,** *Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation*, is a summary of the environmental impacts of the project, mitigation measures, and the impact significance both before and after mitigation. Each is analyzed in Chapter 4 of this EIR.

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	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	Mitigation is not required.	Less than significant
Impact 4.1-2: The project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.	Significant	***Mitigation Measures:*** **MM 4.1-1:** Prior to any clearing or ground-disturbing activities, the project proponent/operator shall submit a Maintenance and Trash Abatement/Pest Management Program 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 twice per year once the project is operational. B. Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators, such as common ravens, coyotes, and feral dogs. C. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within 2 weeks to resident requests for additional cleanup of debris.	Significant and Unavoidable
Impact 4.1-3: 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	***Mitigation Measures:*** **MM 4.1-2:** Project facility lighting shall continuously comply with the applicable provisions of the Dark Skies Ordinance (Kern County Zoning Ordinance Chapter 19.81) 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	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		into adjacent areas. Lenses and bulbs shall not extend below the shields. **MM 4.1-3:** Prior to the issuance of any required building permits, the project proponent/operator shall submit an Outdoor Lighting Plan to the Kern County Public Works Department in accordance with Kern County Zoning Ordinance Chapter 19.81 (Outdoor Lighting "Dark Skies Ordinance"). Additionally, a copy of the approved Outdoor Lighting Plan shall be submitted to the Kern County Planning and Natural Resources Department.	
Impact 4.1-4: The project would contribute to cumulative aesthetic and visual resource impacts.	Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.1-1 through MM 4.1-3.	Significant and Unavoidable
4.2 Air Quality			
Impact 4.2-1: The project would conflict with or obstruct implementation of applicable air quality plans.	Potentially significant	***Mitigation Measures:*** **MM 4.2-1:** The project shall comply with any applicable requirement of the Eastern Kern Air Pollution Control District (EKAPCD).	Less than significant
Impact 4.2-2: The project would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard.	Potentially significant	***Mitigation Measures:*** **MM 4.2-2:** As proposed, the project will meet the definition of a "large operation" under the Eastern Kern Air Pollution Control District's (EKAPCD) Rule 402. The project proponent/operator shall develop and implement a Fugitive Dust Control Plan in compliance with Eastern Kern Air Pollution Control District (EKAPCD's) Rule 402 for fugitive dust suppression regulations to further reduce emissions, during operations, of particulate matter that is 10 microns or less in diameter (PM10) and 2.5 microns or less in diameter (PM2.5). The Fugitive Dust Control Plan shall include: A. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		B. Description and location of operation(s). C. Listing of all fugitive dust emissions sources included in the operation. D. Listing of dust control measures to be included, such as the following: 1. All on-site unpaved roads shall be effectively stabilized using water or chemical soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board-approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation. 2. All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles will be watered as needed to limit dust emissions to less than 20% opacity or covered with temporary coverings. 3. Activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes. Such activities may continue if dust suppression measures are used to minimize visible dust plumes. 4. Track-out debris onto public paved roads shall not extend 50 feet or more from an active operation and track-out shall be removed or isolated such as behind a locked gate at the conclusion of each workday. 5. All hauling materials shall be moist while being loaded into haul trucks. 6. All material on haul trucks shall be effectively contained in accordance with EKAPCD regulations.	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		7. Material loads on trucks shall maintain at least 6 inches of freeboard space below the top of the container. 8. Drop heights shall be minimized when loaders dump material into trucks. 9. Gate seals shall be tight on haul trucks. 10. Limit vehicular speed while traveling on the work site sufficient to limit Visible Dust Emissions (VDE) to 20% opacity, or load all haul trucks such that the freeboard is not less than six (6) inches when material is transported across any paved public access road sufficient to limit VDE to 20% opacity, or apply water to the top of the load sufficient to limit VDE to 20% opacity, or cover haul trucks with a tarp or other suitable cover. 11. All grading activities shall be suspended when visible dust emissions exceed 20%. 12. Other fugitive dust control measures as necessary to comply with EKAPCD Rules and Regulations. 13. Disturbed areas shall be minimized. 14. Disturbed areas shall be revegetated as soon as possible after disturbance if area is no longer needed for mining activities. **MM 4.2-3:** Surface disturbance shall be kept to a minimum in advance of mining. At such time as surface mining or associated activities have been completed on an area of disturbed land, reclamation efforts shall be initiated on those portions of the disturbed lands that will not be subject to further disturbance by the surface mining operation or its associated activities. **MM 4.2-4:** Fugitive dust (PM10) emissions shall be minimized during the course of mining and reclamation utilizing the application of water or by presoaking. Haul roads shall be watered or have a palliative applied, depending on weather and road conditions, as	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		necessary to adhere to the requirements of the Eastern Kern Air Pollution Control District. **MM 4.2-5:** Mined materials transported off-site shall be covered, effectively wetted to limit visible dust emissions, or employ at least 6 inches of freeboard space to separate material from the top of the container. **MM 4.2-6:** The fleet of diesel engines in off-road vehicles operating at the project site shall comply with the In-Use Off-Road Engine Air Toxic Control Measure (13 California Code of Regulations [CCR] Sections 2449 and 2449.1). A. All equipment shall be turned off when not in use. Engine idling of all equipment shall be limited to 5 minutes, except under exemptions specified in 13 CCR Section 2449(d)(2). In addition, the facility shall have a written idling policy and distribute it to vehicle operators as required by this regulation. B. All equipment engines shall be maintained in good operating condition and in proper tune per manufacturers' specifications. **MM 4.2-7:** To further reduce emissions of nitrogen oxides from on-road heavy-duty diesel haul vehicles: A. 2007 engines or pre-2007 engines shall comply with California Air Resources Board retrofit requirements set forth in 13 California Code of Regulations (CCR) Section 2025. B. All on-road haul trucks, except those meeting the 2007/California Air Resources Board-certified Level 3 diesel emissions controls, shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to worker personal vehicles. C. All on-road haul trucks shall be properly tuned and maintained in accordance with the manufacturers' specifications.	
Impact 4.2-3: The project would expose sensitive receptors to substantial pollutant concentrations.	Less than significant	***Mitigation Measures:***	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		MM 4.2-8: Prior to ground disturbance activities, the project proponent shall provide a "Valley Fever Training Information Packet" and conduct training sessions for all personnel. A copy of the handout and a schedule of education sessions shall be provided to the Kern County Planning and Natural Resources Department. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department upon request. Multiple training sessions may be conducted if different work crews come to the site for different stages of work; however, all personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and Natural Resources Department regarding the "Valley Fever Training Handout" and Session(s) shall include the following: A. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session. B. Distribution of an information packet that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever, symptoms of exposure, and instruction for reporting cases of flu-like or respiratory illness symptoms to the Site Safety Officer. Those with persistent symptoms lasting more than 3 days shall be recommended to seek immediate medical advice. C. Training on methods that may help prevent Valley Fever infection. D. A demonstration to employees on how to use personal protective equipment (PPE), such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not mandatory during work, the equipment shall be readily available and shall be provided	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		to employees for use during work, if requested by an employee. Proof that the demonstration is included in the training shall be submitted to Kern County. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs. **MM 4.2-9:** The project proponent shall submit a COVID-19 Health and Safety Plan 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 4.2-10:** Prior to commencement of operations as authorized by this approval, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for public awareness programs.	
Impact 4.2-4: The project would contribute to cumulative air quality impacts.	Less than significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.2-1 through MM 4.2-10.	Less than significant
4.3 Biological Resources			
Impact 4.3-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially Significant	***Mitigation Measures:*** **MM 4.3-1:** Prior to commencement of operations, the project proponent/operator shall develop and submit to the Kern County Planning and Natural Resources Department for review and approval an employee awareness program on the Migratory Bird Treaty Act and the Federal and State endangered species laws and regulations. The program shall provide employees with sufficient information to identify sensitive or protected species that could exist on-site, methods to avoid these species, and protection measures to reduce the potential for incidental take of these species. The employee awareness program shall be implemented by a qualified biologist until such time as reclamation has been completed and	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		the site deemed fully reclaimed by the Kern County Planning and Natural Resources Department. **MM 4.3-2:** The project proponent/operator shall implement the following measures to avoid and/or minimize potential impacts to special-status animal species. A. Within no more than 30 days before ground-disturbing activities within the project site, a pre-construction clearance survey shall be performed by a qualified biologist within the project site to record existing conditions of the site, determine if conditions have changed since the most recent reconnaissance or botanical surveys were conducted, and to determine where sensitive species avoidance buffers will be established for special-status species considered to have the potential to occur within the project site, including but not limited to the following: • nesting birds protected by the MBTA; • desert tortoise (Gopherus agassizii); • golden eagle (Aquila chrysaetos); • burrowing owl (Athene cunicularia); • loggerhead shrike (Lanius ludovicianus); and • American badger (Toxostoma lecontei). If ground-disturbing activities do not commence within 30 days of the initial survey date, surveys shall be repeated to refresh results. B. If any sensitive species are observed, buffers shall be established by the qualified biologist as necessary to prevent incidental take of any observed sensitive species. C. The project proponent/operator shall ensure that all employees working on the project site continuously implement the following measures:	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		1. A qualified biological monitor shall be present on the project site during any initial vegetation removal/grubbing activities. A biological monitor is not a substitute for an incidental take permit. If any threatened, endangered, or otherwise sensitive species are uncovered during project activities, work will be halted to determine the best course of action. 2. Keep all trash and food items picked up and removed from the site daily including microtrash (e.g., wrappers, bottle tops, food scraps). 3. No pets (dogs) shall be allowed on-site. 4. Vehicle traffic shall use established roadways. Cross-country travel is prohibited. 5. Conduct a 360-degree vehicle check before moving vehicle from site. 6. To the extent practicable, previously disturbed areas are to be used to stockpile excavated materials, storage of equipment, locations of trailers, parking of vehicles, and other surface-disturbing actions. 7. Open excavations or trenches shall be covered at the end of each workday to prevent wildlife entrapment. If an excavation or trench is too large to cover, then a 45-degree escape ramp shall be installed. All excavations and trenches shall be inspected for wildlife prior to the commencement of work. 8. If perimeter fencing is used, then the fencing shall include a 4- to 8-inch (0.1- to 0.2-meter) opening between the fence mesh and the ground or the fence shall be raised 4 inches above the ground or as otherwise established by a qualified wildlife biologist to enable wildlife to pass through the project site.	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		9. All vertical tubes and chain-link fencing piles shall be temporarily or permanently capped to avoid the entrapment and death of special-status wildlife and birds. All pipes 1.5 inches (0.038 meter) or greater in diameter stored overnight on a project location must have end caps or other physical barriers that prevent wildlife from entering the pipe. 10. Any dead or injured special-status wildlife found on the project site shall be left in place and reported to the U.S. Fish and Wildlife Service/California Department of Fish and Wildlife within 48 hours of the discovery for rescue or salvage. Discovery of Federally or State-listed species that are injured or dead shall also be managed consistent with regulatory requirements, including being reported immediately via telephone and within 24 hours in writing, and a copy shall be furnished to the Kern County Planning and Natural Resources Department. 11. All washing of trucks, equipment, or similar activities shall occur in areas where runoff is fully contained for collection and off-site disposal. Wash water may not be discharged from the site and shall be located at least 100 feet (30.48 meters) from any water body or sensitive biological resources. If ground disturbance is intended to be temporary and does not occur on cultivated land, topsoil segregation shall be performed to preserve the seed bank for restoration efforts. Segregated topsoil shall be stored separate from the subsoil and segregated topsoil shall be restored to its original location. This will decrease unwanted invasive plant species (e.g., tumble weed, invasive grasses) from invading the area. 12. Contact a qualified biologist if any dens suitable for desert tortoise, burrowing owl, and/or American badger (4	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		inches or greater in diameter) are observed during project activities. 13. If any threatened, endangered, or otherwise sensitive species are encountered during project activities, all work that may harm that species shall stop immediately and a qualified biologist shall be contacted to determine the best course of action. Any threatened, endangered, or otherwise sensitive wildlife species shall be allowed to leave the site of their own accord. **MM 4.3-3:** Active pits with slopes steeper than 2:1 (horizontal:vertical) shall have a minimum of one escape ramp or shall otherwise be fenced or obstructed to prevent wildlife entrapment. **MM 4.3-4:** No more than 10 days prior to ground-disturbing activities, a pre-disturbance survey for active bird nests shall be conducted, if work occurs between February and September when nesting activity is most prevalent. If any active nests are observed, appropriate buffer areas (at least 50 feet) shall be established around each nest for avoidance as appropriate. **MM 4.3-5:** If initial mining activities are planned to occur during the nesting seasons for raptors and migratory birds (typically February 1 through August 31), the project proponent shall retain a qualified biologist to conduct a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 500 feet outside project boundaries, where possible) no more than 30 days before mining activities and at the onset of each phase. These surveys shall be conducted during breeding seasons for any special-status birds potentially present prior to initial disturbance. **MM 4.3-6:** If active nests are located during pre-disturbance surveys, U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife shall be notified regarding the status of the nests. If an active golden eagle nest is located within	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		500 feet of ground-disturbing activities, or if any other active raptor nest is located within 100 feet of ground-disturbing activities, or if an active migratory bird nest is located within 50 feet of ground-disturbing activities protection measures will be applied and enforced. Protection measures would include delaying project activities until the end of the breeding season, or if, project activities must take place during the breeding season, establishing an appropriate avoidance area (buffer zone) around the nest as determined by a qualified biologist in consultation with the appropriate resource agency. A qualified wildlife biologist shall monitor the nest to determine when the young have fledged and submit bi-weekly reports to the Kern County Planning and Natural Resources Department throughout the nesting season. The biological monitor shall have the authority to cease mining activities or other activities if sign of distress to the raptor or migratory bird occurs. **MM 4.3-7:** Ground-disturbing activities shall be restricted as necessary to avoid disturbance of a nest until it is abandoned or a qualified biologist deems disturbance potential to be minimal (in consultation with U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife). Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment) or alteration of the schedule for initiation of mining or other activities. No action is necessary if ground disturbance occurs during the raptor and migratory bird nonbreeding season (September 1 through January 31).	
Impact 4.3-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Less than significant	Mitigation is not required.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
Impact 4.3-3: The project would have a substantial adverse effect on Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.3-4: The project would 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.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.3-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.3-6: The project would contribute to cumulative biological resource impacts.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.1-2, MM 4.1-3, and MM 4.3-1 through MM 4.3-6.	Significant and Unavoidable
4.5 Cultural Resources			
Impact 4.4-1: The proposed project would cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5.	Potentially Significant	***Mitigation Measures:*** **MM 4.4-1:** The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior 2011), to carry out all mitigation measures related to archaeological and historical resources. A. Prior to initial excavation activities, the project proponent shall demonstrate that it has a Worker Environmental Awareness Program (WEAP) in place for all workers at the project site that includes cultural and paleontological resources training. The training shall be prepared and conducted, for all personnel working on the proposed project, by the qualified Lead Archeologist (as defined above) in consultation with the Native	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		American monitor(s). A copy of the WEAP guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. B. The training shall include an overview of potential cultural resources that could be encountered during ground-disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist and Native American Monitor for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. C. The project proponent/operator shall ensure all new employees or on-site workers who have not participated in earlier WEAP shall meet provisions specified above. D. The WEAP shall be kept available for all personnel to review and be familiar with, as necessary. **MM 4.4-2:** During initial excavation, the services of Native American Tribal Monitors, working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, ground-disturbing activities associated with project-related construction activities, as follows: A. All initial excavation activities within the project site, shall be monitored by archaeological and Native American monitors. B. The Lead Archaeologist, archaeological monitors, and Native American monitors shall be provided all project documentation related to cultural resources within the project site prior to commencement of excavation activities. Project documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the Lead Archaeologist, archaeological monitor, and Native American monitor. C. The archaeological monitor(s) shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report detailing the results of monitoring, which shall be submitted to the Kern County Planning and Natural Resources Department and to the southern San Joaquin Valley Information Center at California State University, Bakersfield. **MM 4.4-3:** In the event archaeological or historical resources are encountered during ground-disturbing activities, the proposed project contractor shall cease any ground-disturbing activities within 50 feet of the find and notify the Kern County Planning and Natural Resources Department. The Lead Archaeologist shall evaluate the significance of the resource(s) and recommend appropriate treatment measures. Per State CEQA Guidelines Section 15126.4(b)(3), proposed project redesign and preservation in place shall be the preferred means to avoid impacts to significant archaeological or historical resources. Consistent with State CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist shall develop additional treatment measures in consultation with Kern County, which may include data recovery or other appropriate measures. Kern County shall consult with the project proponent and appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature; this consultation may also be conducted in advance of earth-disturbing work through a memorandum of agreement and/or an	

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		Unanticipated Discoveries Treatment Plan. Archaeological materials recovered during any investigation shall be presented for curation at an accredited curation facility. The Lead Archaeologist 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.	
Impact 4.4-2: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5.	Potentially Significant	Implement Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3.	Less than significant
Impact 4.4-3: The proposed project would disturb human remains, including those interred outside of dedicated cemeteries.	Potentially Significant	***Mitigation Measures:*** **MM 4.4-4:** If human remains are uncovered during the life of the proposed project, the project proponent/operator shall immediately halt work, 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 State CEQA Guidelines. At that time, the project proponent/operator shall contact the Kern County Planning and Natural Resources Department regarding the find. If the Kern County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with California Health and Safety Code Section 7050.5(c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent (MLD) for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		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 (Section 7100 et seq.) directing identification of the next-of-kin will apply. If any human remains are encountered, the Kern County Planning and Natural Resources Department shall be notified.	
Impact 4.4-4: The project would contribute to cumulative cultural resources impacts.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.	Less than significant
4.5 Energy			
Impact 4.5-1: The project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.5-2: The project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.5-3: The project would contribute to cumulative energy impacts.	Less than significant	Mitigation is not required.	Less than significant
4.6 Geology and Soils			
Impact 4.6-1: 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	Mitigation is not required.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
Impact 4.6-2: 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	***Mitigation Measures:*** **MM 4.6-1:** Maximum slopes and depths for the project shall be as follows: a) Maximum overall operational and final reclaimed slopes for the quarry shall be 1:1 (h:v). b) Maximum operational slopes for the overburden stockpiles shall be 1.5:1 (h:v). c) Maximum and overall final reclaimed slopes for the overburden stockpiles shall be 2:1 (h:v). d) Maximum depth of excavation of the quarry shall be 300 feet below original grade. Maximum height of the north overburden stockpile shall be 100 feet above original grade. Maximum height of the south overburden stockpile shall be 75 feet. Increased slopes and/or depths may be approved in accordance with the provisions of the Surface Mining and Reclamation Act (SMARA) of 1975 and Section 19.100 of the Kern County Zoning Ordinance.	Less than significant
Impact 4.6-3: 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	Mitigation is not required.	Less than significant
Impact 4.6-4: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measure MM 4.6-1.	Less than significant
Impact 4.6-5: The project would result in substantial soil erosion or the loss of topsoil.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.6-1 and MM 4.9-1.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
Impact 4.6-6: 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	***Mitigation Measures:*** Implement Mitigation Measures MM 4.6-1.	Less than significant
Impact 4.6-7: The project would be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (1994), creating substantial risks to life or property.	Potentially Significant	Mitigation is not required.	Less than significant
Impact 4.6-8: The project would 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.	No Impact	Mitigation is not required.	No Impact
Impact 4.6-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant	***Mitigation Measures:*** **MM 4.6-2:** If a paleontological resource is found, the project proponent/operator shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resource(s) 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 presented for donation to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.	Less than significant
Impact 4.6-10: The project would contribute to cumulative geology and soil resource impacts.	Less than significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.6-1, MM 4.6-2, and MM 4.9-1.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
4.7 Greenhouse Gas Emissions			
Impact 4.7-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.7-2: The project would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.7-3: The project would contribute to cumulative greenhouse gas emissions impacts.	Less than significant	Mitigation is not required.	Less than significant
4.8 Hazards and Hazardous Materials			
Impact 4.8-1: 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	***Mitigation Measures:*** **MM 4.8-1:** Prior to commencement of operations as authorized by this approval, the project proponent/operator shall prepare and submit an Emergency Response Plan to the appropriate regulatory authority. **MM 4.8-2:** During the life of the project, the project proponent/operator shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/. The HMBP shall: A. Delineate hazardous material and hazardous waste storage areas, B. Describe proper handling, storage, transport, and disposal techniques,	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		C. Describe methods to be used to avoid spills and minimize impacts in the event of a spill, D. Describe procedures for handling and disposing of unanticipated hazardous materials encountered, E. Establish public and agency notification procedures for spills and other emergencies including fires, F. Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site. The project proponent/operator shall ensure that all personnel working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times. **MM 4.8-3:** All transport, handling, storage, and use of explosive materials, blasting agents, and blasting equipment shall be directed and supervised by a qualified blasting personnel. Use of blasting agents shall be performed by a blaster licensed through the Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATF&E) for handling explosive materials. The blasting personnel and the explosives delivery company shall be properly trained and licensed in accordance with all Federal, State, and local agencies and regulations. All vehicles and explosive transport magazines shall conform to all federal, state, and local regulations associated with the transportation and handling of explosives.	
Impact 4.8-2: 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	***Mitigation Measures:*** Implement Mitigation Measures MM 4.8-1 through MM 4.8-3 and the following additional mitigation measures. **MM 4.8-4:** The project proponent/operator shall continuously comply with the following: A. In the event any abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, all work shall cease in the vicinity of the well, and the California	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		Department of Conservation Division of Geologic Energy Management Division (CalGEM) shall be contacted for requirements and approval. The CalGEM may determine that remedial plugging operations may be required and shall be contacted and brought to the project site to make a proper assessment of the suspect materials. **MM 4.8-5:** If during development activities, any wells are encountered that were not part of this review, the property owner shall immediately notify the Department of Conservation/Geologic Energy Management Division (CalGEM) construction site well review engineer in the Inland district office, and file for CalGEM review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency. **MM 4.8-6:** Prior to commencement of ground-disturbing activities, the project proponent/operator shall install signs, per Kern County signage requirements, warning of mining and reclamation operations. One sign shall be installed at the project's Secondary Access Road and Mojave Tropico Road. The other sign shall be installed at either: (a) the intersection of the project's Primary Access Road and Mojave Tropico Road, or (b) the intersection of the project's Primary Access Road and property owned by the project proponent.	
Impact 4.8-3: The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less than significant	***Mitigation Measure:*** Implement Mitigation Measure MM 4.8-1.	Less than significant
Impact 4.8-4: The project would generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, the proposed project would exceed the following qualitative thresholds: the presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors	Potentially Significant	***Mitigation Measures:*** **MM 4.8-7**: All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting animals to the site where they may be harmed.	Less than Significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
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.			
Impact 4.8-5: The project would contribute to cumulative hazards and hazardous materials impacts.	Potentially Significant	***Mitigation Measure:*** Implement Mitigation Measures MM 4.8-1 through MM 4.8-7.	Less than significant
4.9 Hydrology and Water Quality			
Impact 4.9-1: The project would violate water quality standards or waste discharge requirements.	Potentially Significant	***Mitigation Measures:*** **MM 4.9-1:** Prior to any ground-disturbing activities, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) to 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 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 SWPPP shall be incorporated into design specifications and contracts. Recommended best management practices may include: A. stockpiling and disposing of material properly; B. protecting existing storm drain inlets and stabilizing disturbed areas; C. implementing erosion controls; D. properly managing construction materials; and	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		E. managing waste, aggressively controlling litter, and implementing sediment controls. Should a SWPPP not be required by the Regional Water Quality Control Board—Lahontan Region, documentation stating such shall be presented to the Kern County Planning and Natural Resources Department. **MM 4.9-2:** The project proponent/operator shall prepare and have available on site, if necessary, a Spill Prevention Control and Countermeasures Response Plan from the Kern County Public Health Services Department/Environmental Health Services Division and the California Department of Water Resources.	
Impact 4.9-2: 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.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.9-3: The project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion and/or sedimentation on-site or off-site.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.	Less than significant
Impact 4.9-4: 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 which would result in flooding on- or off-site.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.9-5: 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	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.			
Impact 4.9-6: 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.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.9-7: The project would result in flood hazard, tsunami, or seiche zones, the project would risk release of pollutants due to project inundation.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.	Less than significant
Impact 4.9-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Ground-d	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.	Less than significant
Impact 4.9-9: The project would contribute to cumulative hydrology and/or water quality impacts.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.	Less than significant
4.10 Land Use and Planning			
Impact 4.10-1: 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.	Potentially Significant	***Mitigation Measures:*** Implement MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-7; MM 4.4-1 through MM 4.4-4; MM 4.6-1 and MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 and MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
Impact 4.10-2: The project would contribute to cumulative land use and planning impacts.	Potentially Significant	***Mitigation Measures:*** Implement MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-7; MM 4.4-1 through MM 4.4-4; MM 4.6-1 and MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 and MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1.	Less than significant
4.11 Mineral Resources			
Impact 4.11-1: The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.11-2: The project would result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.11-3: The project would contribute to cumulative mineral resources impacts.	Less than significant	Mitigation is not required.	Less than significant
4.12 Noise			
Impact 4.12-1: The project would generate a substantial temporary or permanent increase in the 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	***Mitigation Measures*** **MM 4.12-1:** The project proponent/operator shall establish a Noise Disturbance Coordinator for the proposed project. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about 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.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		MM 4.12-2: A sign, legible at a distance of 50 feet, shall be posted in one of the following locations: (a) the intersection of the project's Primary Access Road with Mojave Tropico Road, or (b) the intersection of the project's Secondary Access Road with Mojave Tropico Road. The sign shall state a Surface Mining and Reclamation Plan (Gem Hill Quarry Project [Conditional Use Permit 45, Map 214]) has been approved for the site, and a telephone number where noise complaints can be registered with the Noise Disturbance Coordinator. Documentation that the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department. **MM 4.12-3:** Blasting shall occur during daylight, no more than one time per day, and shall be engineered to minimize the amount of explosives used according to the United States Bureau of Mines guidelines.	
Impact 4.12-2: The project would generate excessive ground borne vibration or ground borne noise levels.	Less than significant	Mitigation is not 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 is not required.	Less than significant
Impact 4.12-4: The project would contribute to cumulative noise and vibration impacts.	Less than Significant	Mitigation is not required.	Less than significant
4.13 Public Services			
Impact 4.13-1: The project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.	Less than significant	***Mitigation Measures:*** **MM 4.13-1:** The project proponent/operator shall work with Kern County to determine how the use of sales and use taxes from construction and operation of the project can be maximized. This process shall include the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
		acquisition, purchasing, and billing purposes and registering this address with the State Board of Equalization. The project proponent/operator shall allow Kern County to use this sales tax information publicly for reporting purposes.	
Impact 4.13-2: The project would contribute to cumulative impacts on public services.	Less than significant	***Mitigation Measures:*** Implement Mitigation Measure MM 4.13-1.	Less than significant
4.14 Transportation and Traffic			
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.	Potentially Significant	***Mitigation Measures:*** **MM 4.14-1:** Under Encroachment Permit, issued by the Kern County Public Works Department, the project proponent/operator shall construct access points along the Mojave-Tropico Road frontage as shown on the plans as Primary and Secondary access roads.	Less than significant
Impact 4.14-2: The project would conflict or be inconsistent with State CEQA Guidelines Section 15064.3.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.14-3: The project would substantially increase hazards due to a design feature.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measure MM 4.14-1.	Less than significant
Impact 4.14-4: The project would result in inadequate emergency access.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.14-1.	
Impact 4.14-5: The project would contribute to cumulative transportation and traffic impacts.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measure MM 4.14-1.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
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 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 CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k).	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.	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.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.	Less than significant
Impact 4.15-2: The proposed project would contribute to cumulative tribal cultural resources impacts.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.	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	***Mitigation Measures:*** Implement Mitigation Measure MM 4.9-2.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
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	Mitigation is not required.	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.	Potentially Significant	***Mitigation Measures:*** **MM 4.16-1:** During operations as authorized by this approval, debris and waste generated shall be recycled to the extent feasible. A. An on-site Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance and Trash Abatement/Pest Management Program. B. The Recycling Coordinator shall facilitate the recycling of all construction waste through coordination with contractors, local waste haulers, and/or facilities that recycle construction/demolition wastes. C. The on-site Recycling Coordinator shall also be responsible for ensuring that wastes that require special disposal are handled according to the 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 commencement of operations as authorized by this approval.	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	***Mitigation Measures:*** Implement Mitigation Measure MM 4.16-1.	Less than significant
Impact 4.16-5: The project would contribute to cumulative impacts to utilities and service systems.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.9-2 and MM 4.16-1.	Less than significant

Table 1-5 Summary of Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation
4.17 Wildfire			
Impact 4.17-1: The project could impair implementation of or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.17-2: The project would expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, and other factors.	Less than significant	Mitigation is not required.	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.	Less than significant	Mitigation is not required.	Less than significant
Impact 4.17-4: The project would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	Potentially Significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.6-1 through MM 4.6-2 and MM 4.9-1 through MM 4.9-2.	Less than significant
Impact 4.17-5: The project would contribute to cumulative wildfire impacts.	Less than significant	***Mitigation Measures:*** Implement Mitigation Measures MM 4.6-1 through MM 4.6-2 and MM 4.9-1 through MM 4.9-2.	Less than significant

Chapter 2
Introduction

2.1 Intent of the California Environmental Quality Act

The Kern County Planning and Natural Resources Department (Kern County), as Lead Agency, has determined that, based on preliminary analysis in an initial study (included as Appendix A), an environmental impact report (EIR) is the appropriate environmental analysis document pursuant to the California Environmental Quality Act (CEQA) for the proposed Gem Hill Quarry Project (project). The project site comprises approximately 210.75 acres identified as portions of Kern County Assessor's Parcel Numbers (APNs) 345-294-17, 345-032-05, 345-032-31, 345-031-02 and 345-032-02. The proposed project would utilize an access road that crosses lands administered by the California State Lands Commission (CSLC) within APN 345-032-02. The project site is located on the west side of Mojave-Tropico Road approximately four miles northwest of the unincorporated community of Rosamond in Kern County, California. The project site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest.

The project would allow CalPortland Company (CalPortland; the project proponent) to mine an estimated 500,000 tons of volcanic tuff (pozzolan) annually (for an estimated total of 15,000,000 tons over the proposed 30-year life of the mine) from an approximately 35-acre quarry and implement a reclamation plan in accordance with the Surface Mining and Reclamation Act (SMARA) of 1975. Reclamation would be required for an approximately 82.2-acre area including the quarry, overburden stockpiles, and other planned disturbance areas. No buildings or structures are proposed (with the exception of a water tank adjacent to the proposed water well), and, after completion of the project, all equipment would be removed from the site in accordance with the Surface Mining and Reclamation Plan application (included as Appendix B). The life of the operation is proposed to be 30 years.

As discussed in more detail in **Chapter 3**, *Project Description,* the project proponent is requesting the following discretionary action from Kern County:

(a) approval of a Conditional Use Permit (CUP) for an approximately 35-acre quarry with a planned disturbance area of approximately 82.2 acres, within an approximately 210.75-acre project site boundary (which includes the .75-acre primary access road which is located on land administered by the CSLC); and

(b) approval of a reclamation plan for the 210.75-acre project site boundary in accordance with the Surface Mining and Reclamation Act (SMARA) of 1975 and Kern County Municipal Code Chapter 19.100.

2.1.1 Purpose of the California Environmental Quality Act Process

This EIR has been prepared pursuant to the following relevant State and County statutes and guidelines:

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

The overall purposes of CEQA are to:

- Avoid or reduce significant environmental impacts of discretionary projects initiated by public agencies or private concerns;
- 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. This project-level EIR will analyze the environmental impacts of the proposed project. The Kern County Planning Commission (and the Board of Supervisors if the decision of the Planning Commission is appealed) will consider the information in the EIR, including the public comments and staff response to those comments, during the public hearing process. The final decision is made by the Planning Commission (or the Kern County Board of Supervisors if the decision of the Planning Commission is appealed), which may approve, conditionally approve, or deny the project. The purpose of an EIR is to identify:

- The significant potential impacts of the 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 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 foreseeable future projects.

CEQA requires an EIR to reflect the independent judgment of the Lead Agency with respect to impacts, disclose the level of significance of the impacts both with and without mitigation, and describe 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 review process gives both agencies and individuals an opportunity to share expertise, discuss agency analyses, check for accuracy, detect omissions, discover public concerns, and solicit 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.

Reviewers of an EIR are requested to focus on the sufficiency of the document (i.e., the thoroughness of its identification and analysis of possible impacts on the environment as well as ways to avoid or mitigate such impacts). Comments are most helpful when they suggest better ways to avoid or mitigate significant environmental impacts (e.g., through additional alternatives or mitigation measures).

2.2.1 Issues to Be Resolved

Section 15123(b)(3) of the State 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 following issues are to be resolved:

- Determine whether the Draft EIR adequately describes the environmental impacts of the project;
- 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 project.

2.3 Terminology

The terms listed below are defined to assist reviewers in understanding this EIR:

- *Project* means the whole of an action that has the potential for resulting in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. The term *project* refers to the activity being approved, which may be subject to several discretionary approvals by government agencies. The term *project* does not mean each separate governmental approval.
- *Environment* means the physical conditions that exist in the area and that would be affected by a 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 conditions.
- *Impacts* analyzed under CEQA must be related to a physical change. Impacts include:

  - Direct or primary impacts that would be caused by the project and would occur at the same time and place; or
  - Indirect or secondary impacts that would be caused by the 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 impacts 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 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, but 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 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 a number of 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 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 feasible and reasonable mitigation measures.

2.4 Decision-Making Process

CEQA requires Lead Agencies to solicit and consider input from 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 project and an opportunity to provide comments. In accordance with CEQA, the following steps constitute the process for public participation in the decision-making process:

- **Notice of Preparation/Initial Study (NOP/IS).** The Lead Agency prepared and circulated an NOP/IS for 30 days to responsible, trustee, and local agencies for review and comment beginning on November 4, 2021. The NOP/IS and comments received during the circulation of the NOP are included in Appendix A of this EIR. In conjunction with this public notice, Kern County held a scoping meeting on November 18, 2021, to provide a forum for public comments on the scope of the EIR.
- **Draft EIR Preparation/Notice of Completion (NOC).** A 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 State CEQA *Guidelines*, the Lead Agency will provide for a 45-day public review period on the Draft EIR. The Lead Agency will subsequently respond to each comment on the Draft EIR that is timely submitted and received in writing through a Response to Comments chapter in the Final EIR. The Response to Comments chapter will be provided to each agency or person who provided written comments on the EIR at least 10 days prior to certification of the EIR.
- **Preparation and Certification of Final EIR.** The Kern County Planning Commission and, if appealed, the Board of Supervisors will consider the Final EIR and all public comments on the project itself before final action on the project. The Planning Commission and, if appealed, Board of Supervisors will hold at least one public hearing to consider the Final EIR, take public testimony, and then approve, conditionally approve, or deny the project.

2.4.1 Notice of Preparation/Initial Study

Pursuant to Section 15082 of the State CEQA *Guidelines*, as amended, the Kern County Planning and Natural Resources Department circulated an NOP/IS to responsible and affected agencies and other interested parties for a 30-day public review period that began on November 4, 2021, and ended on December 6, 2021. The NOP/IS was also posted in the Kern County Clerk's office for 30 days and sent to the State Clearinghouse at the California Governor's Office of Planning and Research to solicit statewide agency participation in determining the scope of the EIR.

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

2.4.2 Scoping Meeting

Pursuant to Section 15082(c)(1) of the State CEQA *Guidelines*, for projects of statewide, regional, or areawide 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 scoping meeting at 1:30 p.m. on November 18, 2021, at the Kern County Planning and Natural Resources Department, 2700 "M" Street, Suite 100, Conference Room 1C, Bakersfield, California.

Notice of Preparation/Initial Study and Scoping Meeting Results

Two individuals provided verbal comments at the November 18, 2021, scoping meeting. Specific environmental concerns raised in written comments received during the NOP/IS public review period are discussed below. The NOP/IS and all comments received are included in Appendix A, along with the Summary from the Scoping Meeting.

Notice of Preparation/Initial Study Written Comments

The following specific environmental concerns listed in **Table 2-1,** *Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021*, were received in writing by the County in response to the NOP/IS public review period commencing on November 4, 2021 and ending on December 6, 2021. Additionally, **Table 2-2**, *Summary of Public Comments Received on the NOP/IS Subsequent to the November 4, 2021 to December 6, 2021 Public Notice Period*, provides a summary of comment letters that were received in writing by the County in response to this same NOP/IS public review period, but were received after the close of the comment period.

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
Federal Agencies	
No federal agencies provided comments on the NOP/IS.	
State Agencies	
California Department of Conservation, Geologic Energy Management Division November 11, 2021	California Department of Conservation, Geologic Energy Management Division (CalGEM) advised of Public Resources Code (PRC) section 3208.1 well reabandonment responsibilities and noting that significant and potentially dangerous issues may be associated with development near oil, gas, and geothermal wells. CalGEM notes that its records indicate there are no known oil or gas wells located within the project boundary as identified in the application and recommended that if during development activities, any wells are encountered, the property owner is expected to immediately notify CalGEM's construction site well review engineer in the Inland district office, and file for CalGEM review of an amended site plan with well casing diagrams.
California Native American Heritage Commission, November 12, 2021	The California Native American Heritage Commission (NAHC) provided a letter recommending consultation with California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources.
California State Lands Commission December 1, 2021	California State Lands Commission (CSLC) identifies that because the project involves work on State school land, the CSLC is a trustee agency and will also act as a responsible agency under CEQA. CSLC notes that the project proponent has applied to the CSLC (application A2481) for an amendment to Lease No. PRC 9504, a General Lease – Right-of-Way Use, of State-owned School land in a portion of Section 36, Township 10 North, Range 13 West, SBM, northwest of the Town of Rosamond, Kern County, and that the leased right-of-way includes an existing dirt road that provides access from Mojave-Tropico Road across APN 345-032-02 to land owned by the project proponent. CSLC requests for the Draft EIR: The project description should be as precise as possible in describing the details of all allowable activities and should illustrate on figures and engineering plans and written description of activities occurring on State lands within the project area. • Disclose and analyze all potentially significant effects on sensitive species and habitats in and around the project area, including special-status wildlife and plants, and if appropriate, identify feasible mitigation measures to reduce those impacts. • Evaluate noise and vibration impacts on wildlife and birds from construction and operating activities. • Include a GHG emissions analysis consistent with the California Global Warming Solutions Act of 2006 and as required by CEQA Guidelines. • Mention that the title to archaeological sites and historic or cultural resources on jurisdictional lands is vested in the state and under

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
	the jurisdiction of the California State Lands Commission (Pub. Resources Code, § 6301). • Requests that the County consult with Staff Attorney Jamie Garrett (contact information provided), should any cultural resources on State lands be discovered during construction of the proposed Project. • Requests that the following statement be included in the EIR's Mitigation and Monitoring Plan: "The final disposition of archaeological or • Historical resources recovered on State lands under the jurisdiction of the California State Lands Commission must be approved by the Commission." • Recommends avoidance of improper deferred mitigation, while recognizing that deferral may be appropriate where another regulatory agency will issue a permit and is expected to impose mitigation independent of CEQA if the EIR includes performance criteria and a commitment. • Identify and evaluate a range of reasonable alternatives to the project to avoid or reduce significant effects. Requests that County consult with and keep CSLC advised of changes to the project and all other important developments.
California Department of Conservation, Division of Mine Reclamation December 3, 2021	The California Department of Conservation, Division of Mine Reclamation (DMR) recommends that the Draft EIR include: 1. A biological assessment including identification of state and federal special status species and that incorporates appropriate avoidance and mitigation measures. 2. Any special status species surveys, as appropriate for the site. 3. An evaluation of proposed reclamation plan, including reclamation plan requirements such as test plots (initiating them concurrent with mining as per SMARA requirements). DMR also noted that DMR will provide specific comments on the project reclamation plan once DMR receives the complete reclamation plan from the County with a statement from the County certifying that the submission is complete in accordance with PRC 2772.1.
Native American Tribe/Organization	
Santa Rosa Rancheria Tachi-Yokut Tribe November 23, 2021	The Santa Rosa Rancheria Tachi-Yokut Tribe provided an email response to the NOP advising that the Santa Rosa Rancheria Tachi-Yokut Tribe will be deferring to the Tejon Indian Tribe for this project.
Local Agencies	
Kern County Superintendent of Schools November 8, 2021	The Kern County Superintendent of Schools commented that the project will have no significant effects on the district's facilities and mitigation of this project's impacts on public school facilities will be limited to the collection of statutory fees authorized under Education Code Section 17620 and Government Code Sections 65995 et seq. at the time that building permits are issued.

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
Kern County Public Works Department, Floodplain Management Section November 10, 2021	Kern County Public Works Department, Floodplain Management Section, recommended the following condition of approval for the project: • The applicant shall provide a plan for the disposal of waste or drainage waters originating on site, subject to approval of the Public Works Department, per the Kern County Development Standards.
Kern County Public Works Department, Surveyor November 17, 2021	The Kern County Public Works Department, Surveyor, recommended the following conditions of approval: • 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 Surveyor's (PLS) Act. • Prior to Final Inspection: All survey monuments that were destroyed during construction shall be re-set or have a suitable witness corner set. A post construction corner record for each monument re-set or a record of survey shall be submitted to the County Surveyor for processing, per Section 8771 of the Professional Land Surveyor's Act. • Upon completion of project: All survey monuments shall be accessible by a Licensed Land Surveyor or their representatives, with prior notice, per Section 8774 of the PLS Act and Civil Code 846.5 (a).
Kern County Fire Department, Office of the Fire Marshall December 1, 2021	Kern County Fire Department (KCFD) advised of the following requirements for the project: • All fire access roads to each parcel must meet specifications set forth in Section 503.2 of the California Fire Code and the applicable Appendix and Ordinance sections. • All new construction will need fire water flowing a minimum of 1500gpm for 2 hrs with 20 psi residual pressure, located within 400' of the furthest point of the proposed project. The Department also advised that more detailed review and comment will be conducted when the building permit is pulled and plans are submitted to KCFD.
Kern County Public Health Services Department/Environmental Health Division December 2, 2021	Kern County Public Health Services Department/Environmental Health Division requested the following conditions be placed on the project: • Please log in to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/ and create an account and facility. If you have questions on what needs to be uploaded please contact Bilal Korin at (661)862-8730 or korinb@kerncounty.com • The method of water supply for the site shall be approved by the Environmental Health Division. • Portable toilets will not be approved for a project of this timeframe. (See subsequent comments in March 29, 2022, letter summary below.)

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
	• If a building containing plumbing is constructed on site, then the method of water supply and sewage disposal for the proposed project shall be approved by Kern County Environmental Health Division. • If any abandoned wells are found during the grading and construction process, the applicant shall contact the Land and Water Division for permitting and destruction procedures.
Kern County Public Health Services Department /Environmental Health Division March 29, 2022	Kern County Public Health Services Department/Environmental Health Division submitted this letter to supersede its letter dated December 2, 2021. This letter reiterated the conditions it requested be placed on the project per its December 2, 2021 letter, with the exception of substituting one of those requested conditions (Portable toilets will not be approved for the project of this timeframe) with the following requested condition: • A contract for the sewage pumper who will be maintaining the portable toilets shall be provided directly to Environmental Health.
Non-Governmental Organizations	
Center for Biological Diversity December 6, 2021	The Center for Biological Diversity notes: • Project is located on lands that currently support both state and federally listed threatened species – federally and state listed threatened desert tortoise, and the state-listed threatened Mohave ground squirrel, and is located within the Mohave Ground Squirrel Conservation Area, designated in the West Mojave Plan. • USFWS recommendations for pre-project surveys for state and/or federally threatened species in addition to species of concern that may be present. • California Department of Fish and Wildlife (CDFW) has specific survey requirements for state-listed threatened Mohave ground squirrel and survey window early in the year. • CDFW recommendation for four-phase approach for burrowing owl surveys. • Timing and CDFW guidelines for plant surveys and requests that the EIR include a vegetation map and floral inventory. • The project site is located within the range of the western Joshua tree South population (YUBR South) and the September 22, 2020, California Fish and Game Commission (CFGC) advancement of the western Joshua tree to candidacy under the California Endangered Species Act (CESA), and states that the project's impacts to western Joshua trees must be evaluated and disclosed. • USFWS considers pre-project survey results to be valid for no more than one year. • EIR should identify Mojave ground squirrel potential habitat and location of protocol surveys, and suggests use of camera traps. • EIR must evaluate impact to wildlife connectivity goals; project-specific and cumulative impacts. • EIR must quantify the amount of GHG production resulting not only from the proposed project (on-site mining activities, transportation

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
	to ultimate processing plant, etc.), but also the ultimate production of the pozzolan cement. • EIR must include a full range of alternatives. • EIR must include consider impacts from all the proposed and recently permitted projects in the area in the cumulative impacts analysis.
Members of the Public	
Mr. Phillip Moores November 18, 2021 (oral comments at scoping meeting)	• Commenter expressed concerns about groundwater usage, as well as potential impacts to the transportation system • Commenter would like the EIR to discuss impacts on groundwater, hydrology and transportation. • Commenter stated concern that the road system in the vicinity of the project may not be able to handle the increase in truck traffic from the proposed project.
Mr. Darin Kuida November 18, 2021 (oral comments at scoping meeting)	Commenter asked that the County ensure the EIR studies potential aesthetic impacts to the viewshed as well as potential noise impacts from the project.
Carol and Michael Dumin November 14, 2021	Commenter expresses concerns with existing mining operations and renewable energy projects including trucks on Backus Road, dirt pollution, noise, loss of Joshua trees, and diminished wildlife. Concerns with project including road destruction, use of water in periods of drought, additional air pollution and noise, and potential chemicals and fuel leaks leaching into already contaminated dirt.
Jun Kumazawa November 15, 2021	Commenter notes concerns and recommendations pertaining to: • Road damage from haul truck use and suggests project proponent should pay for road upgrades. • Traffic hazards at intersections, and suggest project proponent should pay for upgrades including enlarging and adding turn lanes at intersections including Mojave-Tropico/Backus and Backus/Tehachapi-Willow Springs roads. • Slow trucks will cause traffic delays and hazards associated with passing on two-lane roads. • Concerns about safety risk at intersections associated with haul trucks, and recommends installation of solar streetlights at certain intersections.
Melinda Hambrick November 16, 2021	Commenter asks the following questions: 1) Could you please provide an overview of the planning process? 2) What happens during a scoping meeting and what comes next? 3) How long does it typically take to create the EIR? 4) What all needs to happen before this project is scheduled for a public hearing and how long does that typically take? 5) Are there guidelines or is there a preferred format for comments and concerns submitted to [the County]?

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
Jack Purdy November 16, 2021	Commenter notes concerns associated with: • Effects on quality of life to residents and negative impact on the environment. • Impact on groundwater quality and supply. • Impact on air quality. • Trucks on Mojave-Tropico and Backus roads will create hazards for regular traffic and school buses. • Valley Fever and winds toward communities, schools, and other land uses. • Noise from project operations, blasting, and truck trips. • Hazardous materials from blasting. • Nighttime lighting.
Erin Hambrick November 17, 2021	Commenter provides comments to be read at the November 18, 2021, scoping meeting. Concerns noted include: • Aesthetics and decreased property values. • Air quality associated with fugitive dust emissions and Valley Fever. • Impacts to Joshua trees and presence of bats, owls, and raptors in the area. • Effects on residential solar panels from dust accumulation and damage from airborne debris. • Impacts to residential groundwater wells associated with project water use. • Noise impacts at residential properties. • Effects on and perspectives of sensitive offsite residential property owners lives and investments. • Effects of heavy equipment and haul trucks on Mojave-Tropico Road conditions and associated vehicle damage and public safety.
Jack Purdy November 17, 2021	Commenter notes concerns associated with: • Effects on quality of life to residents and negative impact on the environment. • Impact on groundwater quality and supply. • Impact on air quality. • Trucks on Mojave-Tropico and Backus roads will create hazards for regular traffic and school buses. • Valley Fever and winds toward communities, schools, and other land uses. • Noise from project operations, blasting, and truck trips. • Hazardous materials from blasting. • Nighttime lighting.
Phillip Moores November 17, 2021	Commenter expresses concerns pertaining to: • Recent activities involving road development and transported of excavated material from site, clearing vegetation, including

Table 2-1 Summary of Public Comments Received on the NOP/IS Circulated November 4, 2021 to December 6, 2021

Commenter	Summary of Comment
	Joshua trees, dust, damage to Mojave-Tropico Road, and material dropping from trucks. • Ask what will be done to ensure integrity of road conditions and prevent debris from falling on roadway from project hauling. • Water usage and potential consumption of entire groundwater supply for the area. • Consider alternative dust control measures to avoid/reduce water use for dust control. • Air quality impacts to nearby residents from project emissions. • Noise impacts to nearby residents from project operations. • Potential impacts to and adverse effects on human beings (references NOP page 61 discussion of Mandatory Findings of Significance).
Ann Keasler Kahn November 19, 2021	Commenter notes concerns associated with: • Mining at the proposed location. • Reduced property values. • Blasting and vibration.
Erin Hambrick November 27, 2021	Commenter requested information from County regarding property ownership.
Erin Hambrick November 28, 2021	Commenter expressed concerns regarding bulldozing operations outside the proposed Gem Hill project area and provided aerial and surface photographs of project boundary, trails/roads, disturbed areas, California Protected Areas "for open space purposes" by California Department of Fish and Wildlife, several photographs of desert vegetation/flowing species, photographs of insects and wildlife, photographs of recent (2020) disturbance areas, photographs of equipment/vehicles and dust, photographs of surface substances, photographs of signage, photographs of waste and vegetation debris, and photographs of dust associated with separate offsite mining operation.

Table 2-2 Summary of Public Comments Received on the NOP/IS Subsequent to the November 4, 2021 to December 6, 2021 Public Notice Period

Commenter	Summary of Comment
Local Agencies	
Eastern Kern Air Pollution Control District (EKAPCD) February 23, 2022	EKAPCD notes its receipt of the NOP and the Air Quality and Greenhouse Gas (GHG) Assessment prepared for the project. EKAPCD advises that, in accordance with the Air Quality and GHG assessment conducted for this project, the project-Specific GHG emissions are expected to be less than EKAPCD's significant thresholds of 25,000 tons per year (tpy). Therefore, no significant adverse impacts are identified or are anticipated, and in accordance with District established CEQA guidelines, no mitigation measures are required.

Table 2-2 Summary of Public Comments Received on the NOP/IS Subsequent to the November 4, 2021 to December 6, 2021 Public Notice Period

Commenter	Summary of Comment
Members of the Public	
Erin Hambrick December 8, 2021	Commenter expresses concerns pertaining to: • Aesthetics and decreased property values. • Air quality associated with fugitive dust emissions and Valley Fever. • Impacts to Joshua trees and presence of bats, owls, and raptors in the area. • Effects on Mojave ground squirrel • Effects on residential solar panels from dust accumulation and damage from airborne debris. • Impacts to residential groundwater wells associated with project water use. • Noise impacts at residential properties. • Effects on and perspectives of sensitive offsite residential property owners lives and investments. • Effects of heavy equipment and haul trucks on Mojave-Tropico Road conditions and associated vehicle damage and public safety. • Includes several aerial and surface photographs of project boundary, trails/roads, disturbed areas, California Protected Areas "for open space purposes" by California Department of Fish and Wildlife, several photographs of desert vegetation/flowing species, photographs of insects and wildlife, photographs of recent (2020) disturbance areas, photographs of equipment/vehicles and dust, photographs of surface substances, photographs of signage, photographs of waste and vegetation debris, and photographs of dust associated with separate offsite mining operation. • Concerns with truck driver behavior and crossing centerline. • Notes damage to vehicle (photograph of flat tire) due to poor road conditions. • Provides complaint log for air quality complaints to Eastern Kern Air Pollution Control District.
Erin Hambrick January 16, 2022	Email correspondence between commenter and County staff pertaining to project parcels, ownership, and site activities.
Sherri Dumin-Timm January 17, 2022	Commenter expresses concerns pertaining to: • Incompatibility of open pit mine using blasting and many hundreds of people that live in this area. • Open pit mining destroys land and native plants and animals. • Already subjected to the noise and physical impacts from the blasting at the Silver Queen mining project (7 miles from commenter residence) stresses pets and disturbs at-home work; and concerned about impacts of Gem Hill (2 miles from commenter residence). • Haul trucks will create traffic and destroy our local roads.

Table 2-2 Summary of Public Comments Received on the NOP/IS Subsequent to the November 4, 2021 to December 6, 2021 Public Notice Period

Commenter	Summary of Comment
	• Project wells/water use for dust control will deplete water from local aquifers for dust control, and area is in a severe drought. • Property values will be negatively impacted.
Francis and Henry Thompson January 18, 2022	Commenter expresses concerns pertaining to: • Mining pit operation and huge use of water from aquifer. • Increase in airborne diseases; Valley Fever is already a problem in Kern County. • Poor living conditions and reductions in property values.

2.4.3 Availability of the Draft 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 State 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 following location:

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

California State University Bakersfield – Library 9001 Stockdale Highway Bakersfield, CA 93309	Kern County Library/Beale Local History Room 701 Truxtun Avenue Bakersfield, CA 93301	Kern County Library/ Rosamond Branch 3611 Rosamond Boulevard Rosamond, CA 93560

2.5 Format and Content

This EIR addresses the potential environmental effects of the project and was prepared with input from the public and the responsible and affected agencies during the EIR scoping process, as discussed previously. The contents of this EIR are based on the findings in the NOP/IS and public agency input. According to the findings of the NOP/IS, a determination was made that an EIR would be required to address potentially significant environmental impacts related to the following resource areas:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

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

- Agriculture/Forestry
- Population and Housing
- Recreation

Additionally, no comments were received during circulation of the NOP/IS indicating that additional impacts would need to be addressed. No further discussion of these resources is warranted. For a complete analysis of these resources, please refer to Appendix A of this EIR.

2.5.1 Required EIR Content and Organization

This EIR includes all the sections required by the State CEQA *Guidelines*, which are listed in **Table 2-3,** *Required EIR Contents*, along with a reference to the chapter in which they can be found within this document.

Table 2-3 Required EIR Contents

Requirement (CEQA/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)	Chapter 4
Environmental Setting (Section 15125)	Chapter 4
Mitigation Measures (Section 15126.4)	Chapter 4
Cumulative Impacts (Section 15130)	Chapter 4
Growth-Inducing Impacts (Section 15126.2)	Chapter 5
Effects Found Not to Be Significant (Section 15128)	Chapters 1, 4, and 5

Table 2-3 Required EIR Contents

Requirement (CEQA/Section)	Location in EIR
Significant Irreversible Changes (Section 15126.2)	Chapter 5
Unavoidable Significant Environmental Impacts (Section 15126.2)	Chapters 4 and 5
Alternatives to the Project (Section 15126.6)	Chapter 6
List of Preparers (Section 15129)	Chapter 9
References (Section 15129)	Chapter 10

The content and organization of this EIR is designed to meet the requirements of CEQA and the State CEQA *Guidelines*, and present issues, analyses, mitigation, and other information in a logical and understandable way. This EIR is organized into the sections listed below:

- **Chapter 1**, *Executive Summary*, provides a summary of the project description and the environmental impacts and mitigation measures that are identified in the EIR.
- **Chapter 2**, *Introduction*, provides CEQA compliance information, an overview of the decision-making process, information regarding the organization of the EIR, and a responsible and trustee agency list.
- **Chapter 3**, *Project Description*, provides a description of the location, characteristics, and objectives of the proposed project, as well as its relationship to applicable plans and policies.
- **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, contains a description of the existing conditions and a detailed environmental analysis of the project impacts, mitigation measures, and unavoidable adverse impacts for each environmental category.
- **Chapter 5**, *Consequences of Project Implementation*, presents an analysis of the project's contribution to cumulative and growth-inducing impacts as well as other CEQA requirements, including significant and unavoidable impacts and irreversible commitments of resources.
- **Chapter 6**, *Alternatives*, describes a reasonable range of alternatives to the project that could reduce significant environmental effects that cannot be avoided.
- **Chapter 7**, *Responses to Comments*, is reserved for responses to comments on this EIR.
- **Chapter 8**, *Organizations and Persons Consulted*, lists the organizations and persons contacted during preparation of this EIR.
- **Chapter 9**, *List of Preparers*, identifies persons involved in the preparation of the EIR.
- **Chapter 10**, *Bibliography*, identifies reference sources for the EIR.
- **Chapter 11**, *Acronyms and Abbreviations* provides a list of acronyms and abbreviations used within 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 regards to the project.
- *Environmental Setting* describes the physical conditions that exist at this time and may influence or affect the topic being analyzed.
- *Regulatory Setting* provides Federal, State, and local 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 provides a discussion of feasible mitigation measures to reduce any impacts.
- *Cumulative Setting, Impacts, and Mitigation Measures* provides a discussion of the cumulative geographic area for each resource area, and analysis of whether the proposed 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 Kern County, 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 State 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, responsible agencies include 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 that has 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 that may have 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 (USEPA)

- State Agencies
  - California State Lands Commission (CSLC)
  - California Department of Conservation, Geologic Energy Management Division (CalGEM)
  - California Department of Conservation, Division of Mine Reclamation
  - State Water Resources Control Board (SWRCB)
  - California Department of Fish and Wildlife (CDFW)
  - California Department of Transportation (Caltrans)
  - California Air Resources Board (CARB)
  - California Native American Heritage Commission (NAHC)
  - California Governor's Office of Planning and Research (OPR)
- Local Agencies
  - Eastern Kern Air Pollution Control District (EKAPCD)
  - Regional Water Quality Control Board, Lahontan Region (Lahontan RWQCB)
- Kern County
  - Kern County Public Works Department
  - Kern County Public Health Services Department
  - Kern County Fire Department

2.7 Incorporation by Reference

In accordance with Section 15150 of the State 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.

2.7.1 Kern County General Plan

The *Kern County General Plan* is a policy document with land use maps and related information. It is designed to give long-range guidance to those Kern County officials who make decisions that affect the growth and resources in unincorporated Kern County, excluding the Metropolitan Bakersfield Planning Area. This document, adopted on June 14, 2004, and last amended on September 22, 2009, helps to 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 to mitigate environmental impacts. The General Plan also serves as a guide to the private sector of the economy so that development initiatives conform to Kern County's public plans, objectives, and policies.

2.7.2 Kern County Zoning Ordinance

According to Chapter 19.02.020, *Purposes*, of the Kern County Zoning Ordinance, Title 19 was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses in unincorporated areas of Kern County. The specific purposes of this title are listed below:

- 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, the number, size, and location of which would be deemed necessary to carry out the purposes of the *Kern County General Plan* and Title 19;
- 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.

2.7.3 Kern County Zoning Ordinance, Chapter 19.100, Surface Mining Operations

The purpose of this chapter is to regulate surface mining operations consistent with the requirements of the California Mining and Reclamation Act (PRC Sections 2710 et seq.) and the State Policy for Surface Mining and Reclamation Practice (Title 14 of the California Administrative Code, Sections 3500 et seq.). The requirements of this chapter apply to any surface mining operation undertaken in unincorporated Kern County, except for those operations specifically exempted by PRC Sections 2714 or 2776.

2.7.4 Regional Transportation Plan and Sustainable Communities Strategy

The latest Regional Transportation Plan (RTP) was adopted on July 21, 2022. The 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 has been developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between Federal, State, regional, and local agencies. The RTP provides 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 County greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks at 9 percent per capita by 2020 and 15 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 need and transportation planning. The Kern Council of Governments (Kern COG) engaged in the RHNA process concurrently with the development of the 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 (Kern COG 2022).

2.8 Sources

This EIR depends on 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:

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

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

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Chapter 3
Project Description

3.1 Project Overview

This Environmental Impact Report (EIR) has been prepared by the Kern County Planning and Natural Resources Department (Kern County), which is the Lead Agency, to identify and evaluate potential environmental impacts associated with the implementation of the proposed project. CalPortland Company (CalPortland; the project proponent) proposes a Conditional Use Permit (CUP 45, Map 214) for a surface mining operation and development of a reclamation plan (project) in accordance with the Surface Mining and Reclamation Act (SMARA) of 1975. No buildings or structures are proposed, and after completion of the project, all equipment would be removed from the site in accordance with the approved reclamation plan. A copy of the submitted application for Surface Mining Permit and Reclamation Plan is included in Appendix B of this EIR. Disturbed acreage is described as follows:

- 35.3 acres of proposed Quarry
- 2.7 acres for South Overburden Stockpile
- 8.5 acres for North Overburden Stockpile
- 1.0 acres for Topsoil Stockpile
- 0.4 acre for Test Plot
- 6.9 acres for Equipment Storage
- 1.4 acres for Scale/Security Area
- 1.6 acres for Quarry Stormwater Basins
- 1.0 acres for Overburden Stormwater Basins
- 0.75 acres for access road on CSLC (California State Lands Commission) land, leased by the applicant
- 3.9 acres for Secondary Access Road
- 18.8 acres for on-site roads and miscellaneous areas within plan boundary that may be partially disturbed
- 82.2 total acres of disturbance
- 210-acre reclamation plan boundary

Of the approximately 82.2 total acres of disturbance, 16.2 acres has previously been disturbed in accordance with Grading Permit K201806271 issued by the Kern County Public Works Department; the remaining 66 acres is proposed to be disturbed.

The reclamation plan boundary encompasses all areas of disturbance except the 0.75-acre area within which the primary access road is located. Within the reclamation plan boundary, some areas of access road disturbance would remain after the site has been deemed fully reclaimed, as the roads would continue to be used for site access.

The proposed project would be in a rural area in southeastern Kern County identified as portions of Kern County Assessor's Parcel Numbers (APNs) 345-294-17, 345-032-05, 345-032-31, 345-031-02 and 345-032-02. The proposed project would utilize the primary access road which crosses land administered by the CSLC within APN 345-032-02. The project proponent is proposing to mine an estimated 500,000 tons of volcanic tuff annually (for an estimated total of 15,000,000 tons from a single open pit). The life of the operation is proposed to be 30 years.

For purposes of the proposed project, the term "construction" refers to:

(a) earthmoving to improve the primary access road;

(b) earthmoving to install the secondary access road and other onsite haul roads;

(c) earthmoving to prepare the stormwater basins; and

(d) installation of project components including the water well and holding tank, water line, water stand pipe with tank, truck scale, security gates and fencing.

3.2 Project Site

3.2.1 Regional Setting

The project area is in the southeastern portion of unincorporated Kern County, situated in the Rosamond Hills on the west side of Mojave-Tropico Road approximately four miles northwest of the unincorporated community of Rosamond (**Figure 3-1,** *Site Vicinity*). The project site is in the northwestern portion of the Mojave Desert Air Basin (MDAB), which encompasses the desert portion of San Bernardino County and Los Angeles County, the Palo Verde Valley in eastern Riverside County, and the southeastern portion of Kern County. The desert climate is characterized by hot, dry summers and cold, dry winters. The inland position of the MDAB lacks the cooling effects of the Pacific Ocean, while the presence of the mountains that separate the MDAB from the ocean remove much of the atmospheric moisture before reaching the MDAB. Therefore, the region is relatively dry with little precipitation in the summer or winter. Summer high temperatures reach over 100 degrees Fahrenheit (ºF) and averages in the mid to upper 90s with lows in the upper 60s to low 70s. Extreme highs reach over 110º F. Winter highs average in the 60s with lows in the 30s. About 65 percent of the precipitation in the MDAB occurs as rainfall during the winter. The project area receives an average of approximately 6 inches of rain per year.

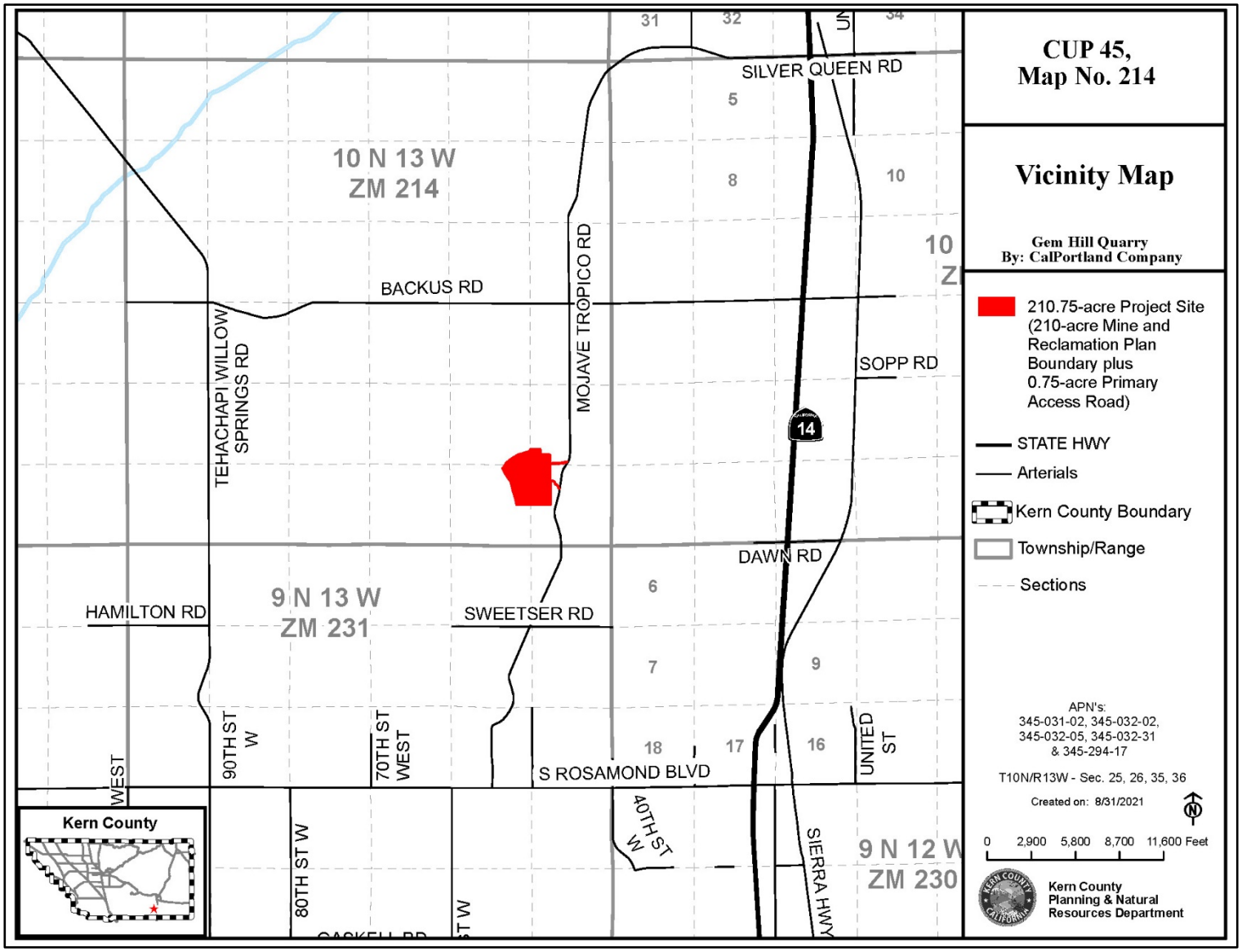


Figure 3-1
Site Vicinity

3.2.2 Project Location

The project site is within the area mapped on United States Geological Survey (USGS) 7.5-minute Soledad Mountain quadrangle and is a portion of Sections 25, 26, 35 and 36, Township 10 North (T10N), Range 13 West (R13W), San Bernardino Base and Meridian (SBB&M). The project site is located in an unincorporated area of the southeastern part of Kern County, approximately four miles northwest of the unincorporated community of Rosamond, and ten miles southwest of Mojave, California (**Figure 3-2,** *Project Boundary and Parcels*).

Site Access

The project site is accessible from Mojave-Tropico Road via an existing primary access road with a length of 845 feet. The primary access road is 24 feet wide with a 6-foot shoulder on either side (for a surface disturbance width of 36 feet) and would serve as the main ingress and egress for the proposed project. The primary access road is located on APN 345-032-02, which is administered by the CSLC, and the project proponent would maintain a lease with CSLC for use of the primary access road. A secondary access road approximately 0.3 mile in length and 24 feet wide with a 6-foot shoulder on either side (for a surface disturbance width of 36 feet), on land owned by the project proponent, would be developed at the northeast portion of the project site to provide secondary access to Mojave-Tropico Road. The primary and secondary access road alignments are shown on **Figure 3-3,** *Aerial Photograph Map*, and **Figure 3-4,** *Proposed Mine Plan*.

General Plan Land Use Map Code Designations, Zone Classifications, and Existing Land Use

The existing land use, General Plan Land Use Designations, and Zoning Classifications for the project site and surrounding land are identified in **Table 3-1,** *Existing Uses, Zoning, and Land Use Designations*, and shown on **Figure 3-5,** *Kern County General Plan Land Use Designations*, and **Figure 3-6,** *Kern County Zoning Classifications*.

Table 3-1 Existing Land Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
Project Site			
345-294-17	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)

Table 3-1 Existing Land Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
345-032-05	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-032-31	Undeveloped	8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-031-02	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-032-02	Undeveloped	8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
Surrounding Parcels			
North	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size,	A (Exclusive Agriculture), PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining)

Table 3-1 Existing Land Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
		80 Acres with Williamson Act Contract) / Steep Slope Overlay), 4.3 - Specific Plan Required (Ancient Valley Specific Plan)	
South	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 1.1 – State or Federal land 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract))	A (Exclusive Agriculture)
East	Undeveloped; dispersed residences 858 to 4,000 feet to the northeast	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act	A (Exclusive Agriculture), PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining
West	Undeveloped	1.1 – State or Federal land, 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A – Exclusive Agriculture

Existing Conditions

The project site is located in a mostly undeveloped portion of the western Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The Antelope Valley is formed by the Tehachapi Mountains to the northwest and San Gabriel Mountains to the southwest. The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches,

agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Clay, silver, and gold mining have been conducted at various locations in the area since the 1890s with gold and silver mining continuing at the Soledad Mountain Golden Queen Mine located approximately 5 miles north of the project site. The historic Tropico Gold Mine is located approximately 3 miles southwest of the project site. The Mojave Cement Plant and Quarry, owned and operated by the project proponent, CalPortland, are located approximately 10 miles northwest of the project site. Other active and inactive mine sites are also in the vicinity.

Residences nearest to the site are to the northeast, with the nearest approximately 858 feet from the northeast corner of the site. Additional residences are located 1 mile and further to the south, southeast, and southwest, and the unincorporated community of Rosamond is about 4 miles to the southeast of the site. A solar photovoltaic power generating facility is located about 1 mile southwest of the project site.

The project site is located approximately four miles northwest of the unincorporated community of Rosamond, and primarily consists of undeveloped land, with several dirt access roads that traverse the site and two graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. No groundwater, gas, oil, or other wells are present on the site. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site.

The steeper slopes of the project site are barren or support minimal vegetation cover (less than 5 percent) while the flatland areas at the bottom of the slopes support denser vegetation cover (less than 30 percent). Creosote bush scrub is the dominant plant community. It is an open scrub plant community characterized by sparse, evenly spaced plants and dominated by creosote bush (*Larrea tridentata*). Several unnamed ephemeral drainage features are present within the project site. The drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site and generally flow to the southeast.

The Project site is predominantly undeveloped. In 2019, the property owner and current project proponent obtained a grading permit from Kern County allowing for the construction of an access road and two graded pads of the site totaling an area of 16.2 acres. The road and pad grading was completed in 2019.

According to the California Department of Conservation/ Geologic Energy Management Division (CalGEM), there are no records of abandoned wells located within the project site.



Figure 3-2
Project Boundary and Parcels

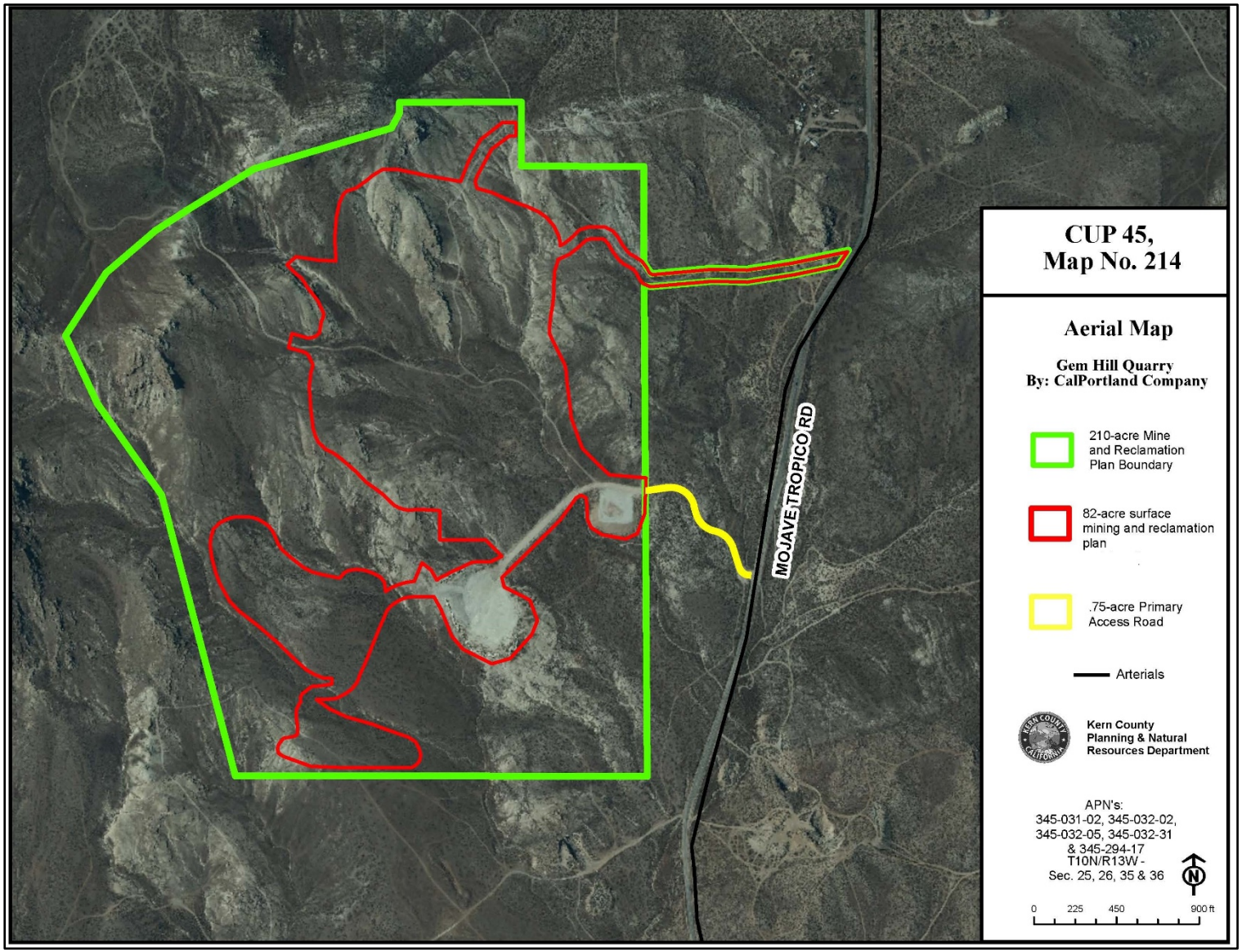


Figure 3-3
Aerial Photograph Map

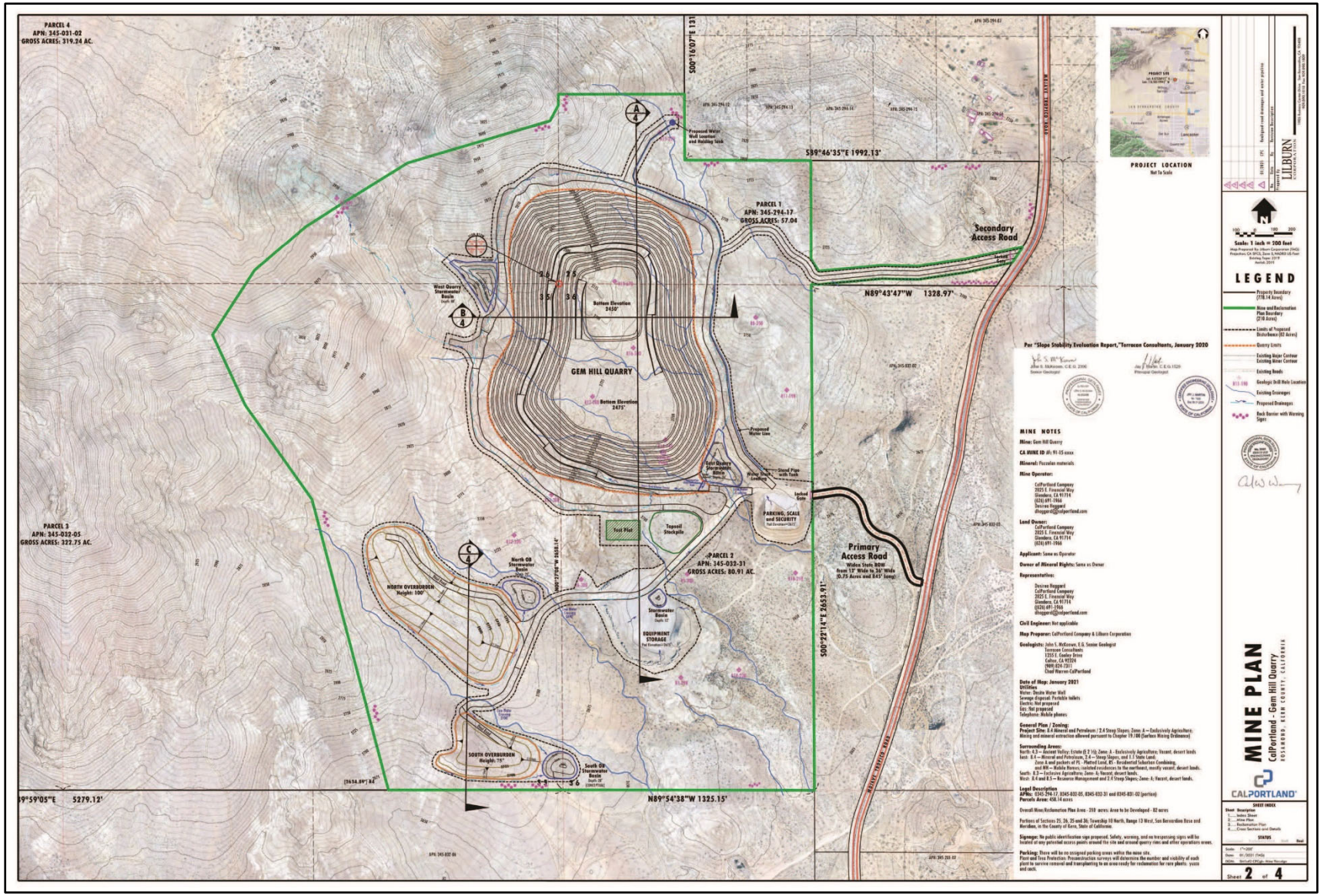


Figure 3-4
Proposed Mine Plan

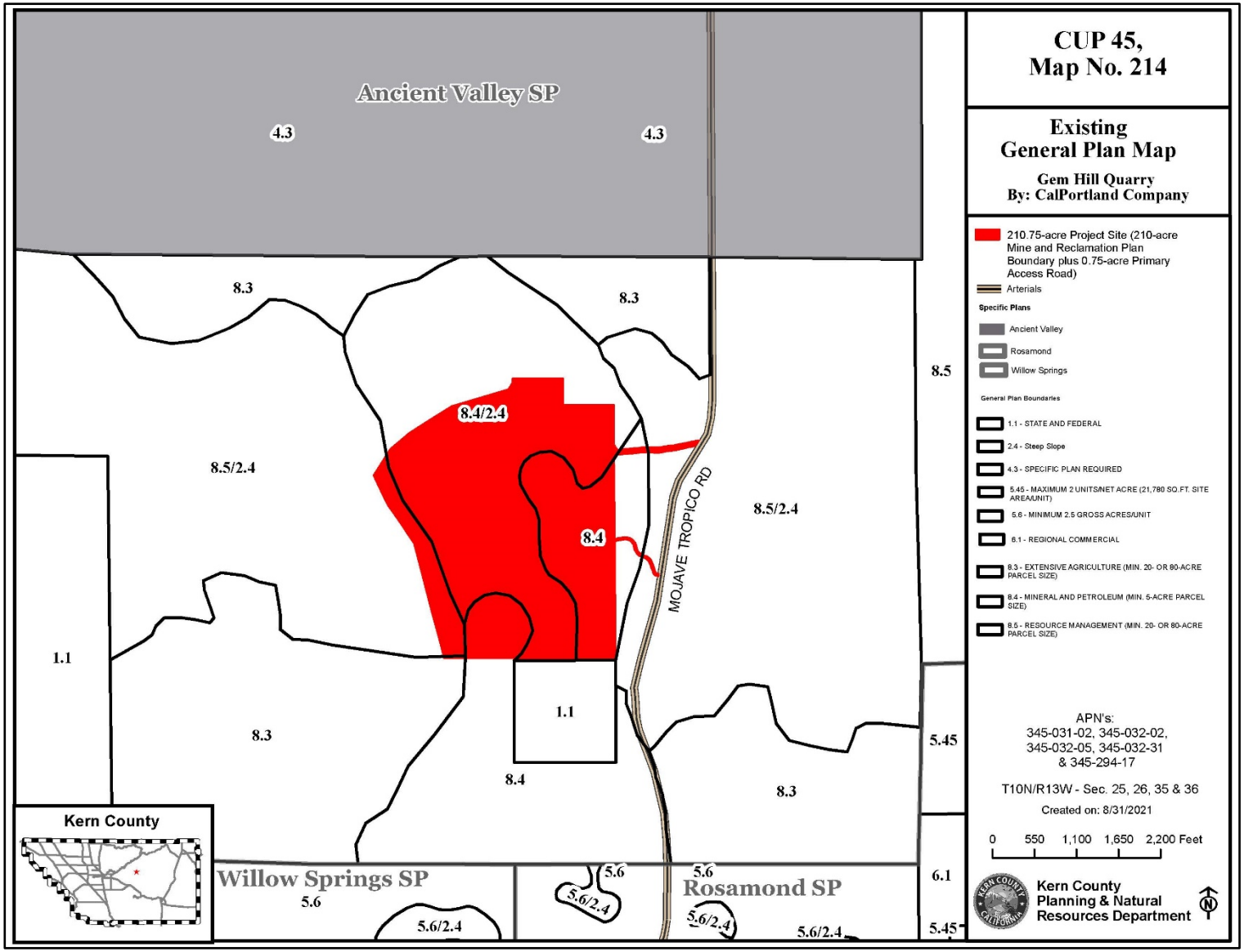


Figure 3-5
Kern County General Plan Land Use Designations

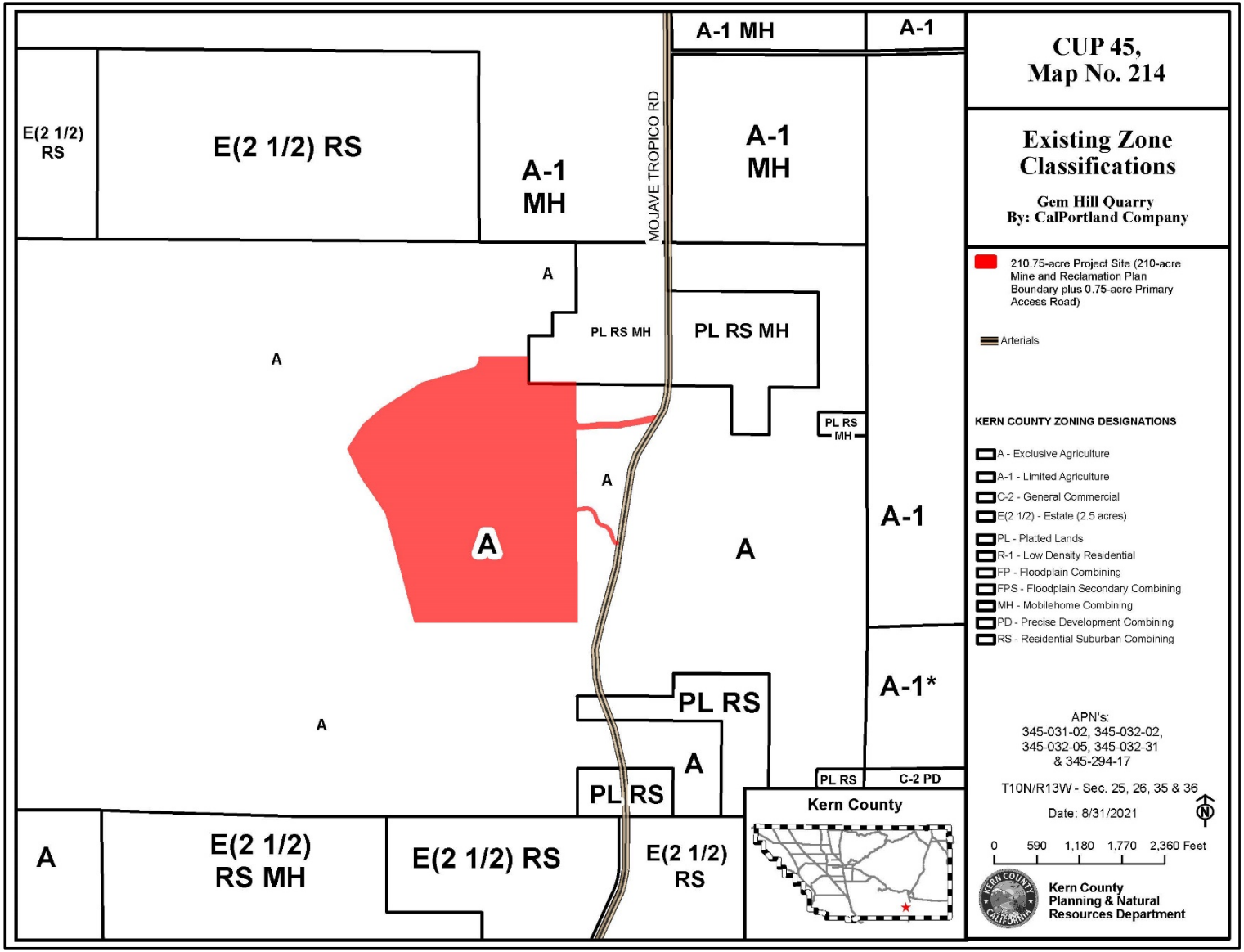


Figure 3-6
Kern County Zoning Classifications

3.3 Surface Mining and Reclamation Act Process

SMARA (California Public Resources Code [PRC] Sections 2710–2796) provides a comprehensive surface mining and reclamation policy for the regulation of surface mining operations in California. In enacting SMARA, the Legislature found that "extraction of minerals is essential to the continued economic well-being of the state and to the needs of society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety." (PRC § 2711(a). SMARA also encourages the production, conservation, and protection of the State's mineral resources. PRC Section 2207 provides annual reporting requirements for all mines in the State, under which, the State Mining and Geology Board (SMGB) is also granted authority and obligations. SMARA requires the SMGB to adopt policies for the reclamation of mined lands and the conservation of mineral resources. Regulations promulgated by SMGB expound on the requirements of SMARA and can be found in Title 14, Division 2, Chapter 8, Subchapter 1 of the California Code of Regulations (CCR).

City and County SMARA Lead Agencies must adopt ordinances for land use permitting and reclamation procedures that comply with SMARA. The Kern County Zoning Ordinance (Chapter 19.100) contains regulations regarding Surface Mining Operations. Combined, the SMARA, SMGB regulations, and Kern County Zoning Ordinance provide the regulatory framework for surface mining and reclamation activities in Kern County.

SMARA Lead Agencies review applications for surface mining and/or reclamation plans (or amendments thereto), submit such applications and financial assurances to the CDOC Division of Mine Reclamation (DMR) for technical review and comment prior to approval, annually review financial assurances, annually inspect mining and reclamation operations for compliance, and take enforcement actions where necessary. In addition, each mining and reclamation operation is required to maintain a current financial assurance mechanism (FAM) with Kern County in an amount sufficient to cover the cost of reclamation. The amount of the financial assurance is calculated per guidelines provided by the DMR and as necessary updated annually to account for the extent of active mine operations, areas of disturbance, and reclamation progress. If Kern County determines the mine operator has abandoned or is financially incapable of completing site reclamation, Kern County can seek forfeiture of the FAM and utilize it to implement reclamation of the mine site. The proposed project is subject to the SMARA, SMGB regulations, and Kern County Zoning Ordinance.

3.4 Project Characteristics

3.4.1 Project Summary

As discussed in more detail in the following sections, the project proponent has submitted an application for the following discretionary action from Kern County:

(a) approval of a Conditional Use Permit (CUP) for an approximately 35-acre quarry with a planned disturbance area of approximately 82.2 acres, within an approximately 210.75-acre project site boundary (the 210.75 acres includes the .75-acre primary

access road which is located on land administered by the CSLC); and

(b) approval of a reclamation plan for the 210-acre mine and reclamation plan boundary in accordance with the Surface Mining and Reclamation Act (SMARA) of 1975.

The requested CUP would allow for surface mining of an approximately 35-acre quarry, and approval of a reclamation plan for an approximately 210-acre boundary with a planned total disturbance and reclamation area of approximately 82.2 acres. Reclamation of the site would be conducted in accordance with a reclamation plan that would be subject to approval by Kern County. The proposed reclamation plan provides a detailed discussion of the mining and reclamation proposed for the site. **Figure 3-7**, *Proposed Reclamation Plan*, provides a bird's-eye-view illustration of the reclaimed site conditions and **Figure 3-8**, *Proposed Reclamation Plan Cross-Sections*, provides cross-section illustrations of reclaimed site conditions.

Maximum operational inter-bench slopes (also referred to as bench face slopes) for the quarry will be 0.25:1 (horizontal:vertical (H:V)) with overall slopes of 1:1 (H:V). Maximum final reclaimed inter-bench slopes for the quarry will be 0.25:1 (H:V). Overall final reclaimed slopes for the quarry will be a maximum of 1:1 (H:V). Maximum operational slopes for the overburden stockpiles will be 1.5:1 (H:V). Maximum and overall final reclaimed slopes for the overburden stockpiles will be 2:1 (H:V).

The project proponent documents that the project has proven/probable reserves of approximately 16 million tons (mt). The project proponent plans to extract up to 15,000,000 tons of volcanic tuff (500,000 tons per year for a mine life of 30 years). Volcanic tuff is a type of volcanic material that can be utilized to replace a portion of clinker used in the manufacturing of portland cement as well as replace a portion of portland cement in ready-mix concrete. Pozzolan is defined as a naturally occurring material having cementitious properties that increases the long-term strength and improves other material properties of portland cement concrete while reducing emissions of carbon dioxide (CO_2), a greenhouse gas (GHG) that contributes to global warming or climate change, in the production of cement. Cement clinker is defined as a solid material produced in the manufacture of Portland cement as an intermediary product, which occurs as lumps or nodules; it is produced by sintering (fusing together without melting to the point of liquefaction) limestone and aluminosilicate materials such as clay during the cement kiln stage.

The planned operation includes the quarry, two overburden stockpiles, stormwater basins, an equipment storage area, a water well and conveyance pipe, truck scale, and access roads on a proposed disturbance area of approximately 82.2 acres. Typical mining operations would consist of blasting, dozing and stockpiling the tuff materials for haulage offsite. The material would be loaded onto on-road trucks and hauled to existing cement production facilities based on market demand. The material does not require crushing or processing, therefore, there would be no processing plant operations conducted on-site.

An access road (labeled as Primary Access Road on **Figure 3-4,** *Proposed Mine Plan,* and **Figure 3-7**, *Proposed Reclamation Plan*) at Mojave-Tropico Road would be widened as part of the project and would serve as the main ingress and egress for the proposed project.

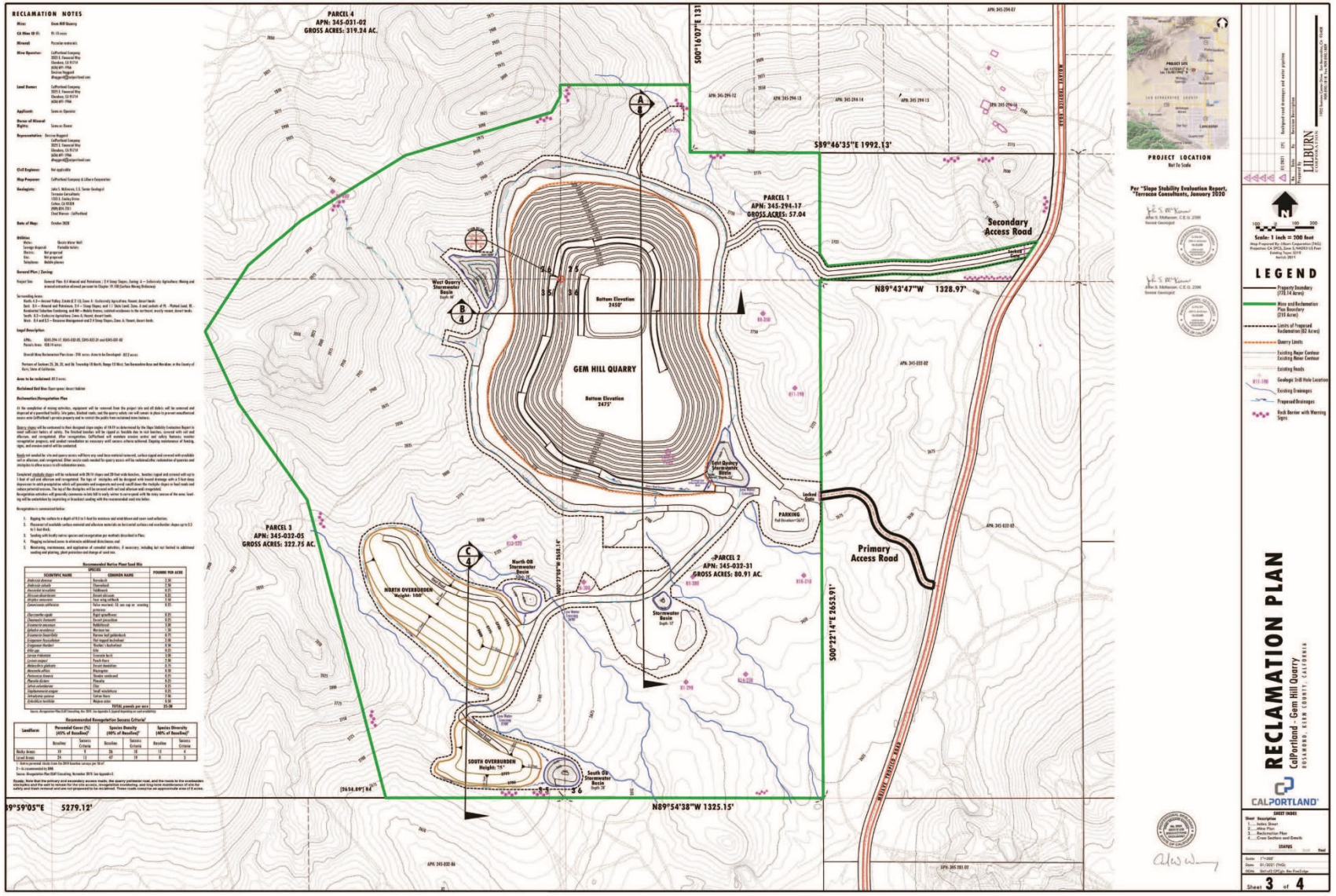


Figure 3-7
Proposed Reclamation Plan

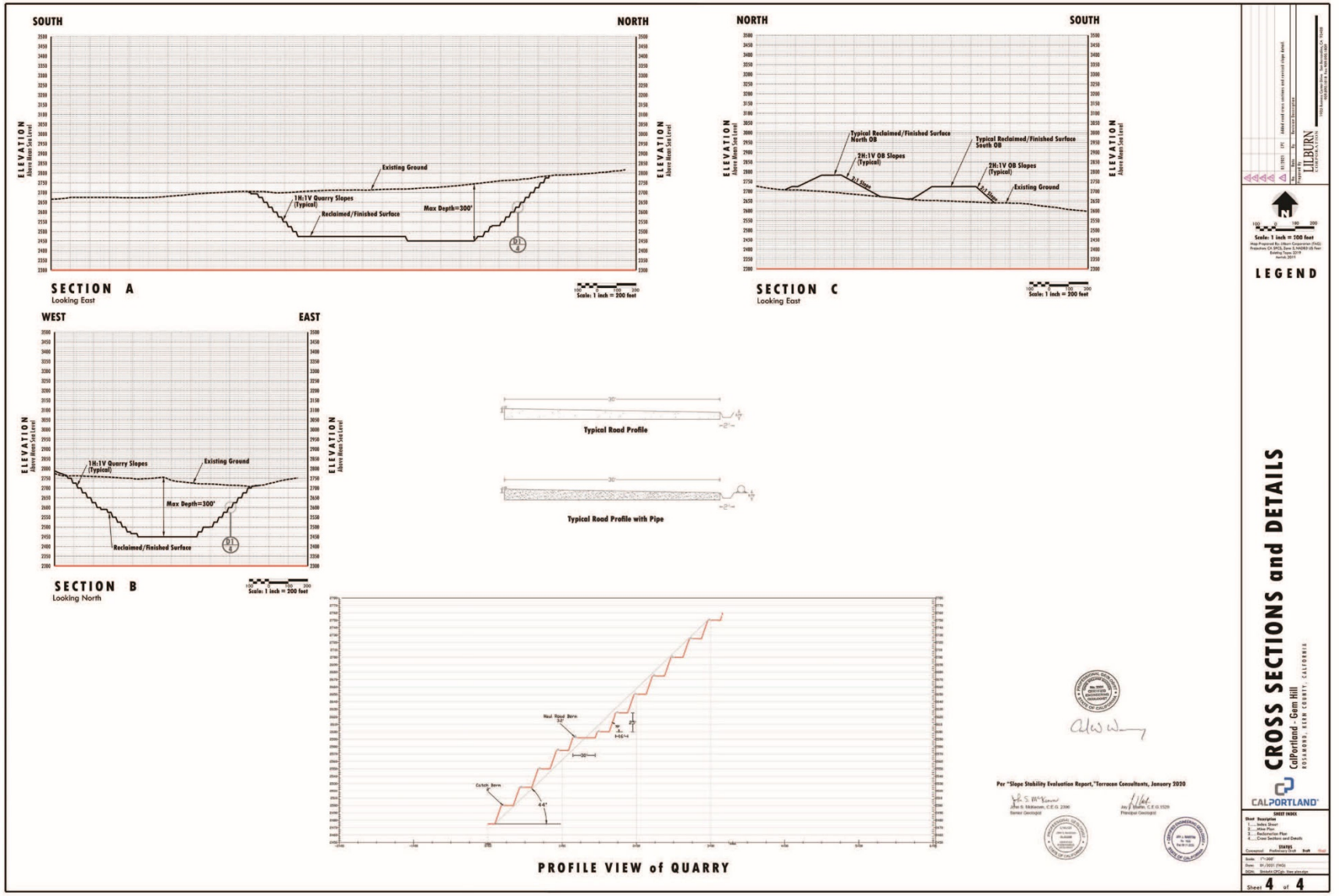


Figure 3-8
Proposed Reclamation Plan Cross-Sections

A secondary access road would be developed north of the primary access road that would also provide access between the project site and Mojave-Tropico Road. Operations would include approximately 20 full time employees, including about 10 truck drivers that would operate haul trucks for overburden movement within the site and for transport of volcanic tuff to offsite locations. Security gates and signs would be located on the access roads.

The project proponent proposes to reclaim the site in a usable condition for a post-mining end use of open space by reshaping mining features and revegetating disturbed areas to return biological productivity and to minimize aesthetic impacts; and as necessary to eliminate hazards to public health and safety.

3.4.2 Mining Plan

The quarry would be developed as a multi-bench open pit mine. Several working levels within the quarry could be operated at any one time to supply the quality and quantity of material required for use at offsite locations for adding and blending into the cement production process. **Table 3-2**, *Planned Surface Disturbance and Estimated Ore and Overburden Production*, lists the surface area, reserves, overburden quantities, annual production range, and proposed duration of operations.

Table 3-2 Planned Surface Disturbance and Estimated Ore and Overburden Production

Proposed Surface Disturbance	82.2 acres
Quarry Surface Area	35.3 acres
Ore Reserves	16.1 million tons
Ore Excavated[1] (life of mine)	15 million tons
Ore Excavated (annual)	500,000 tons per year
Overburden[2] (life of mine)	600,000 tons
Overburden[2] (annual)	20,000 tons per year
Proposed Life of Mine Duration	30 years

Source: "Gem Hill Quarry Surface Mining Cup and Reclamation Plan Project Description and Alternatives for CEQA" (CalPortland January 2021)

Notes:

1. Approximately 1.1 million tons of ore may remain at end of mining. Volumes are estimated based on drilling data, mine design, and computer modeling. Areas rounded to nearest tenth of an acre and tonnage to tenths.
2. Overburden is primarily basalt estimated at 4 percent of total volume or about 0.6 million tons over life of mine.

Quarry Operations

The proposed project surface mining area is approximately 35 acres of the total approximately 82.2-acre project disturbance area. The quarry would be mined to a maximum depth of approximately 300 feet from 2,750 feet amsl to a floor depth of 2,450 feet amsl. The quarry is designed to avoid mining the ridgelines to the north and west to reduce the potential for visual impacts. A safety berm six feet high and 12 feet wide at its base would be constructed around the quarry rim for operational and public safety purposes.

The quarry would be excavated utilizing conventional open pit methods and would involve drilling and blasting benches 25 feet high with inter bench slopes of 70 degrees. The height of proposed benching is based on the site geology and deposit. The 70-degree inter bench would

create a bench offset of approximately 9 feet with a 16-foot-wide horizontal bench sloped slightly towards the back of slope to retain precipitation. The overall slope for operations and reclamation is approximately 45 degrees or 1 horizontal:1 vertical (1H:1V). Quarry haul roads would be 30 feet wide with a grade of 8 percent or less depending on locations and conditions. A slope stability evaluation prepared for the project determined that the proposed quarry slopes (and overburden stockpiles, discussed below) would achieve static factors of safety (FS) in excess of 1.5 and seismic factors of safety at or greater than 1.1.

Blasting would be utilized to loosen material allowing for excavation. Blasting operations would involve drilling along the mining face, placement, and detonation of charges by a blaster licensed through the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) for handling explosive materials. The transporting, handling, storage, and use of explosive materials, blasting agents, and blasting equipment would be supervised by a qualified and licensed blasting contractor. The blasting contractor and the explosive delivery company would be properly trained and licensed in accordance with all Federal, State, and local regulations and would provide evidence of compliance with the California blasting license program, U.S. Department of Transportation hazardous materials (HAZMAT) Certificate of Registration, California HAZMAT Transportation License, and general liability insurance for explosive transportation. All blasting materials would be brought on-site by a licensed blasting contractor for each blast, and there would be no storage of blasting agents at the project site.

Drilling would typically be conducted as part of normal mining operations approximately 105 days/year, up to 5 days a week, 10 hours/day with depths of 28 feet. Blasting is planned approximately once per week. Typical blasting activities would take place between the hours of 10:00 a.m. and 4:00 p.m. on weekdays (Monday through Friday); however, hours may shift due to safety driven operational constraints.

After blasting, the pozzolan material would be loosened by an excavator and dozer and loaded into on-road haul trucks for transport to existing cement production facilities. No crushing or processing would be conducted on-site. Operations would typically occur during one shift per day during daylight hours (generally 7:00 a.m. to 7:00 p.m. Monday through Saturday depending on the season), 6 days per week. Based on product demand and other market and operational factors, additional shifts or longer or alternative hours could also occur. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations.

Overburden and Topsoil Management

Overburden is made up of interspersed layers of basalt and some alluvium at the surface of the mining area that would require removal but would not be transported offsite. The estimated life of mine excavation ratio of overburden to pozzolan is approximately 4 percent, which would result in an average of approximately 1 ton of overburden for each 25 tons of pozzolan produced. Overburden would be loaded into haul trucks with 25-ton capacity and transported along interior haul roads to the two overburden stockpiles (as identified and labeled on **Figure 3-4,** *Proposed Mine Plan,* and **Figure 3-7**, *Proposed Reclamation Plan*) that would be located in the southwestern portion of the project site.

Overburden stockpiling would take place throughout the life of the mine. The proposed South Overburden Stockpile would be developed on approximately 2.7 acres. The South Overburden Stockpile would have a maximum height of approximately 75 feet (approximately 2,750 feet amsl) and a total storage volume of approximately 80,000 cubic yards (cy). The North Overburden Stockpile would be developed as needed on approximately 8.5 acres. The North Overburden Stockpile would have a total estimated volume of up to approximately 350,000 cy and would be developed up to a maximum height of approximately 100 feet (2,800 feet amsl). Both overburden stockpiles would be developed with overburden placed in 25-foot-high lifts, with interface slopes at the angle of repose of 34 degrees (1.5H:1V). The overburden material would be compacted by tractor roll-over. Final slopes for the overburden stockpiles would be completed at 27 degrees (2H:1V) with horizontal bench widths of approximately 20 feet, as illustrated on the cross-section profiles on **Figure 3-8**, *Proposed Reclamation Plan Cross-Sections*. A slope stability evaluation prepared for the project determined that the proposed reclaimed overburden slope design would achieve a static factor of safety of 1.78 and seismic factor of safety of 1.17.

In addition to overburden that would be permanently deposited in the overburden stockpiles discussed above, surface alluvium would be salvaged separately and stored in a topsoil stockpile (as identified and labeled on **Figure 3-4,** *Proposed Mine Plan*) that would be located south of the quarry. The alluvium would be stored during the mining operation for use in reclamation (discussed further below).

Mobile Equipment and Vehicles

Table 3-3, *Project Operations Equipment and Usage*, lists the anticipated equipment that would be used for onsite operation and transporting material offsite. Haul trucks and diesel equipment would be required to comply with all applicable requirements of the California Air Resources Board's (CARB) off-road diesel vehicles regulation to reduce diesel pollutants.

Scheduled equipment maintenance would take place offsite. Minor or emergency repairs and refueling with portable maintenance/fuel trucks would be conducted at the site. Any waste oil generated at the site would be collected and transported for off-site recycling or disposal by approved methods and by properly trained and licensed personnel.

Table 3-3 Project Operations Equipment and Usage

Equipment[1]	Typical Number	Typical Days per Year	Purpose
Front-End Loader (CAT 980 typ.)	1	300	Loading of excavated materials into haul trucks at quarry.
Dozer (CAT D8 typ.)	1	150	Mining and stockpiling of pozzolan material. Removal of topsoil and waste rock. Construction and maintenance of roads and quarry benches.
Excavator (CAT 325 typ.)	1	60	Mining and stockpiling of pozzolan material and overburden.
Grader (CAT 140 typ.)	1	60	Removal of topsoil and waste rock. Construction and maintenance of roads.

Table 3-3 Project Operations Equipment and Usage

Equipment[1]	Typical Number	Typical Days per Year	Purpose
Drill Rig (PowerROC T25 typ.)	1	130	Drill holes for placement of explosives.
On-Road Haul Trucks (25-ton trucks typ.)	10	300	Transportation of excavated material to various clients (i.e. offsite), and overburden to onsite stockpiles.
Water Truck (4,000 gallons)	1	300	Water spray haul roads, active quarry areas, overburden stockpiles, and general dust control onsite.
Tractor skid steer	1	60	Removal of topsoil and waste rock. Construction and maintenance of roads.
Generator Sets (50 hp typ) (CAT XQ 35 typ)	2	300	Power for water well pump and scale/office trailer.
Ancillary Equipment	Varies	Varies	Maintenance vehicles, bobcat, backhoe, pick-ups, SUVs, etc.

Source: "Application Form for Surface Mining Permit and Reclamation Plan" submitted by CalPortland for the Gem Hill Quarry, accepted by Kern County on May 25, 2021.
Notes:
1. Lists typical equipment anticipated for use, specific equipment may change during the life of the project due to replacement of aging equipment and updated equipment and fleet averaging requirements.

3.4.3 Reclamation Plan

The project proponent proposes to reclaim the site in accordance with a proposed reclamation plan that would be approved as a component of the requested project approvals. The following are identified as objectives of the proposed reclamation plan:

- Eliminate or reduce environmental impacts from mining operations;
- Reclaim in a usable condition for a post-mining end use of open space;
- Reshape mining features and revegetate disturbed areas to return biological productivity and to minimize aesthetic impacts; and
- Reclaim the site as necessary to eliminate hazards to public health and safety.

More specifically, the reclamation plan would involve the following activities, some of which would be initiated upon and run concurrent with mining:

- Stockpile available surface material and alluvium for use as a seed bed and seed bank in a separate identified stockpile seeded with an erosion control ground cover, water sprayed to create a crust, and/or covered with a larger rock material to limit wind and water erosion;
- Sloping and grading of completed quarry and stockpile slopes for safety, slope stability, and erosion control;
- Ripping of compacted areas and roads prior to revegetation;

- Covering disturbed areas with salvaged soil and alluvium overburden to aid in revegetation;
- Revegetation – imprinting seeds and broadcast seeding followed by covering seed with a layer of soil or alluvium by pulling chains or screens over the area;
- Upon completion of mining, remaining equipment, utilities, and internal roads not needed for site access will be reclaimed, and
- Monitoring and remediation until success criteria achieved.

Equipment Removal and Site Reclamation

All equipment used for mining would be removed following the completion of mining. Internal roads not needed for post-mining site access, reclamation, revegetation and general site monitoring, would be removed and reclaimed. Final reclamation will take place within three years of the termination of mining. Structures, tanks, scrap material, refuse, and surplus materials, if any, would be removed, recycled, and/or disposed of at an appropriate landfill site. Excess material piles and disturbed areas would be regraded for positive drainage, scarified, and revegetated.

If required, the onsite water well to be developed as the project operations water supply would be closed or destroyed in accordance with the California Department of Water Resources Bulletin 74-91 as revised in 1988 or the latest revision and with the Kern County Public Health Services Department, Environmental Health Division regulations unless deemed at that time to be useful for continued use or monitoring. The well would be closed in a manner to eliminate potential hazards to the health and safety of people and wildlife.

There are no known portals, shafts, tunnels, or openings on the mine site. If any such features are identified during project operations, they would be either closed, gated and/or otherwise protected from public entry but preserved for bat and other wildlife with County consultation.

Quarry Reclamation

Quarry slopes would be contoured to their designed final slope angle of 1H:1V. Finished benches would be approximately 16 feet wide separated vertically by approximately 25-foot-tall, 70-degree slopes, although bench heights could vary slightly based on material encountered during mining and final reclamation contouring. Bench surfaces would be ripped as feasible and surfaced with soil and alluvium, and revegetated (see below for discussion of revegetation). After revegetation, the project proponent would maintain erosion control and safety features, monitor revegetation progress, and conduct remediation as necessary until success criteria achieved. Ongoing maintenance of the safety berm, blocked access routes, signs, and erosion control would be conducted.

Overburden Stockpiles Reclamation

Overburden stockpile slopes would be developed with lifts of approximately 25 feet with 2H:1V slopes and 20-foot-wide benches. When a bench or level is completed, the lower final slope would be graded with the intent to create more natural surfaces to blend into or conform with the surrounding hills and topography to the north and west and to create islands and

pockets to place salvaged soil. This practice would also enhance the capture of seeds and rainfall to facilitate revegetation and stability. The tops of overburden stockpiles would be designed with inward drainage with a 5-foot-deep depression to catch precipitation which would percolate or evaporate and avoid runoff down the stockpile slopes or haul roads and reduce the potential for erosion. The surfaces of the overburden stockpiles would be covered with soil and alluvium and revegetated.

Revegetation

Under existing site conditions, creosote bush scrub plant community occurs throughout the undeveloped/undisturbed portions of the project site. This plant community is homogenous throughout the site with only minor variations in composition associated with changes in landforms: level to gently sloping terrain and rocky slopes. The more dominant species included saltbush, cheesebush, creosote, Mormon tea, and buckwheat. Saltbush, buckwheat, and creosote accounted for most of the site cover.

Prior to an area being cleared or developed for mining or related activities, available surface material and alluvium overburden would be collected for use as a seed bed and bank and stockpiled in separate identified stockpiles. Stockpiles would be seeded with a native erosion control ground cover or covered with a larger rock material to limit wind and water erosion.

Revegetation for reclamation would involve preparing revegetation sites, seed application, monitoring, and remediation, if needed to achieve revegetation success criteria. Site preparation and revegetation procedures in the proposed reclamation plan include:

- Ripping or scarifying compacted areas including closed roads to a 0.5-foot minimum depth (if possible due to rock benches in the quarry), with surface rills and furrows left to aid in water and wind-blown seed collection;
- Placing alluvium overburden on areas to be seeded to a depth of up to 1-foot to provide a more conducive subsurface for root establishment and grading;
- Shaping or contouring final slopes and benches on the overburden for drainage and for natural appearing slopes and landforms. Shallow basins shall be graded into slopes and covered with soil to create favorable conditions for revegetation;
- Seeding with local native species and revegetation per methods described in Reclamation Plan;
- Staking or flagging reclaimed areas to eliminate additional disturbance;
- Monitoring and maintenance; and
- Application of remedial activities, if necessary, including but not limited to additional seeding and planting, plant protection and change of seed mix.

The seeds to be used for revegetation purposes include species that are either present on the site under existing (pre-mining) conditions or are present in the surrounding area as part of the creosote bush scrub plant community. The proposed seed mix or palette is based on native species in the creosote brush scrub plant community. Proposed plant species and seed application rates (pounds per acre) are listed in **Table 3-4**, *Proposed Revegetation Plant Seed*

Mix. While the shrubs would eventually dominate, the forbs and annuals provide early successional species that stabilize the soil and help shelter slower-growing woody shrubs.

Table 3-4 Proposed Revegetation Plant Seed Mix

Common Name	Scientific Name	Application Rate (pounds per acre)
Burrobush	*Ambrosia dumosa*	2.50
Cheesebush	*Ambrosia salsola*	2.50
Fiddleneck	*Amsinckia tessellata*	0.25
Desert alyssum	*Alyssum desertorum*	0.25
Four wing saltbush	*Atriplex canescens*	2.50
Evening primrose	*Cammisonia californica*	0.25
Rigid spineflower	*Chorizanthe rigida*	0.25
Desert pincushion	*Chaenaetis fremontii*	0.25
Rabbitbrush	*Ericameria nauseous*	3.00
Mormon tea	*Ephedra nevadensis*	1.50
Narrow leaf goldenbush	*Ericameria linearifolia*	0.75
Flat-topped buckwheat	*Eriogonum fasciculatum*	2.00
Thurber's buckwheat	*Eriogonum thurberi*	0.50
Gila	*Gilia spp.*	0.25
Creosote bush	*Larrea tridentata*	3.00
Peach thorn	*Lycium cooperi*	2.00
Desert dandelion	*Malacothrix glabrata*	0.75
Blazingstar	*Mentzelia affinis*	0.50
Slender combseed	*Pectocarya linearis*	0.25
Phacelia	*Phacelia distans*	0.25
Chia	*Salvia columbariae*	0.25
Small wirelettuce	*Stephanomeria exigua*	0.25
Cotton thorn	*Tetradymia spinosa*	2.00
Mojave aster	*Xylorhhiza tortifolia*	0.50
	TOTAL pounds per acre	**25-30**

Source: Proposed "Reclamation Plan for Gem Hill Quarry," CalPortland, January 2021.

Invasive species control would be implemented to reduce or eliminate the occurrence of non-native invasive plant species that could invade the site where active and natural revegetation is taking place. Non-native vegetation would be removed using the most efficient method as determined by the site conditions, and could include a combination of manual, mechanical or chemical methods depending on the specific circumstances.

Revegetation test plots would be established during the initial revegetation efforts. The test plots would provide data to be used for assessing successful revegetation. Test plots would involve steep slopes, level to gently sloping area and desert dry wash characteristics and seed application methods including mechanically imprinting and broadcasting would be considered.

The revegetation plan identifies recommended success criteria achieving perennial cover, species density, and species diversity of 45, 40, and 40 percent, respectively, of baseline conditions.

3.4.4 Schedule and Workforce

The proposed typical hours of operation are daylight hours (generally 7:00 a.m. to 7:00 p.m., Monday through Saturday depending on the season), six days per week, depending on market demand, with the understanding that longer or alternative hours may be required due to operational constraints. Operations would include approximately 20 full time employees, including about 10 truck drivers that would operate haul trucks for overburden movement within the site and for transport of volcanic tuff to offsite locations. The life of the proposed surface mining operation is proposed to be 30 years.

3.4.5 Drainage and Flood Control Measures

The site consists primarily of rolling to steep topography. The site is not located within a Floodplain Safety Overlay District or Dam Inundation Overlay. Several unnamed ephemeral drainage features are present within the project site. The drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site and generally flow to the southeast.

Surface runoff and drainage from mining activities would be controlled by berms, stormwater basins, revegetation, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation, and contamination. Erosion control methods would be designed to handle runoff from not less than the 20-year/1-hour intensity storm event as required by SMARA Section 3706(c)(d) and in accordance with the Kern County Hydrology Manual. The project design is intended to reduce stormwater flows onsite as well as to offsite areas and avoid potential flood inundation impacts.

As proposed, control of surface drainage, erosion, and sedimentation of the operations would involve the following primary components:

- Limiting surface disturbance to the minimum area required for active operations;
- Diverting runoff from flowing unchecked into the quarry or down stockpile slopes; and
- Stabilizing disturbed areas through regrading, replacement of soils, revegetation, and erosion control practices.

3.4.6 Utilities

Electrical service in the project region is provided by Southern California Edison (SCE), but electrical distribution facilities do not presently exist to serve the project site The project does not require connection to an electrical distribution system, as project electrical power requirements associated with the water well pump and scale/office trailer would be provided through the use of onsite generators. As proposed, the office trailer would be located in the vicinity of the locked gate at the western terminus of the primary access road, as identified and

labeled on **Figure 3-4,** *Proposed Mine Plan*. There is no known natural gas service to the project site; and the project does not require a connection to natural gas service.

Per comments received from CalGEM in response to the Notice of Preparation/Initial Study (NOP/IS), there are no known oil or gas wells located within the project boundary. The comments also state that if, during development activities, any wells are encountered, the property owner is expected to immediately notify CalGEM's construction site well review engineer in the Inland district office, and file for CalGEM review of an amended site plan with well casing diagrams. Additional information regarding the potential to encounter currently unidentified wells, including recommendations of the Lead Agency to address wells, is included in **Section 4.8**, *Hazards and Hazardous Materials*, of this EIR.

3.4.7 Trip Generation and Distribution

Trip generation from the proposed project would consist of arrivals and departures of vehicles transporting employees, fuel and maintenance trucks, contractor vehicles servicing portable toilets, waste collection, and haul trucks that pick up and transport mined material to offsite locations. As shown in **Table 3-5,** *Vehicles and Average Daily Trips*, summarize the anticipated average daily trips for various vehicles and **Table 3-6**, *Proposed Trip Generation: Average Daily Traffic, AM and PM Peak Hour, and Breakdown of Arrivals and Departures*, the project is estimated to generate 158 average daily trips (ADT) (134 ADT resulting from material haul trucks, 20 ADT resulting from 10 employee vehicles, and approximately 4 resulting from other vehicle trips). Of these ADTs, there would be 24 evening peak hour trips and 14 morning peak hour trips.

Under typical operations, project haul trucks would exit the site on the primary access road and travel north on Mojave Tropico Road for 2.5 miles with approximately 75 percent of trucks then traveling west on Backus Road, northwest on Willow Springs Road for 8 miles, and east on Oak Creek Road for 3.5 miles to the Mojave Cement Plant entrance, for a total travel distance of approximately 18.7 miles. The other approximately 25 percent of haul trucks would travel east on Backus Road to State Route (SR) 14 and then to various client locations.

Table 3-5 Vehicles and Average Daily Trips

Vehicle	Typical Number	Average Daily Trips (ADT) (one-way trips)
Vehicles transporting employees to/from the site	10	20
On-road haul trucks	10 trucks (typical) 67 total round trips/day	134
Fuel Truck[1]	1	0.28
Maintenance truck[1]	1	0.28
Portable toilet service[1]	1	0.28
Waste/trash pick-up[1]	1	0.28
Miscellaneous[2]	8	2.29

Source: Employee vehicle trips and on-road haul truck trips based on "Gem Hill Quarry Trip Generation Assessment (Revised)" (Urban Crossroads 2021). Other trips based on "Application Form for Surface Mining Permit and Reclamation Plan" submitted by CalPortland for the Gem Hill Quarry, accepted by Kern County on May 25, 2021.

Table 3-5 Vehicles and Average Daily Trips

Vehicle	Typical Number	Average Daily Trips (ADT) (one-way trips)

Notes
1. Fuel, maintenance, portable toilet service, and waste/trash pick-up vehicles are estimated to require one round trip (two one-way trips) per week resulting in an ADT of 0.28 for each of these vehicle types.
2. Miscellaneous vehicles are estimated to require a total of eight round trips (16 one-way trips) per week resulting in an ADT of 2.29 for miscellaneous vehicles.

Table 3-6 Trip Generation: Average Daily Traffic, AM and PM Peak Hour, and Breakdown of Arrivals and Departures

			Peak Hour Trips – AM & PM			
	24 Hour Trips – ADT		AM Peak Hour		PM Peak Hour	
Origin to Destination	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
Material Haul Truck Trips	67	67	7	7	7	7
Passenger Vehicles	10	10	0	0	0	10
Other[1]	**2**	**2**	**0**	**0**	**0**	**0**
Totals	**79**	**79**	**7**	**7**	**7**	**17**
Overall Totals	**158**		**14**		**24**	
Percentage of ADT	**100%**		**9%**		**15%**	

Source: Employee vehicle trips and on-road haul truck trips based on "Gem Hill Quarry Trip Generation Assessment (Revised)" (Urban Crossroads 2021). Other trips based on "Application Form for Surface Mining Permit and Reclamation Plan" submitted by CalPortland for the Gem Hill Quarry, accepted by Kern County on May 25, 2021.
Notes:
1. Other vehicles correspond to fuel, maintenance, serviced, and miscellaneous vehicle trips as listed in **Table 3-5**, *Vehicles and Average Daily Trips*. Assumes total of 2 other trips per day with none during AM or PM peak periods.

3.4.8 Water Use

A water well and water tank are proposed to be drilled and constructed within the northern portion of the project site, from which water would travel south via a water line to a stand pipe with tank, as shown on **Figure 3-4,** *Proposed Mine Plan*. The well, water line and tanks would provide water for dust suppression within the project site. A 4,000-gallon water truck would be used to apply water for dust control. It is anticipated that up to four truckloads of water per day, six days per week, would be applied for dust control. Based on these rates, water use is estimated to be up to approximately 18 acre-feet (AF) per year. Total water usage over the proposed 30-year life of mine is 540 acre-feet. Annual and total water usage is summarized in **Table 3-7**, *Proposed Water Use*.

Table 3-7 Proposed Water Use

Water Source	Annual Water Usage	Total Water Usage (Gallons)
Onsite Well	18 acre-feet	540 acre-feet over project lifespan obtained from produced water from onsite well.

Water produced in the onsite groundwater well would not be used for domestic purposes. Bottled drinking water for workers would be transported to the site as necessary. No surface water would be used for project operations, and the project would not involve diversions or storage of surface water for water supply. Portable toilets would be provided for use by employees and would be located at various locations on the site, including at the scale and near locations of active mining. No water or wastewater treatment facilities are needed and no wastewater would be produced as a result of project operations.

All necessary permits and approvals shall be obtained in conjunction with extracting groundwater; it is expected that such permits and approvals would be required to be obtained, at a minimum, from the Kern County Public Health Services Department/Environmental Health Division and from the California Regional Water Quality Control Board, Lahontan Region (Lahontan RWQCB).

3.5 Project Objectives

The proposed project is intended to achieve the following objectives as identified by the project proponent:

- Provide a reliable, sustainable, local source of high-quality pozzolanic volcanic tuff materials to help reduce CalPortland's CO_2 emissions by up to 20% by using the resource as a replacement for cement clinker and scarce and undependable supplies of fly ash.
- Provide for maximum annual production of up to 500,000 tons of pozzolanic volcanic tuff materials, which would reduce CalPortland's CO_2 footprint by as much as 500,000 tons of CO_2 annually.
- Create an environmentally sound project that would balance the recovery of the pozzolanic volcanic tuff resource with the protection of other resources including wildlife habitat, sensitive and special-status species, groundwater, surface water, and air quality.
- Mine in a location that contains sufficient land with surrounding compatible uses.
- Mine in an area in proximity to CalPortland's cement plants and other users of pozzolanic volcanic tuff, and near the intended market areas, thereby alleviating current and future traffic and associated impacts.
- Provide a final reclamation land surface that is consistent with the proposed end use as open space and the adjacent desert areas.
- Create new and maintain existing levels of employment into the future.

3.6 Proposed Discretionary Actions/Required Approvals

Kern County, as the California Environmental Quality Act (CEQA) Lead Agency for the project, has primary discretionary approval authority over the project. The project would also be required to obtain, at a minimum, the following discretionary permits/approvals included in **Table 3-8,** *Proposed Discretionary Actions/Required Approvals*.

Table 3-8 Proposed Discretionary Actions/Required Approvals

Agency	Required Plan or Approval
Local	
Kern County	• Certification of an Environmental Impact Report • Adoption of a Mitigation Measure Monitoring Program (MMMP) • Adoption of CEQA Findings pursuant to State CEQA Guidelines Section 15091 • Adoption of CEQA Statement of Overriding Considerations pursuant to State CEQA Guidelines Section 15093 • Approval of a Conditional Use Permit • Approval of a Reclamation Plan • Approval of a Water Well Permit • Permit for Explosives (Sheriff's Office)
Regional	
Eastern Kern Air Pollution Control District (EKAPCD)	• Fugitive Dust Emission Control Plan
State	
Regional Water Quality Control Board, Lahontan Region (Lahontan RWQCB)	• Waste Discharge Permit, if required
California Department of Fish and Wildlife (CDFW)	• California Fish and Game Code Section 1602 Streambed Alteration Agreement
State Water Resources Control Board (SWRCB)	• National Pollutant Discharge Elimination System (NPDES) Industrial General Permit and Stormwater Pollution Prevention Plan (SWPPP) • NPDES Industrial General Permit and SWPPP or Notice of Non-Applicability (NONA)
Federal	
U.S. Fish and Wildlife Service (USFWS)	• Approval of appropriate permits, if required

3.7 Cumulative Effects Overview

According to Section 15355 of the State CEQA *Guidelines*, 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.

Kern County *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* requires a 6-mile radius to assess cumulative impacts because development in rural areas tend to affect a larger geographical area than development located in urban areas (Kern County 2006). Kern County records were reviewed to determine the number of permitted or planned projects within the 6-mile radius of the project site.

The cumulative analysis in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR is based on a qualitative and quantitative cumulative analysis, which includes all of the projects located within a 6-mile radius of the proposed project, other mining-related projects ("like projects") within the County, as well as growth projections to the Year 2030. Different resource-specific analyses use this 6-mile radius unless specific methodology deems other supplemental approaches are appropriate.

The *Kern County General Plan* is the primary guide for land development in the vicinity of the proposed project. The Land Use, Open Space, and Conservation Element assumes continued growth in commercial and industrial development similar to the current growth rate and anticipates the future growth rate would parallel the future residential growth rate in the unincorporated areas of the County. The proposed project is considered part of this projected growth. Pending projects within the *Kern County General Plan* area in the vicinity of the proposed project are identified in **Table 3-9,** *Cumulative Projects List*, and on **Figure 3-9,** *Cumulative Projects Map*. These projects were considered when analyzing cumulative conditions and impacts.

Table 3-9 Cumulative Projects List

Map ID	Project Name	Location	Project Description	Project Site APN	Acreage	Project Status
Mining Projects						
1	PLN18-01957	14964 Tehachapi-Willow Springs Rd, Mojave, CA*	Mining, zone change, 200-year proposed life.	237-032-016	356.43	Processing
2	PLN19-01409	See APN.**	CUP for an underground mining operation and development of a surface reclamation plan in accordance with SMARA. The applicant proposes to extract gold and silver ore. Surface disturbance will be limited to approximately 2.4 acres (all of which has been previously disturbed as a result of past mining operations) on a portion of three parcels totaling 260 acres in size.	346-021-02	260	Applied
3	PLN20-00213	2850 Silver Queen Rd, Mojave, CA**	Proposed addendum to an EIR approved for a surface mining and reclamation plan (CUP 27, Map 196; CUP 41, Map 213; CUP 22, Map 214).	429-190-069	44.18	Applied
4	PLN20-01370	See APN.	CUP for a surface mining and reclamation plan; CUP to allow permanent asphalt and concrete batch plants; Zone Change from A-1 MH to A; amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservations.	154-050-12	--	Applied
5	PLN20-01368	See APN.	(a) Zone Change from A-1 to within the south half of Sections 13 and 14, T11N/R22W, SBBM; (b) Expansion of existing surface mining operation from 802 acres to 4,011 acres; (c) Operation of a concrete batch plant, asphalt batch plant, and asphalt and concrete processing plant.	239-041-11	--	Applied
6	PLN21-00287	Bakersfield, CA.	Surface mining operation and development of a reclamation plan.	181-321-21	--	Applied

Table 3-9 Cumulative Projects List

Map ID	Project Name	Location	Project Description	Project Site APN	Acreage	Project Status
Non-Mining Projects						
7	PLN18-01195	NW of Holt Street, Mojave*	Conditional Use Permit, Map 196-19, Storage of LNG.	427-111-11	--	Applied
8	PLN18-01379	9201 West Avenue A, Rosamond*	Extension of Conditional Use Permit, Case # 106, Map 231, Notice of Decision 104-15.	374-450-09	--	Applied
9	PLN18-01739	Near Willow Ave. in Rosamond CA**	Conditional Use Permit, Map 232, Rosamond 7 Solar Project.	359-331-16	--	Applied
10	PLN18-01868	7337 Avenue A, Rosamond*	Modification of Conditions for CUP 107, Map 231.	374-132-306	2.19	Applied
11	PLN18-01924	13900 90th Street West, Mojave*	CUP for construction and operation of 20-megawatt solar photovoltaic electrical generating facility.	237-054-036	159.52	Approved
12	PLN18-01954	See APN.**	Solar/Wind - 60 megawatt (MW) (AC) facility, or alternatively, could be developed as three independent, 20 MW facilities on approximately 160 acres.	346-022-031	320.42	Processing
13	PLN18-01973	102 90th Street West, Rosamond*	Commercial Solar Project, 1854 acres, 400 MW, 7 sites.	374-020-402	8.41	Processing
14	PLN18-01976	See APN.**	Solar/Wind - GPA to change map code, zone change, CUP for solar energy and communications tower.	252-341-482	--	Processing
15	PLN18-01977	See APN.*	Solar/Wind Substation, warehouse, admin buildings.	430-011-031	651.89	Processing
16	PLN18-02040	See APN.**	Precise Development Plan and Zone Change, Map 231-15, Warehouse/Storage.	252-190-129	2.55	In Review
17	PLN18-02184	4551 170th Street West, Rosamond, CA*	Development of 128 MW PV solar with energy storage on 2,557 acres.	358-010-015	2,557	Processing

Table 3-9 Cumulative Projects List

Map ID	Project Name	Location	Project Description	Project Site APN	Acreage	Project Status
18	PLN19-01260	0 Rosamond Blvd, Rosamond, CA.**	CUP 2, Map 231-13 for EOT - Apt Complex.	252-161-492	2.51	Applied
19	PLN19-01446	See APN.**	Map 230 for GPA/ ZCC/ PD Hotel Development.	471-022-079	460	In Review
20	PLN19-01878	8009 Oak Creek Rd, Mojave*	Site Plan Review for Tehachapi Energy Storage 1 Project - 77MW / 77MWh Battery Energy Storage System.	237-031-042	636.36	Processing
21	PLN19-02124	See APN.*	Oasis Repower Project to remove 60 smaller turbines to be replaced with 22 new larger turbines at existing wind farm.	237-222-062	20.16	Applied
22	PLN19-02279	6643 Dogwood Ave., Rosamond, CA 93560**	CUP, Map 231 to allow the use of Cargo Containers on a Residential Lot.	374-141-117	2.48	In Review
23	PLN19-02661	See APN.*	CUP, Map 230 for Auto Auction Facility.	473-023-166	45.86	Applied
24	PLN20-00083	See APN.*	CUP, Map 198 for RV and Shooting Range.	237-064-480	7.35	Applied
25	PLN20-00253	See APN.**	ZCC, PD, Map 231-16 to allow a zone change from OS to M-1 PD to allow the development of six (6) 5,000 sq. ft buildings for light industrial/storage use.	252-171-095	2.53	Applied
26	PLN20-01391	See APN.**	Map 231-21, SPA, ZCC, CUP - Gettysburg Solar Project.	374-011-06	--	Applied
27	PLN20-01438	See APN.**	Map 230, ZCC - 120 Unit SFR Development.	472-100-63	--	Applied
28	PLN21-00001	See APN.**	Develop 5 MW utility-scale solar facility and associated infrastructure on approximately 39 acres.	359-183-027	39.18	Applied
29	PLN21-00014	See APN.**	Maps 214-30, 214, 215; GPA, ZCC, CUP - Sagebrush Solar Storage, LLC.	346-031-05	--	Applied

Table 3-9 Cumulative Projects List

Map ID	Project Name	Location	Project Description	Project Site APN	Acreage	Project Status
30	PLN21-00021	Approx. 1.5-mile southeast of Rosamond Blvd and SR 14.**	Map 230-21, CUP - Auto Dismantling & Recycling.	258-160-26	--	Applied
31	PLN21-00285	See APN.**	Map 213, GPA, ZCC, PD - Steel Micro Mill Mfg. Facility.	431-010-02	--	Applied
32	PLN21-00520	See APN.*	Map 230, CUP for Solar Farm Accessory to Water Treatment Facility.	471-040-01	--	Applied
33	PLN21-00524	8009 Oak Creek Rd, Mojave, CA.*	Battery Energy Storage System Accessory to an existing Large Wind-Driven Electrical Generator Facility.	237-031-042	636.36	Applied
34	PLN21-01191	See APN.*	Map 214, 215, 231, 232; GPA, ZCC, CUP - Bullhead Solar Facility.	474-232-25	--	Applied
35	PLN21-01380	See APN.**	Map 213 - GPA and SPA to Kern County General Plan and Willow Spring Specific Plan to designate the site as Solid Waste Disposal Facility and CUP to allow a renewable energy facility on 117 acres.	429-101-30 thru 37	--	Applied
36	PLN21-01618	See APN.*	Map 213, CUP to allow a 5 MW solar power facility; ZV to allow a 265 ft tall power tower.	429-06-013 thru 19	--	Applied

Notes:
* Indicates that the cumulative project is located within 1 mile of the proposed project.
** Indicates that the cumulative project is located within 6 miles of the proposed project.
CUP = Conditional Use Permit, GPA = General Plan Amendment, SP = Specific Plan Amendment, ZCC = Zoning Classification Change, -- = Information not available

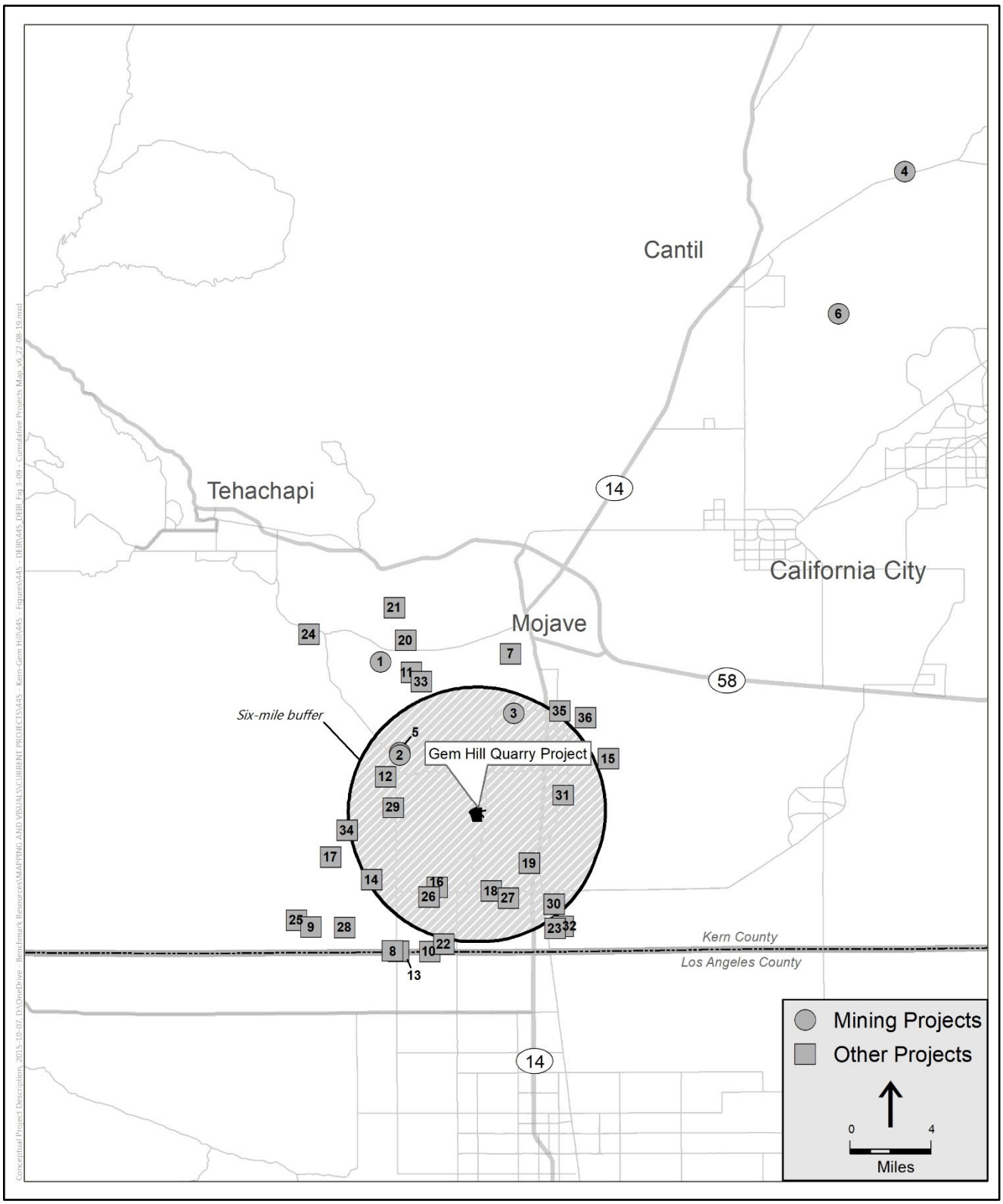


Figure 3-9
Cumulative Projects Map

Section 4.1
Aesthetics

4.1.1 Introduction

This section of the Environmental Impact Report (EIR) discusses impacts associated with the potential for the proposed project to degrade the existing visual character or quality of the project site and its surroundings through changes in the existing landscape. Potential effects are evaluated relative to important visual features (e.g., scenic highways, scenic features) and the existing visual landscape and its users.

Degradation of the visual character of a site is usually addressed through a qualitative evaluation of the changes to the aesthetic characteristics of the existing environment, and the project-related modifications that would alter the visual setting.

Aesthetics, as addressed in the California Environmental Quality Act (CEQA), refers to visual considerations in the physical environment. Because a person's reaction and attachment to a given viewshed are subjective, visual changes inherently affect viewers differently. Accordingly, aesthetics analysis, or visual resource analysis, is a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The *Aesthetics* section of this EIR describes the existing landscape character of the project site and surrounding area; existing views of the site from various on-the-ground vantage points; the landscape changes that would be associated with the project, as seen from various vantage points; and the degree to which those changes could adversely affect viewers at these locations.

This analysis uses visual simulations prepared for the proposed project (included as **Figures 4.1-4** through **4.1-18** in this section). Regulatory standards were also investigated and analyzed, including the *Kern County General Plan* and the Kern County Zoning Ordinance.

Visual Resource Terminology and Concepts

When viewing the same landscape, people may have different responses to that landscape and any proposed visual changes, based on their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person's attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. However, generalizations can be made about viewer sensitivity to scenic quality and visual changes. Recreational users (e.g., hikers, equestrians, tourists, people driving for pleasure) are expected to have high concern for scenery and landscape character. People who are commuting daily through the same landscape generally have a moderate concern for scenery, while people working at industrial sites generally have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is affected by the viewing distances at which it is seen, such as close-up or far away. The visual sensitivity of a landscape also is affected by the travel speed at which a person is viewing the landscape (high speeds on a highway, low speeds on a hiking trail, or stationary at a residence).

Visual quality, which is a measure of a landscape or view's visual appeal, is evaluated according to the presence and characteristics of seven key components of the landscape:

1. landform,
2. vegetation,
3. water,
4. color,
5. adjacent scenery,
6. scarcity, and
7. cultural modifications.

Visual character is qualitatively defined by four primary components:

1. form,
2. line,
3. color, and
4. texture.

Generally speaking, projects that create a high level of contrast to the existing visual character of a project setting are more likely to generate adverse visual impacts because of visual incompatibility. Conversely, projects that create a low level of contrast to the existing visual character are less likely to generate adverse visual impacts because of inherent visual compatibility. The severity of project-related visual impacts can be quantified by comparing the difference in visual quality ratings from the baseline conditions (before) to post-project conditions (after).

4.1.2 Environmental Setting

Regional Character

The project site is located in a mostly undeveloped portion of the western Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The Antelope Valley is formed by the Tehachapi Mountains to the northwest and San Gabriel Mountains to the southwest. The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Wind energy systems (windmills) are a dominant visual element on the landscape within the region south of Tehachapi and north of the project site. Clay, silver, and gold mining have been conducted at various locations in the area since the 1890s with gold mining continuing at the Soledad Mountain Golden Queen Mine located approximately 5 miles north of the project site. Former and ongoing mine areas are visible and create locally dominant landscape features in the region.

The region is characterized by the expansive valley floor, interspersed with occasional low rolling hills and small ranges. The soil of the hills is often a distinctive dark red and brown that contrast with the tan and orange soils of the valley landscape.

Local Character

The project site is located west of Mojave-Tropico Road, approximately 4 miles north of the unincorporated community of Rosamond. The 210.75-acre project site consists of rolling to steep topography within the south and southeast facing slopes of the Rosamond Hills. The site primarily consists of undeveloped land, with several unpaved roads that traverse the site and two recently graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation with gently sloping and more level areas at slope bottoms supporting moderately denser vegetation cover. Creosote bush scrub represents the predominant vegetation cover throughout the site. Existing site disturbance includes several dirt roads and trails, as well as two recently graded pads in the southern portion of the site and a graded unpaved road connecting the site with Mojave-Tropico Road.

Mojave-Tropico Road is east of the project site and provides the nearest publicly accessible views of the site. **Figure 4.1-1**, *Existing View of the Project Site from Mojave-Tropico Road*, demonstrates the existing site character with areas of varied vegetation density and topography, and a recently graded pad area identifiable by its linear tan colored south facing slope near the center of the photograph. Seasonal changes in vegetation occur, with greater variation in color and flowing plant species most commonly present in springtime.

4.1.3 Regulatory Setting

State

California Environmental Quality Act

State CEQA *Guidelines* Section 15382 defines a "significant effect" on the environment to mean a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

California State Scenic Highway System

The California Department of Transportation (Caltrans) administers the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to the highways. The Caltrans Scenic Highway Coordinators maintain a list of highways that are either eligible for designation as scenic highways or have already been officially designated (Caltrans 2022). No Kern County highways are officially designated as State scenic highways. The segment of SR-58 between Mojave and Barstow is eligible for designation as a State scenic highway, but it has not

been formally designated (Caltrans 2022). Additionally, the segment of SR-14 between Highway 395 and SR-58 is eligible for designation as a State scenic highway, but it has not been formally designated (Caltrans 2022). These segments are over 12 miles north of the project site.

Local

Kern County General Plan

The project would be subject to applicable policies and measures of the Land Use, Open Space, and Conservation Element of the *Kern County General Plan*. The Land Use, Open Space, and Conservation Element includes the following policies and implementation measures related to aesthetics and visual resources that would apply to the project.

Chapter 1. Land Use, Open Space, and Conservation Element

1.10 General Provisions

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

- **Implementation 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

2.3 Highways

2.3.9 Scenic Route Corridors

Policies

- **Policy 1.** Kern County should consider designating local scenic highway routes, where appropriate, throughout the County.
- **Policy 2.** Various methods of protecting, and enhancing the scenic qualities of land and uses within corridor boundaries must be devised and carried out.
- **Policy 3.** Standards for corridor protection should parallel those established by State Scenic Highway Law (1963) and outlined in State guidelines.



Figure 4.1-1
Existing View of Project Site from Mojave-Tropico Road (Facing Northwest)

Implementation Measures

- **Implementation Measure A.** Caltrans has the responsibility for coordinating Scenic Highway programs. Caltrans will not act on programs until the local government requests aid from that agency. Caltrans will coordinate and conduct two studies. Caltrans calls the studies "Corridor Survey" and "Highway Facility Study." Results of these two studies will be presented in a comprehensive Scenic Highway Report. The Report will contain maps, photographs, and other documentation showing:

    5. Suggested Scenic Highway Corridor boundaries.
    6. Scenic elements within the suggested corridor.
    7. The relationship of the right-of-way to its environment.
    8. Suggested preservation of the scenic and aesthetic elements of the visual environment.
    9. Any proposed realignments of the route, if known.
    10. Potential locations of roadside rests, vista points, and areas for public or commercial information sites.

  California gives the local jurisdiction the approved Caltrans' report to use in preparation of a local scenic corridor protection and enhancement plan and program.

- **Implementation Measure B.** Kern County Planning and Natural Resources Department shall prepare as needed, with aid from Caltrans, Scenic Route Corridor Specific Plans. These specific plans shall include circulation, land use, open space and conservation plan maps and appropriate implementation measures. The plan should provide for the protection and enhancement of the existing natural and man-made scenic resources for the routes California includes in the State Master Plan of Scenic Highways. The scenic corridor boundaries and Scenic Route Corridor Specific Plan, identifying the land use regulation measures used within the corridor, shall be adopted by the Board of Supervisors. Upon adoption of the plan, the County shall apply to the District Director of Transportation for official State designation as an Official State Scenic Highway.

- **Implementation Measure C.** County roads may be set as official County Scenic Highways by the Board of Supervisors after the State Director of Transportation has found that all requirements are met. All standards and procedures prescribed for State Scenic Highways shall apply to County Scenic Highways. The Department of Transportation will not undertake a Scenic Highway Study but will be available upon request by the local jurisdiction to consult about the technical aspects of this program. The Planning Department is responsible for doing a case study.

- **Implementation Measure D.** The County has adopted a Scenic Corridor (SC) Combining District to designate areas which contain unique visual and scenic resources as viewed from a major highway or freeway and for the regulation of off-site advertising signs, where the siting of such signs need to be reviewed on a case-by-case basis to safeguard the scenic qualities of the natural environment and the visual qualities of primary entranceways into the County.

Kern County Ordinance

Title 19 – Zoning Code

Chapter 19.80 – Special Development Standards

Section 19.80.030 – Development and performance standards—Commercial and industrial districts

All development in the CO, C-1, C-2, CH, M-1, M-2, and M-3 districts, and, where specified, in the A and NR districts, shall comply with the following standards:

J. All exterior lighting shall be directed away from adjacent properties and roads. When lighting would be visible from a residential district or adjacent public roads, the lighting standards shall be equipped with glare shields or baffles and shall not exceed forty (40) feet in height above grade. Lighting within areas containing the H (airport approach height combining) district, or otherwise located within one-half (½) mile of any public airport or public use airstrip, shall additionally be developed and maintained as required by subsection (A) of Section 19.76.125 of this title. Light fixtures shall be maintained in sound operating condition at all times.

Section 19.81 – Outdoor Lighting "Dark Sky Ordinance"

Section 19.81.040 – General requirements

The following standards shall apply to all outdoor lighting fixtures subject to this ordinance.

A. *Shielding.* All outdoor lighting fixtures which utilize one hundred (100) watts or more (based on an incandescent bulb), or emit one thousand six hundred (1,600) lumens or more per fixture, shall be fully shielded per the definition listed in this chapter, unless the fixture is exempted by this chapter. All floodlights which utilize less than one hundred (100) watts per fixture must be at least partially shielded to reduce light spillover onto adjacent properties. Additionally, the light source (bulb) within all lighting fixtures shall be oriented downward to prevent direct uplighting, except as permitted by Section 19.81.040(F).

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

Potential impacts to visual resources near the project site were evaluated based on the following criteria:

- existing visual quality and scenic attributes of the landscape;
- location of sensitive receptors in the landscape;

- assumptions about receptors' concern for scenery and sensitivity to changes in the landscape;
- the magnitude of visual changes in the landscape that would be brought about by operation of the project;
- compliance with State, County, and local policies for visual resources; and
- the significance threshold questions in relation to aesthetics contained in Kern County's CEQA Implementation Document and Environmental Checklist.

Photographs of existing landscape conditions and photographic simulations of anticipated future conditions are provided in this section to portray existing conditions, the project, and the project's changes to the visual character of the landscape.

Baseline data on visual resources were collected using an approach that incorporated a combination of information review, agency consultation, analysis of aerial photographs and satellite imagery, map review, field reconnaissance, and on-site and off-site photography. The existing visual setting and character of the area is discussed above in **Section 4.1.2**, *Environmental Setting*, and represents the baseline conditions against which project impacts are compared. Further discussion of existing visual character is provided below as related to individual viewpoints used for assessing project impact significance.

Project Site Visibility

Because of its proximity to the project site, Mojave-Tropico Road is the primary public viewing location of the project site; however, views of the site from more distant publicly accessible areas are also available. The quarry would be located in a natural horseshoe/bowl-shaped landform with a southeastern exposure with ridges and hills on the west to elevations of approximately 3,200 feet amsl, to the north (Gem Hill) at an elevation of approximately 3,200 feet amsl), and to the east at an elevation of approximately 2,750 feet amsl. The quarry would remain below these ridgelines with limited project-related disturbance or activities visible from areas to the north, west, and east. The project site is visible in views from some areas to the south, southeast, and southwest, while other areas to the south have limited to no views of the site due to intervening vegetation, terrain, and structures. The site is most readily visible to northbound motorists along Mojave-Tropico Road southeast and east of the site as shown above in **Figure 4.1-1**, *Existing View of the Project Site from Mojave-Tropico Road*, and discussed further at Impact 4.1-2, below. Although the site is visible from areas to the south and southeast, the site is not considered to be located within the viewshed of a scenic vista as no scenic vistas have been identified from which the site would be visible.

Analysis Methodology

The findings of this study are based on field visits conducted in August 2021 and March 2022, including review of the site and surrounding area. Resource inventories were conducted both through field investigation as well as review of aerial photography. Existing visual resources and site conditions were photographed and recorded. Assessment of project elements is based on project design, including digital topographic data, plan and profile view drawings of project features, and descriptions of the project as proposed by the project proponent and as presented in **Chapter 3**, *Project Description*, of this EIR. Planning documents and approved studies relevant

to the project and the surrounding area were referenced to gain an understanding of the project, applicable regulatory requirements, and established aesthetic values.

The project site was viewed from potential public viewer group locations throughout the surrounding area. Representative viewpoints were identified for further analysis, based on dominance of the site within the view, duration of views, and expected sensitivity of the viewer group. Of those potential viewpoints, Kern County selected five key observation points (KOPs) for photosimulations that would best illustrate the visual changes resulting from the project (**Figure 4.1-2,** *Key Observation Points Map*).

Photographs were taken with a 35-millimeter (mm) lens set to an approximately 50 mm focal length to replicate the unaided view of the human eye. Accuracy of the visual simulations was ensured by analyzing the known dimensions and elevations of existing site features and landform, combined with three-dimensional topographic mapping analysis using computer aided drafting (CAD) software, and empirical field observation. The simulations were used to identify and quantify potential project visibility and related impacts, and to consider possible mitigation measures.

Photosimulations were prepared to portray potential project visibility and to assess related visual effects. Images of the existing views as well as photosimulations of the proposed project from the KOPs are shown below at Impact 4.1-2 (see **Figures 4.1-4** through **4.1-18**).

Project Phasing Assumptions and Photosimulations

As identified in **Chapter 3**, *Project Description*, initial project activities would involve developing site access roads, on-site haul roads, and stormwater basins. A specific sequence of active mining operations and overburden placement is not defined at this time.

For the purpose of photosimulations, the visual analysis assumes that project disturbance could occur throughout the planned disturbance area illustrated on **Figure 4.1-3**, *Proposed Mine Plan*. Disturbance and site modification would occur over the 30-year life of operations followed by site reclamation. The quarry and overburden stockpiles would become increasingly visible over the 30-year life of operations, and are anticipated to be less visible during initial site development and mining and more visible as they increase in size over the life of the operation. To provide a conservative evaluation (i.e., tending toward overestimating as opposed to underestimating potential impacts), the photosimulations depict the project site's estimated appearance with the mine area fully excavated, topsoil stockpile at its maximum anticipated size, and overburden stockpiles fully developed, although this fully mined condition would not occur until near the end of the 30-year life of mine. Although some concurrent reclamation, including revegetation, would be implemented during the period of mining, simulations of the fully mined condition conservatively represent the site without reclamation implemented. Additional photosimulations illustrate the project with the proposed reclamation implemented.

Visual Quality Ratings

This analysis includes the "Scenic Quality Rating Criteria" method developed by the U.S. Bureau of Land Management (BLM) as a methodology for assessing the various landscape elements that comprise visual quality to be quantified and rated with a minimum of ambiguity or subjectivity (BLM 1986).

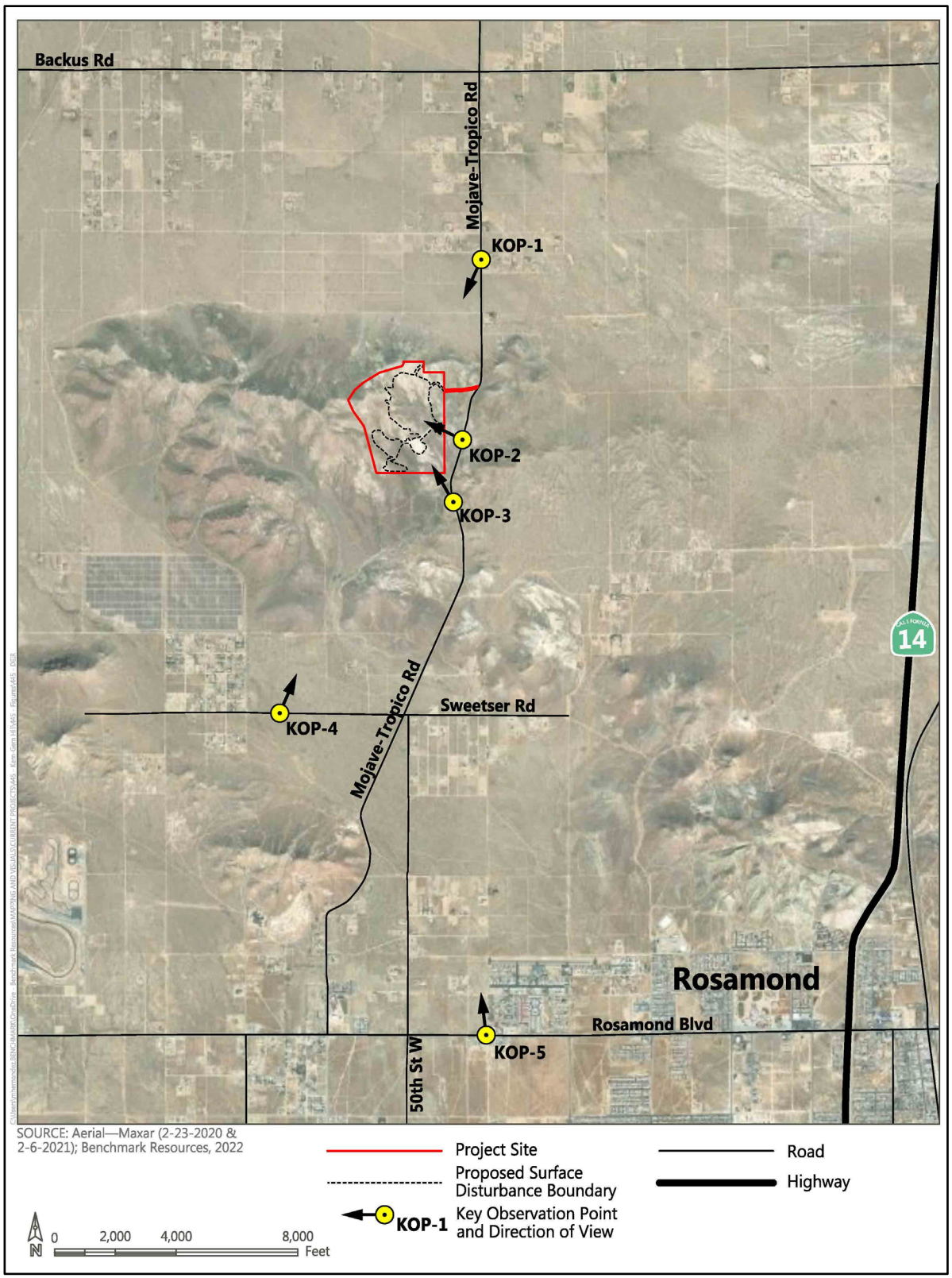


Figure 4.1-2
Key Observation Points Map

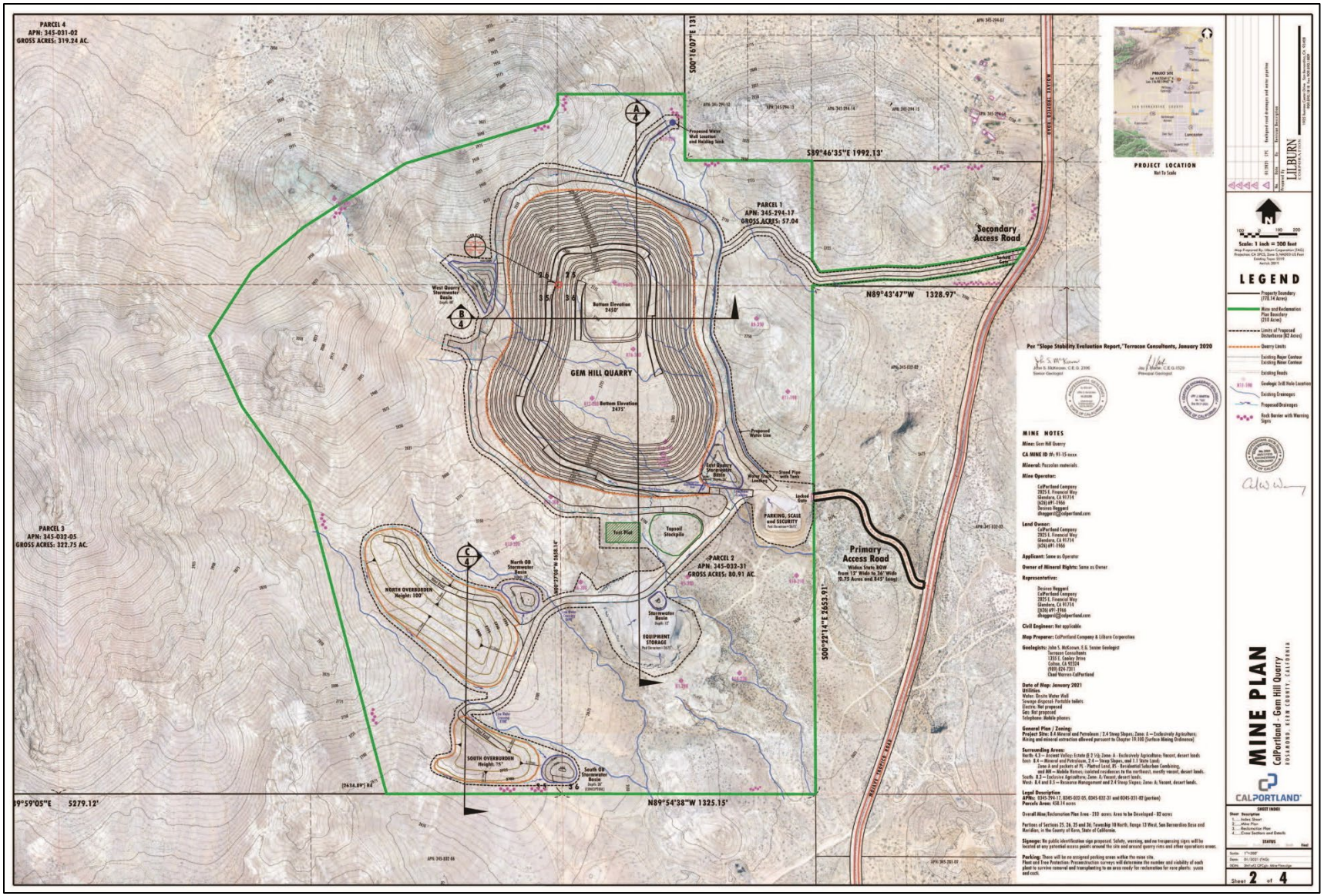


Figure 4.1-3
Proposed Mine Plan

According to this method, visual quality is rated according to the presence and characteristics of seven key components of the landscape, which include landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications:

1. The ***landform*** component of the visual quality rating criteria considers 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).
2. The ***vegetation*** component of the rating criteria 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, etc.).
3. The ***water*** component of the rating criteria 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.
4. The ***color*** component of the visual quality rating criteria considers the overall color(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.). Key factors that are used when rating the color of scenery are variety, contrast, and harmony.
5. The ***adjacent scenery*** component of the rating criteria considers the degree to which scenery outside the view being rated enhances the overall impression of the scenery under evaluation. 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.
6. The ***scarcity*** component of the visual quality rating criteria 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 of the key factors 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.
7. The cultural modifications component of the visual quality rating criteria considers any man-made modifications to the landform, water, vegetation, and/or the addition of manmade 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.

Based on the above criteria, views are rated numerically and a total score of visual quality is tabulated. Based on the BLM's rating system, there are a total of 32 points possible. Views that score a total of 19 points or more are typically considered very high in visual quality. Views that

score a total of 15 to 19 points are typically considered to have a high level of visual quality. Views that score a total of 12 to 15 points are typically considered to have an above average level of visual quality. Finally, views that score a total of 11 points or less are typically considered to have average visual quality. Point values associated with the various criteria are described in **Table 4.1-1,** *Visual Quality Rating System*.

Table 4.1-1 Visual Quality Rating System

Key Factors	Rating Criteria and Score		
Landform	**5 Points:** High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops, or severe surface variation or highly eroded formations including major badlands or dune systems; or detail features dominant and exceptionally striking and intriguing such as glaciers.	**3 Points:** Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features which are interesting though not dominant or exceptional.	**1 Point:** Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features.
Vegetation	**5 Points:** A variety of vegetative types as expressed in interesting forms, textures, and patterns.	**3 Points:** Some variety of vegetation, but only one or two major types.	**1 Point:** Little or no variety or contrast in vegetation.
Water	**5 Points:** Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape.	**3 Points:** Flowing, or still, but not dominant in the landscape.	**1 Point:** Absent, or present but not noticeable.
Color	**5 Points:** Rich color combinations, variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields.	**3 Points:** Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element.	**1 Point:** Subtle color variations, contrast, or interest; generally mute tones.
Influence of Adjacent Scenery	**5 Points:** Adjacent scenery greatly enhances visual quality.	**3 Points:** Adjacent scenery moderately enhances overall visual quality.	**1 Point:** Adjacent scenery has little or no influence on overall visual quality.
Scarcity	**5 Points:** One of a kind, or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc.	**3 Points:** Distinctive, though somewhat similar to others within the region.	**1 Point:** Interesting within its setting but fairly common within the region.
Cultural Modifications	**2 Points:** Modifications add favorably to visual variety while promoting visual harmony.	**0 Points:** Modifications add little or no visual variety to the area and introduce no discordant elements.	**-4 Points:** Modifications add variety but are very discordant and promote strong disharmony.
	Total Score for All Categories: Out of 32		

Source: BLM 1986.

An important aspect of this evaluation methodology is that views with the most variety and most harmonious composition have the greatest scenic value. Another important concept is that manmade features within a landscape do not necessarily detract from the scenic value. In fact, certain manmade features that complement the natural landscape may actually enhance the visual quality. In making this determination, it is therefore important to assess project effects relative to the visual character of the project setting. Visual character is qualitatively defined by four primary components: form, line, color, and texture.

Projects that create a high level of contrast to the existing visual character of a project setting are more likely to generate adverse visual impacts due to visual incompatibility. Conversely, projects that create a low level of contrast to the existing visual character are less likely to generate adverse visual impacts due to inherent visual compatibility. On this basis, project modifications are quantified and evaluated for impact assessment purposes.

By comparing the difference in visual quality ratings from the baseline ("before" condition) to post-project ("after" condition) visual conditions, the severity of project-related visual impacts can be quantified.

In consideration of the five KOPs in combination, views of the existing project site and proposed modifications have been rated numerically and shown in **Table 4.1-2,** *Visual Quality Rating Analysis*. This analysis tool is used to gain a more detailed understanding of the specific characteristics that affect the visual quality of the site and the proposed changes. The results of the Visual Quality Rating Analysis are incorporated into the CEQA thresholds findings discussed below.

Table 4.1-2 Visual Quality Rating Analysis

Rating Feature	Existing Conditions	Project Site has been Fully Mined but Reclamation has not Commenced	Project Site has been Fully Mined and Fully Reclaimed
Landform	**4 Points:** The project site includes prominent landform features including natural rock outcrops, distinct ridges and drainage channels, which contribute to the visual quality and memorability of the view as seen from the public highway.	**2 Points:** The project would result in artificial, engineered landforms (e.g., quarry slopes and overburden stockpiles) visually inconsistent with the adjacent natural topography. The close proximity of the project to Mojave-Tropico Road and orientation of slopes providing visibility of the site in views from the south would increase the noticeability of the altered landforms.	**2 Points:** The project would result in artificial, engineered landforms visually inconsistent with the adjacent natural topography. The close proximity of the project to the highway would substantially increase the noticeability of the altered landforms (i.e., fully reclaimed contours are proposed to be the same as fully mined contours).
Vegetation	**3 Points:** Vegetation in the area is limited to creosote brush scrub community with an approximate coverage of 30 percent in lower portions of the site and less to no coverage in steeper higher elevations of the site. Blooming	**1 Points:** Disturbed areas would be void of vegetation. The project would disturb up to approximately 82.2 acres of the 210.75-acre site.	**2 Points:** Reclamation of the site would include revegetation of stockpiles and other disturbed areas resulting in vegetation visually similar to the existing condition vegetation. Quarry slopes and on-site roads to be

Table 4.1-2 Visual Quality Rating Analysis

Rating Feature	Existing Conditions	Project Site has been Fully Mined but Reclamation has not Commenced	Project Site has been Fully Mined and Fully Reclaimed
	periods consist of greater vegetation visibility and contrast.		permanently retained would remain unvegetated.
Water	**1 Point:** There are seasonal drainages in the area but no visible water other than during rain events.	**1 Point:** The project would reduce intermittent surface flow in drainages downstream of the site but otherwise would not alter the visibility of water in the vicinity.	**1 Point:** The project would reduce rain-event surface flow in drainages downstream of the site but otherwise would not alter the visibility of water in the vicinity.
Color	**3 Points:** In the project vicinity, there is some color variation between ground plane, exposed road cuts, and scattered vegetation. The project site is generally light-colored with darker areas where rock outcrops and higher densities of vegetation occur.	**1 Point:** The project would expose light-colored volcanic tuff on the quarry face; overburden stockpiles are expected to have color similar to existing surface conditions but absent color contrast of vegetation.	**2 Points:** Reclamation of the site would result in vegetation visually similar to the existing condition vegetation, with the exception of quarry walls that would remain with limited vegetation cover.
Influence of Adjacent Scenery	**4 Points:** The project site occupies a south-facing bowl-shaped portion of the Rosamond Hills. The Rosamond Hills provide topographic contrast in panoramic views from flatter areas to the north and south.	**2 Points:** The project would not reduce visibility of the adjacent scenery; however, the alteration of the natural foreground context would affect the visual harmony of the vista.	**3 Points:** The project would not reduce visibility of the adjacent scenery. Reclamation of the site would result in vegetation visually similar to the existing condition vegetation with the exception of quarry slopes that would remain with limited vegetation cover. Reclaimed conditions would affect the visual harmony of the vista to a lesser degree than the mined condition.
Scarcity	**3 Points:** Mojave-Tropico Road adjacent to the project site provides a somewhat unique vantage point of the Rosamond Hills; however, routes through hilled topographic areas are available elsewhere in the region.	**1 Points:** The project would modify the landscape of the project site and would be visible to viewers from Mojave-Tropico Road.	**2 Points:** The reclaimed site would be a modified landscape as compared to existing conditions and would be visible to viewers from Mojave-Tropico Road.
Cultural Modifications	**-1 Point:** Existing modifications of the site include graded pads, a graded access road, and trails and dirt roads that are visible from adjacent areas.	**-3 Points:** The project would introduce a mining operation and modified landforms into views from off-site publicly accessible areas.	**-2 Points:** The project site would be reclaimed to open space following completion of mining activities; however, landform modifications from mining (e.g., quarry walls and overburden stockpiles) would remain as cultural modifications of the site.
Total Score	**17 out of 32**	**5 out of 32**	**10 of 32**

Rating Summary

The Visual Quality Ratings above show that the existing visual quality rating is 17, the fully mined (but not reclaimed) rating is 5, and the fully mined and reclaimed rating is 10. Review of the ratings indicate that the factors most affecting the visual quality would be the alteration and scarring of the natural landform, combined with the project's location within the views of the adjacent Mojave-Tropico Road and other publicly accessible areas to the south of the project site.

Viewer Sensitivity

Viewer sensitivity to changes in the visual environment in the project vicinity are expected to be moderate. Viewer sensitivity is increased by the project site's visibility from areas to the south and travelers on Mojave-Tropico Road. In addition, the rural and open space character of the site and setting may increase sensitivity to visual alterations that contrast with the scenic context.

However, the expected viewer sensitivity rating is moderated by other factors. The *Kern County General Plan* and Chapter 19.81 (Outdoor Lighting "Dark Skies Ordinance") of the Kern County Zoning Ordinance include visual policy indicators related to visual sensitivity for the project area. The project would not be seen from any State- or County-designated scenic roadways and site disturbance and activities would have very limited and short-term visibility from areas to the north as a result of the intervening ridgeline along the northern portion of the project site. The number of potential viewers on Mojave-Tropico Road is moderate (1,029-vehicle average per day (Kern COG 2022, per Urban Crossroads 2022), and the project site is visible in near, middle, and distant views from various areas south, southeast, and southwest of the site.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to aesthetics. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to aesthetics if it would:

a. Have a substantial adverse effect on a scenic vista;

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

c. In nonurbanized areas, substantially degrade the existing visual character or quality of 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, it would conflict with applicable zoning and other regulations governing scenic quality; or

d. Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

The Lead Agency determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the IS/NOP and additional information regarding the following impacts:

- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

In addition to the State CEQA *Guidelines*, the Kern County Environmental Information Form (Form 108) questionnaire includes a checklist item pertaining to potential visual impacts. Item 22 asks whether a project would potentially cause a "change in scenic views or vistas from existing residential areas or public lands or roads." Analysis of this item is included in Impact 4.1-1.

Project Impacts

Impact 4.1-1: The project would have a substantial adverse effect on a scenic vista.

A substantial adverse impact to a scenic vista would occur if the project would significantly degrade the scenic landscape as viewed from public roads or from other public areas that are considered to be a scenic vista. The degree of potential impact on scenic vistas varies with factors such as viewing distance, duration, viewer sensitivity, and the visual context of the surrounding area. Scenic vistas are often panoramic views that have high-quality compositional and picturesque value. Although the site is visible from areas to the south and southeast, the site is not considered to be located within the viewshed of a scenic vista. Therefore, the project would not adversely affect a scenic vista and this impact is considered less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.1-2: The project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Project-related actions would be considered to have a significant impact on the visual character of the site if they altered the area in a way that substantially changed, detracted from, or degraded the visual quality of the site or was inconsistent with community policies regarding visual character. The degree to which that change reflects documented community values and meets viewers' aesthetic expectations is the basis for determining levels of significance. Visual contrast and compatibility may be used as a measure of the potential impact that the project may have on the visual quality of the site. If a strong contrast occurred where project features or activities attract attention and dominate the landscape setting, this would be considered a potentially significant impact on visual character or quality of the site.

Project components that are not subordinate to the landscape setting could result in a significant change in the composition of the landscape. Consideration of potential significance includes analysis of visual character elements such as land use and intensity, visual integrity of the landscape type, and other factors.

The existing visual character of the project site and its surroundings is a product of both human-disturbed and natural elements. The project site is rural and contributes to the scenic character of

the Rosamond Hills. The open space and topography in the vicinity support the visual quality of the mostly natural setting, although it is impacted by interspersed roads, rural residential development, historic and on-going mining operations, and off-road vehicle use disturbance.

In order to illustrate the degree of anticipated change that would result from the project, photographs of existing conditions were taken from the five representative viewpoints (key observation points [KOPs]) identified in **Figure 4.1-2,** *Key Observation Points Map,* and photographic simulations were prepared for each to represent anticipated views from these locations with: (1) the project site with the mine area fully excavated and overburden stockpiles fully developed but reclamation has not commenced; and (2) the project with the proposed reclamation implemented. **Figures 4.1-4** through **4.1-18** provide a series of photographs and simulations for each KOP. A discussion of each KOP and changes anticipated as a result of the project is provided below.

KOP-1 is located along Mojave-Tropico Road approximately 0.75-mile northeast of the project site. The view of the project site from this location is generally screened by intervening topography of the ridgeline along the northern portion of the project site. The existing view from this location is shown in **Figure 4.1-4**, *KOP-1: Existing Conditions (Mining Has Not Commenced)*. Although primarily screened, a small portion of hillside within the project mine area footprint is visible on the horizon beyond the ridge line and would be eliminated as a result of project mining. As shown in **Figure 4.1-5**, *KOP-1: Fully Mined but Reclamation Has Not Commenced*, the view would be very similar to the existing view with the exception of a small portion of the existing horizon view that would be removed from mining. Mining activities and equipment operation could be visible during mining of this portion of the site but would not be prolonged or substantial in the overall character of the KOP-1 viewshed. As shown in **Figure 4.1-6**, *KOP-1: Fully Mined and Fully Reclaimed*, the viewshed of KOP-1 would remain unchanged under reclaimed conditions as compared to the fully mined condition.

KOP-2 is located at the proposed primary access road intersection with Mojave-Tropico Road. The existing view from this location is shown in **Figure 4.1-7**, *KOP-2: Existing Conditions (Mining has not Commenced)*. The viewshed of KOP-2 includes the existing site access road and much of the site and surrounding area. As shown in **Figure 4.1-8**, *KOP-2: Fully Mined but Reclamation Has Not Commenced*, project-related disturbance visible from KOP-2 would include the widened access road and the upper portions of the quarry (central portion of photosimulation), the topsoil stockpile (left of center in photosimulation), and the upper portion of the north overburden stockpile (left of photosimulation). Site topography would provide substantial screening of other project components, such as the lower elevations of the quarry, and lower portions of topsoil and overburden stockpiles including the entire south overburden stockpile. The project would result in a moderate to substantial change in the project site's visual character involving the introduction of cultural modifications associated with mine area and stockpile visibility, access road widening, and asphalt paving at the primary access road intersection with Mojave-Tropico Road. During the 30-year life of mine, project equipment, vehicles, structures, and activities would also be expected to be visible from KOP-2, increasing the project's cultural modification of the site. As shown in **Figure 4.1-9**, *KOP-2: Fully Mined and Fully Reclaimed*, under reclaimed conditions, the topsoil stockpile would no longer be present as topsoil would be used for site reclamation, overburden

stockpiles would be less visible due to revegetation, and mining disturbance and the quarry perimeter road would also be less visible due to revegetation. Following the completion of reclamation, project equipment, structures, and activities would no longer be present. Although site reclamation would reduce the visibility of project-related disturbance as compared to the fully mined condition, project-related disturbance would remain visible following reclamation and the project would have a long-term effect on the visual character of the site as viewed from KOP-2.

KOP-3 is located along Mojave-Tropico Road approximately 0.2 mile southeast of the project site. The existing view from this location is shown in **Figure 4.1-10**, *KOP-3: Existing Conditions (Mining has not Commenced)*. The viewshed of KOP-3 includes much of the site and surrounding area of the Rosamond Hills. As shown in **Figure 4.1-11**, *KOP-3: Fully Mined but Reclamation Has Not Commenced*, project-related disturbance visible from KOP-3 would include the upper portions of the quarry (right portion of photosimulation), the topsoil stockpile (right portion of photosimulation), and both the north and south overburden stockpiles (left of photosimulation). These project-related disturbances and components would result in a moderate to substantial change in the project site's visual character involving the introduction of cultural modifications associated with mine area and stockpile visibility. During the 30-year life of mine, project equipment, vehicles, structures, and activities would also be expected to be visible from KOP-3. As shown in **Figure 4.1-12**, *KOP-3: Fully Mined and Fully Reclaimed*, under reclaimed conditions, the topsoil stockpile would no longer be present as topsoil would be used for site reclamation, overburden stockpiles would be less visible due to revegetation, and mining disturbance and the quarry perimeter road would be less visible due to revegetation. Although site reclamation would reduce the visibility of project-related disturbance as compared to the fully mined condition, project-related disturbance would remain visible following reclamation and the project would have a long-term effect on the visual character of the site as viewed from KOP-3.

KOP-4 is located along Sweetser Road approximately 1.5 mile southwest of the project site. The existing view from this location is shown in **Figure 4.1-13**, *KOP-4: Existing Conditions (Mining has not Commenced)*. The viewshed of KOP-4 includes upper elevations of the project site, surrounding area of the Rosamond Hills, and more distant views including overburden slopes associated with the Golden Queen Mine in the background of the viewshed. As shown in **Figure 4.1-14**, *KOP-4: Fully Mined but Reclamation Has Not Commenced*, project-related disturbance visible from KOP-4 would be primarily associated with the north overburden stockpile which would be a dominant cultural modification within the middle-ground portion of the viewshed. The overburden stockpile visibility would result in a moderate to substantial change in the character of the viewshed. As shown in **Figure 4.1-15**, *KOP-4: Fully Mined and Fully Reclaimed*, under reclaimed conditions, the overburden stockpile would be less visible due to revegetation. Although site reclamation would reduce the visibility of the stockpile as compared to the fully mined condition, the stockpile would remain visible in the VKP-4 viewshed following reclamation.

KOP-5 is located along Rosamond Boulevard approximately 3.5 miles south of the project site. The existing view from this location is shown in **Figure 4.1-16**, *KOP-5: Existing Conditions (Mining has not Commenced)*. The viewshed of KOP-5 includes upper elevations of the project site, surrounding area of the Rosamond Hills, and more distant views of

mountains in the background of the viewshed. As shown in **Figure 4.1-17**, *KOP-5 Fully Mined but Reclamation Has Not Commenced*, project-related disturbance visible from KOP-5 includes the south-facing quarry slopes (center left of photosimulation) and the north overburden stockpile (left of quarry in photosimulation) which would be a moderately visible cultural modification within the middle- to far-ground portion of the viewshed. The quarry slopes and overburden stockpile visibility would result in a moderate change in the character of the viewshed as viewed from KOP-5. As shown in **Figure 4.1-18**, *KOP-5: Fully Mined and Fully Reclaimed*, under reclaimed conditions, the quarry slopes and overburden stockpile would be less visible due to revegetation. Although site reclamation would reduce the visibility of the quarry slopes and stockpile as compared to the fully mined condition, these project features would remain visible in the KOP-5 viewshed following reclamation.

The proposed topography of the site would differ from the existing conditions of the site and surrounding unmined topography. As mining progresses and once fully mined, the quarry floor would be an essentially flat (horizontal) surface, while the walls of the quarry would be a series of benched slopes of 0.25:1 (horizontal:vertical (H:V)) with overall slopes of 1:1 (H:V). Maximum operational slopes for the overburden stockpiles would be 1.5:1 (H:V), with maximum and overall final reclaimed slopes for the overburden stockpiles of 2:1 (H:V). In additional to topographical modifications, the project would introduce visible elements including operation of vehicles and equipment; surface facilities including a scale, scale house, maintenance area, and water storage tank; fugitive dust emissions; and vehicle and equipment in storage locations. The visibility of activities and equipment would vary during the duration of the project depending on factors including the location(s) of the site in which activities are occurring and the visibility of those areas from off-site public view locations.

Although the overall visual character of the region would not be adversely affected by the project, the quality and character of the project site itself would be reduced. These physical changes would alter the quality of the landscape from its existing condition to a more industrial use and appearance during mining and reclamation operations. The close proximity of the project to Mojave-Tropico Road would increase its visibility to the public, along with any associated changes to character.

As a result, the project would result in potentially significant visual impacts to the existing visual quality of the site and its surroundings, as seen from Mojave-Tropico Road and as seen from more distant locations south, southeast, and southwest of the site.

Adverse changes to the visual quality and character of the site would occur due to visibility of an active mining operation as well as the long-term visibility of engineered slopes and unnatural landforms (which would remain upon final reclamation). For the purposes of this evaluation, these changes are considered potentially significant. Mitigation Measure MM 4.1-1 would reduce potential impacts to the existing visual quality and character of the project site and its surroundings. Although these measures would reduce the visual impact, the measures are not considered definitively sufficient to reduce the project's visual impact to less than significant and no additional feasible mitigation has been identified. Thus, even with implementation of MM 4.1-1, this impact is considered significant and unavoidable.

Mitigation Measures

MM 4.1-1 Prior to any clearing or ground-disturbing activities, the project proponent/operator shall submit a Maintenance and Trash Abatement/Pest Management Program 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 twice per year once the project is operational.

B. Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators, such as common ravens, coyotes, and feral dogs.

C. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within 2 weeks to resident requests for additional cleanup of debris.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-1, the impact would remain significant; thus, Impact 4.1-2 is significant and unavoidable.

KEY OBSERVATION POINT 1



Figure 4.1-4
KOP-1: Existing Conditions (Mining Has Not Commenced)



Figure 4.1-5
KOP-1: Fully Mined but Reclamation Has Not Commenced



Figure 4.1-6
KOP-1: Fully Mined and Fully Reclaimed

KEY OBSERVATION POINT 2



Figure 4.1-7
KOP-2: Existing Conditions (Mining has not Commenced)



Figure 4.1-8
KOP-2: Fully Mined but Reclamation Has Not Commenced



Figure 4.1-9
KOP-2: Fully Mined and Fully Reclaimed

KEY OBSERVATION POINT 3



Figure 4.1-10
KOP-3: Existing Conditions (Mining Has Not Commenced)



Figure 4.1-11
KOP-3: Fully Mined but Reclamation Has Not Commenced



Figure 4.1-12
KOP-3: Fully Mined and Fully Reclaimed

KEY OBSERVATION POINT 4



Figure 4.1-13
KOP-4: Existing Conditions (Mining Has Not Commenced)



Figure 4.1-14
KOP-4: Fully Mined but Reclamation Has Not Commenced



Figure 4.1-15
KOP-4: Mined and Fully Reclaimed

KEY OBSERVATION POINT 5



Figure 4.1-16
KOP-5: Existing Conditions (Mining Has Not Commenced)



Figure 4.1-17
KOP-5: Fully Mined but Reclamation Has Not Commenced



Figure 4.1-18
KOP-5: Fully Mined and Fully Reclaimed

Impact 4.1-3: The project would create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

The project would result in a significant impact if viewers from public roads or residences were subjected to a substantial amount of new point-source lighting visibility at night, or if the collective illumination of the project resulted in a noticeable spill-over effect into the nighttime sky, increasing the ambient light over the region.

The proposed typical hours of operation are daylight hours (generally 7:00 a.m. to 7:00 p.m., Monday through Saturday depending on the season), six days per week, depending on market demand, with the understanding that longer or alternative hours may be required due to operational constraints. Though the proposed project would operate primarily during daylight hours (7:00 am to 7:00 pm), nighttime lighting for security, safety, and operational purposes could be periodically utilized. A specific lighting plan for the project has not been provided. This analysis reasonably assumes that some nighttime lighting for security, safety, and operational purposes would be utilized. The analysis assumes that lighting would be used at the parking, scale, and security area, and at various other locations of the site using portable lights and generators. Lights would also be used on vehicles and equipment for various operations throughout the site and, haul truck operation (which would occur onsite and offsite).

The parking, scale, and security area is proposed to be located southeast of the quarry near the primary access road entrance to the main portion of the project site. Although this is within the lower elevations of the site, lighting used within this area could be visible from Mojave-Tropico Road east and southeast of the site as well as from other more distant roads and residences to the south of the site. Lighting that may be used in other areas of the site could be at higher elevations and would also have the potential to be visible from segments of Mojave-Tropico Road and residences and other areas to the south of the site. Direct lighting is not expected to be visible from areas to the north of the site, including areas along Mojave-Tropico Road and adjacent residences.

Although no direct light spill to offsite properties is anticipated, the potential visibility of site lighting within an area that currently does not include any sources of light is considered potentially significant as compared to existing conditions. Given the absence of existing light sources at the site, the absence of screening vegetation around the project site, and the potential visibility of onsite light from offsite areas, this analysis concludes that unshielded lighting could generate some “light pollution” in the area resulting in a potentially significant impact. Therefore, the impact associated with the additional light sources in conjunction with the project is considered potentially significant.

Mitigation Measure MM 4.1-2 would require the project proponent comply with the County’s Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance) (Kern County 2020), and Mitigation Measure MM 4.1-3 would require the project proponent to prepare and submit an outdoor lighting plan to the Kern County Planning and Natural Resources Department for review and approval. Implementation of Mitigation Measures MM 4.1-2 and MM 4.1-3 would reduce this potential impact to less than significant.

Mitigation Measures

MM 4.1-2 Project facility lighting shall continuously comply with the applicable provisions of the Dark Skies Ordinance (Kern County Zoning Ordinance Chapter 19.81) 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 extend below the shields.

MM 4.1-3 Prior to the issuance of any required building permits, the project proponent/operator shall submit an Outdoor Lighting Plan to the Kern County Public Works Department in accordance with Kern County Zoning Ordinance Chapter 19.81 (Outdoor Lighting "Dark Skies Ordinance"). Additionally, a copy of the approved Outdoor Lighting Plan shall be submitted to the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-2 and MM 4.1-3, Impact 4.1-3 would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The discussion of cumulative impacts relates to the potential for the project to contribute to an aggregate change in visual quality from surrounding public viewing areas, taking into consideration existing as well as proposed development. The project's proximity to and visibility from Mojave-Tropico Road and other areas to the south of the site increases its potential to influence the aesthetic quality and character of the area. This change in visual character, along with other recent and proposed projects, could potentially contribute to a cumulatively considerable change in the visual character of the project region.

Little visual change has occurred in the project vicinity over the last several years, and no substantial new development that would be readily visible in viewsheds toward the site from Mojave-Tropico Road and other areas to the south, southwest, and southeast of the site.

Impact 4.1-4: The project would contribute to cumulative aesthetic and visual resource impacts.

Section 3.7, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description,* lists specific projects considered in the cumulative impact analysis). As discussed above, the project would modify the visual character of the project site to a degree considered to result in a significant project-specific visual impact. Mitigation Measure MM 4.1-1 would reduce the severity of the impact; however, Impact 4.1-2 is considered significant and unavoidable even with the implementation of mitigation. Development of other projects within 6 miles of the project site would also result in varying degrees of changes in the visual character of the project region. Although individually these projects may not result in significant visual impacts, development of the proposed project in combination with existing, proposed, approved, and reasonably foreseeable development is considered to have the potential to result in a substantial

contribution to cumulative changes in the visual character of the project region. Therefore, the project's cumulative visual impact associated with change in visual character is considered significant and unavoidable.

The cumulative scenario for the aesthetic impacts from light and glare includes the existing conditions in the area plus potential future developments and sources of adverse visual changes and lighting. However, with implementation of Mitigation Measures MM 4.1-2 and 4.1-3, the project's impacts associated with lighting would be reduced to less than significant. Other projects within 6 miles of the proposed project site (as referenced in **Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*) would also be subject to County requirements for minimizing light and glare; thus, with implementation of the proposed mitigation measures, the proposed project's incremental contribution to cumulative light and glare impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-1 through MM 4.1-3.

Level of Significance after Mitigation

Even with implementation of Mitigation Measure MM 4.1-1, the project's contribution to cumulative impacts associated with change in visual character would be significant and unavoidable.

With implementation of Mitigation Measures MM 4.1-2 and 4.1-3, the project's contribution to cumulative impacts associated with light and glare would be less than significant.

Section 4.2
Air Quality

4.2.1 Introduction

This section of the Environmental Impact Report (EIR) evaluates short- and long-term air quality impacts associated with implementation of the project and describes the affected environment and regulatory setting for air quality. Potential impacts on the environment and human health due to emissions affecting air quality during implementation of the project are discussed using applicable thresholds where indicated. Mitigation measures that would reduce the project's impacts, where applicable, are also discussed. Information in this section is based in part on the following documents:

- *Air Quality and Greenhouse Gas Assessment for Gem Hill Quarry, Kern County, California* (Lilburn 2022a), included as Appendix C.1; and
- *Gem Hill Quarry Project Health Risk Assessment Analysis* (Ganddini Group, Inc. 2022), included as Appendix C.2.

4.2.2 Environmental Setting

The project site is located entirely in the northwestern portion of the Mojave Desert Air Basin (MDAB). Air pollutant emissions and other air quality programs in the MDAB are regulated by the Eastern Kern Air Pollution Control District (EKAPCD).

The MDAB encompasses the desert portion of San Bernardino County and Los Angeles County, the Palo Verde Valley in eastern Riverside County, and the southeastern portion of Kern County. The EKAPCD has jurisdiction over that portion of the MDAB east of the Tehachapi Mountains within Kern County.

Air pollution in the MDAB can be attributed to both human-related (anthropogenic) and natural (non-anthropogenic) activities that produce emissions. Air pollution from significant anthropogenic activities in the MDAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. Activities that tend to increase mobile activity include increases in population, increases in traffic (including automobiles, trucks, aircraft, and rail), urban sprawl (which increases commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation.

Sensitive Receptors

Sensitive receptors for air pollutants are locations where human populations, especially children, senior citizens, and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants. Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Land uses that can be considered sensitive receptors include residential communities, schools,

playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive individuals with compromised immune systems, such as children and the elderly, may be exposed to emissions from the construction and operation of the project. Worker receptors refer to employees and locations where people work. Impacts on sensitive receptors are of particular concern because they are the people most vulnerable to the effects of air pollution.

All of the closest sensitive receptors to the project site and planned transportation routes are residential land uses. The nearest receptor is a rural residence located approximately 858 feet to the east-northeast of the site boundary on the east side of a ridge and with no line of sight to the project activities. Receptors used for the health risk assessment conducted for the project are identified as receptors R1 through R10 and are located along the planned haul truck travel routes along Mojave-Tropico Road and Backus Road. Receptor locations are identified on **Figure 4.2-1,** *Air Quality Analysis Sensitive Receptor Locations*.

Meteorological Conditions

The desert portion of the MDAB is commonly referred to as the High Desert because of its altitude at approximately 1,000 to 4,500 feet above mean sea level. The region is characterized by a series of low mountain ranges and broad alluvial valleys.

The desert climate type of the MDAB is characterized by hot, dry summers and cold, dry winters. The inland position of the MDAB lacks the cooling effects of the Pacific Ocean, while the presence of the mountains that separate the MDAB from the ocean remove much of the moisture before reaching the MDAB. Therefore, the region is relatively dry with little precipitation in the summer or winter. Summer high temperatures reach over 100 degrees Fahrenheit (ºF) and averages in the mid 90s with lows in the upper 60s. Extreme highs reach over 110º F. Winter highs average in the mid 50s to low 60s with lows in the 30s. A majority of the precipitation (55 percent) in the MDAB occurs as rainfall during the winter. The project area receives an average of approximately 6.67 inches of rain per year. (Lilburn 2022a)

Weather factors which have significant impacts on air quality include wind, precipitation and inversion layers, as discussed below. Local air quality in the MDAB is affected mainly by the transport of pollutants from surrounding air basins to the west and south.

Wind

Although the High Desert is 80 miles from the ocean, the “sea breeze” pattern can be a dominant weather feature. The sea breeze is caused by differential heating of land and water. Land heats faster than the ocean, and because hot air rises, air warmed over land during the day rises, and cooler denser air from the ocean moves in to replace it. Normally limited to within a few miles of a coastline, the extreme differences in temperature between the desert and the Pacific Ocean make the sea breeze a regional phenomenon in southern California. The combination of extreme temperature differences and physical restraint on the air movements through mountain passes means there is a consistent source for strong wind blowing from the southwest and west across the High Desert bringing pollutants out of the coastal and central valleys into the desert.

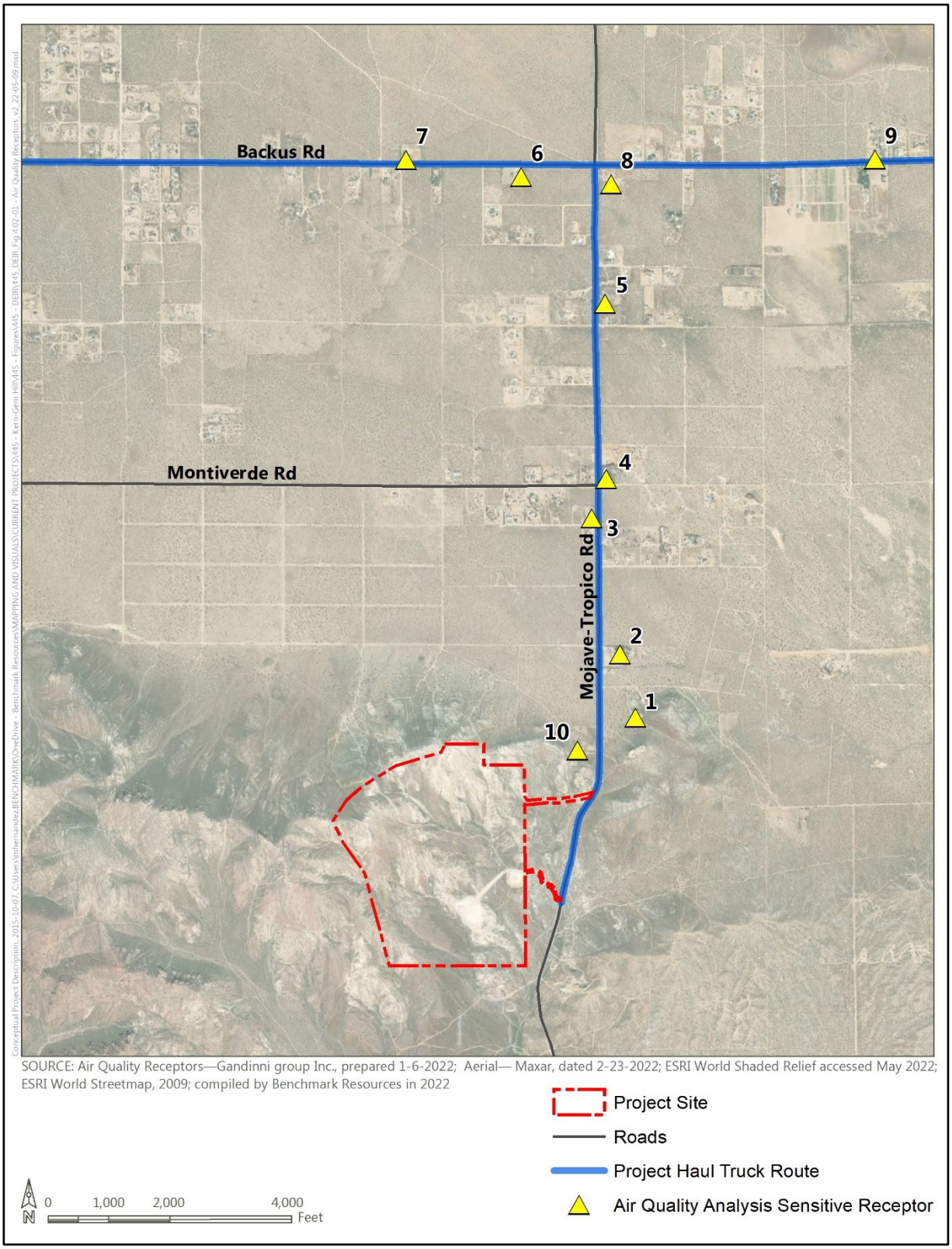


Figure 4.2-1
Air Quality Analysis Sensitive Receptor Locations

Although local emissions can contribute to poor air quality, the MDAB is also impacted by emissions transported by the prevailing winds from the San Joaquin Valley Air Basin (SJVAB) and the South Coast Air Basin (SCAB). The southwestern portion of the Mojave Desert is heavily impacted by air pollutants from the South Coast. In addition, the area within the MDAB immediately downwind of Tehachapi Pass including the project area is impacted by pollutants from the southern San Joaquin Valley. (Lilburn 2022a)

Precipitation

The High Desert receives precipitation from winter cold fronts and moist southerly air masses during the late summer. Summer thunderstorms bring highly variable amounts of localized rain. The rain from these storms falling into the dry air often evaporates before reaching the surface. However, if the storm lasts long enough, the area beneath the storm may get several inches of rain over a short time leading to flash floods and rapid erosion in washes and gullies. (Lilburn 2022a)

Inversions

Inversions are layers in the atmosphere where the temperature increases with height instead of decreasing as is normal. Inversions trap pollutants by limiting the vertical mixing which normally disperses pollutants into the upper atmosphere. There are two types of inversions affecting the High Desert. The first is the regional inversions caused by subsiding air within the high-pressure systems that dominate the summer weather. These subsidence inversions can occur at varying altitudes, with corresponding variable effects on the pollution levels. The lower the inversion level, the greater the concentration of pollutants between it and the ground. The second type is the radiation inversion that forms when the ground cools rapidly after sunset, cooling the air immediately above it at the same time. Inversion layers are less problematic in the MDAB than other areas, such as the SJVAB and SCAB. Subsidence inversions in the MDAB typically occur around 6,000 to 8,000 feet above ground, which allows for greater vertical mixing. Thus, MDAB is less conducive to buildout of pollutant concentrations near the surface where receptors are present. (Lilburn 2022a)

Ambient Air Quality Standards

National and State Standards

Both the Federal government and State of California have established ambient air quality standards for several different pollutants, which are summarized in **Table 4.2-1,** *National and California Ambient Air Quality Standards*. For some pollutants, separate standards have been set for different time periods. Most standards have been set to protect public health. For other pollutants, standards have been based on some other value (such as protection of crops, protection of materials, or avoidance of nuisance conditions).

As required by the Federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has identified criteria pollutants and established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (less than 10 microns in diameter [PM_{10}] and less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). These pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the USEPA 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 NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. The NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]). **Table 4.2-1,** *National and California Ambient Air Quality Standards,* presents both sets of ambient air quality standards (i.e., national and State) as well as attainment status for each of these standards within the EKAPCD jurisdiction. If a pollutant concentration in an area is lower than the established standard, the area is classified as being in "attainment" for that pollutant. If the pollutant concentration meets or exceeds the standard (depending on the specific standard for the individual pollutants), the area is classified as a "nonattainment" area. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

Table 4.2-1 National and California Ambient Air Quality Standards

		California Standards[1]		National Standards[2]	
Criteria Pollutant	**Averaging Time**	**Concentration[3]**	**EKAPCD Attainment Status**	**Primary[3,5]**	**EKAPCD Attainment Status**
Ozone (O_3)[8]	1-Hour	0.09 ppm (180 µg/m^3)	Nonattainment	N/A	Attainment (revoked 2004)[15]
	8-Hour	0.070 ppm (137 µg/m^3)	Nonattainment	0.070 ppm (137 µg/m^3)	Serious Nonattainment[16]
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Unclassified	9 ppm (10 mg/m^3)	Unclassifiable/ Attainment
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)[9]	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Attainment	53 ppb (100 µg/m^3)	Unclassified
	1-Hour	0.18 ppm (339 µg/m^3)		100 ppb (188 µg/m^3)[6]	
Sulfur Dioxide (SO_2)[9]	24-Hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm	Unclassified
	3 Hour	N/A		N/A	

Table 4.2-1 National and California Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration[3]	EKAPCD Attainment Status	Primary[3,5]	EKAPCD Attainment Status
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	
	Annual	N/A		0.030 ppm	
Particulate Matter <10 Microns in Aerodynamic Diameter (PM_{10})	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassifiable/ Attainment
	Annual Arithmetic Mean	20 µg/m^3		N/A	
Particulate Matter <2.5 Microns in Aerodynamic Diameter ($PM_{2.5}$)	24-Hour	No Separate State Standard	Unclassified	35 µg/m^3	Unclassifiable/ Attainment
	Annual Arithmetic Mean	12 µg/m^3		12 µg/m^3	
Lead (Pb)[11,12]	30 days average	1.5 µg/m^3	Attainment	N/A	Unclassifiable/ Attainment
	Rolling 3-month Average	N/A		1.5 µg/m^3	
Visibility-Reducing Particles (VRP)[13]	8-Hour (10 am to 6 pm, PST)	See footnote 14	Unclassified	No Federal Standards	
Sulfate	24 Hour	25 µg/m^3	Unclassified		
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 µg/m^3)	Unclassified		

Source: Lilburn 2022a (per CARB 2016; EKAPCD 2020)
Notes:
ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; km = kilometers; RH = relative humidity; PST = Pacific standard time; N/A =not applicable.

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

Table 4.2-1 National and California Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	California Standards[1] Concentration[3]	California Standards[1] EKAPCD Attainment Status	National Standards[2] Primary[3,5]	National Standards[2] EKAPCD Attainment Status

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m3 as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 30 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 100 ppb and 100 ppb are identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb; California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 j.tg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the CARB converted both the general Statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the Statewide and Lake Tahoe Air Basin standards, respectively.
15. [15] 1-hour ozone NAAQS was revoked effective June 15, 2004. EKAPCD was attainment of 1-hour ozone NAAQS at time of revocation; the proposed Attainment Maintenance designation's effective date was June 21, 2004; therefore it did not become effective.
16. Attainment for 1997 8-hour Ozone NAAQS (0.08 ppm), Serious Nonattainment for 2008 NAAQS (0.075ppm) expected to attain in 2020, and Nonattainment State 8-hour standard (0.070ppm).

Existing Attainment Status

As shown in **Table 4.2-1,** *National and California Ambient Air Quality Standards*, the EKAPCD has been designated as unclassifiable/attainment for the NAAQS for PM_{10}, $PM_{2.5}$, and lead, nonattainment for the O_3 eight-hour average standard, and unclassified for NO_X and SO_X. The EKAPCD has been designated as nonattainment for the state one-hour and eight-hour standards for O_3, and PM_{10}, unclassified $PM_{2.5}$ and CO, and attainment for NO_X, SO_X and Lead.

Ambient Air Monitoring

The EKACPD along with CARB operates an air quality monitoring network that provides average concentrations of those pollutants for which state or federal agencies have established ambient air quality standards. EKACPD regulates emissions from stationary sources through the permitting process and requires permits to construct and operate for all stationary equipment with the potential to release air contaminants.

Existing and probable future air quality in the project area can best be inferred from examining ambient air quality measurements taken at monitoring station(s) in the vicinity of the project area. The Mojave (923 Poole Street) air quality monitoring station is the closest station to the project site that has monitoring data available for ozone, PM_{10}, and $PM_{2.5}$, but does not collect data for CO or NO_2. **Table 4.2-2,** *Air Quality Data Summary (2016–2018)*, shows the

monitoring results for criteria pollutants for the past 3 years from the Mojave (923 Poole Street) air quality monitoring station.

Table 4.2-2 Air Quality Data Summary (2016–2018)

Pollutant	Monitoring Year		
	2016	2017	2018
Ozone			
Maximum concentration (1-hour/8-hour average) µg/m^3	0.104/ 0.084	0.097/ 0.093	0.111/ 0.095
Number of days State 1-hour standard exceeded	2	1	8
Number of days State/national 8-hour standard exceeded	60/60	37/37	56/56
Suspended Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24-hour average) µg/m^3	25.7	26.9	39.0
Number of days national standard exceeded	0	0	2
Suspended Particulate Matter (PM_{10})			
Maximum concentration (24-hour average) µg/m^3	139.2	93.4	93.1
Number of days State standard exceeded	18	10	19
Number of days national standard exceeded	0	0	0

Source: Lilburn 2022a (per CARB 2019a).
Notes:
1. Data from Mojave (923 Poole Street).

Criteria Air Pollutants

The following is a general description of the physical and health effects from pollutants including the governmentally regulated air pollutants shown in **Table 4.2-1,** *National and California Ambient Air Quality Standards*.

Ozone (O_3)

Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, at ground level, troposphere, or "bad," ozone is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up where it meets the second layer, the stratosphere. The stratospheric or "good" ozone layer extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), nitrogen oxide (NO_X), and sunlight to form. ROG and NO_X are emitted from various sources throughout Kern County. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong

sunlight. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Ozone is a regional air pollutant. It is generated over a large area and transported and spread by the wind. As the primary constituent of smog, ozone is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, it is not emitted directly into the air by specific sources but is created by sunlight acting on other air pollutants (the precursors), specifically NO_X and ROG. Sources of precursor gases number in the thousands and include common sources such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. Thus, high ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as forests and foothill communities; agricultural crops; and some manmade materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone also accelerates aging and exacerbates pre-existing asthma and bronchitis. Evidence has linked the onset of asthma to exposure to elevated ozone levels in exercising children (CARB 2016). Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. In addition, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

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. Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and damage materials such as rubber, paints, fabric, and plastics (CARB 2016).

Reactive Organic Gases (ROG) and Volatile Organic Compounds (VOC)

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including ROG and volatile organic compounds (VOCs), which include all hydrocarbons except those exempted by the 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 ROGs and VOCs 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.

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects (see the 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* subheading below.

Carbon Monoxide (CO)

CO, an odorless, colorless, poisonous gas that is highly reactive, is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is a byproduct of motor vehicle exhaust, which contributes more than 66% of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95% 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.

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. 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).

Most of the studies that evaluate the adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death. At extremely high concentrations, CO is poisonous and can cause death (USEPA 2021a).

Nitrogen Dioxide (NO_2) and Nitrogen Oxide (NO_X)

NO_2 is a reddish brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide. NO_X is a family of highly reactive gases that is 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. 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. NO_X is also an ozone precursor that combines with ROG to form ozone (see discussion above for the health effects of ozone).

NO_X reacts with other pollutants to form ground-level ozone, nitrate particles, acid aerosols, and NO_2, which cause respiratory problems. NO_X and the pollutants formed from NO_X can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NO_X is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Direct inhalation of NO_X can also cause a wide range of health effects. NO_X can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of NO_2 may lead to changes in airway responsiveness and lung function in individuals with preexisting 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 are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility.

NO_X contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins 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.

Sulfur Dioxide (SO_2)

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.

High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of individuals to elevated SO_2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of 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 $PM_{2.5}$, 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 it can also 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 parts per million (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. SO_2 can also easily injure 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. In addition, 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 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. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. PM_{10} refers to particles less than or equal to 10 microns in aerodynamic diameter. $PM_{2.5}$ refers to particles less than or equal to 2.5 microns in aerodynamic diameter and is a subset of PM_{10}.

Particulate matter or airborne dusts are the small particles that remain suspended in the air for long periods of time. Particulates of concern are PM_{10} and $PM_{2.5}$, which 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 United States, 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.

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. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. 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.

Attaining the California particulate matter standards would annually prevent about 6,500 premature deaths, or 3% 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 causes about 250 excess cancer cases per year in California (Kern County 2006).

A study conducted in 2006 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% excess risk of dying from lung cancer due to fine particulate air pollution (Pope and Dockery 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 (Kern County 2006).

Sulfates (SO_4^{-2})

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.

The 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. Sulfates are particularly effective in degrading visibility and, because they are usually acidic, can harm ecosystems and damage materials and property.

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 the use of gasoline-powered automobile engines run on leaded fuels, a major source of airborne lead, has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

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.

Hydrogen Sulfide (H_2S)

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production and 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 hydrogen sulfide is extremely hazardous (800 ppm can cause death), especially in enclosed spaces. Occupational Safety and Health Administrations (OSHA) have the primary responsibility for regulating workplace exposure to H_2S.

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.

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 quality standards for vinyl chloride.

Short-term exposure to vinyl chloride has been linked with the following acute health effects:

- Acute exposure of humans to high levels of vinyl chloride via inhalation 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:

- 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:

- 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

This standard is a measure of visibility. The 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 (VRPs) 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 VRPs is currently designated as unclassified.

Toxic Air Contaminants (TACs)

Hazardous air pollutants (HAPs) is a term used by the Federal CAA that includes a variety of pollutants generated or emitted by industrial production activities. Called TACs under the California Clean Air Act (CCAA) of 1988, 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 the brain and nervous system, and respiratory disorders. The CARB provides emission inventories for only the larger air basins.

Similar to the criteria pollutants, TACs are emitted from stationary, areawide, mobile, and natural sources. The primary sources of benzene in the state include mobile sources (87%) and stationary sources (12%). Forty-six percent of hexavalent chromium emissions are from stationary sources, such as electrical generation, aircraft and parts manufacturing, and fabricated metal product manufacturing. The majority of 1,3-butadiene emissions are generated from incomplete combustion of gasoline and diesel fuels—53% of 1,3-butadiene emissions are from mobile sources and 21% are from area sources, such as agricultural waste burning and open burning. Emissions of carbon tetrachloride are all produced by stationary sources such as chemical and allied produce manufacturers and petroleum refineries. Most of the emissions of para-dichlorobenzene are from consumer products such as non-aerosol insect repellents and solid/gel air fresheners. Eighty-two percent of formaldehyde emissions in California are from mobile sources, while 48% of methylene chloride emissions are from paint removers/strippers, automotive brake cleaners, and other consumer products. Perchloroethylene is produced primarily from stationary sources such as dry cleaning plants and manufacture of aircraft parts and fabricated metal parts. Emissions of diesel particulate matter (DPM) are from mobile sources (98%) and stationary sources (1%).

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, and periodically update those reports.

Crystalline Silica

Respirable crystalline silica means crystalline silicon dioxide with aerodynamic diameter less than four microns (0.0004 centimeters). Silica or quartz is ubiquitous in nature. Most silica is amorphous and is therefore not crystalline as these two terms are mutually exclusive. Most dust generated by construction and mining dust sources including blasting is greater than 4 microns and therefore too large to be respirable. Respirable crystalline silica constitutes a de minimis fraction of dust from these sources and does not represent a significant health risk to neighbors of these types of projects. In order to result in toxic effects, the silica needs to be crystalline, smaller than 4 microns, and inhaled.

Inhalation of crystalline silica initially causes respiratory irritation and an inflammatory reaction in the lungs. Silicosis results from chronic exposure; it is characterized by the presence of histologically unique silicotic nodules and by fibrotic scarring of the lung. Lung diseases

other than cancer associated with silica exposure include silicosis, chronic bronchitis, tuberculosis/silicotuberculosis, small airways disease, and emphysema. Ambient air exposures do not cause concern but levels to which workers (e.g., miners, sandblasters) may be exposed have been shown to cause cancer.

Acute exposures to high concentrations cause cough, shortness of breath, and pulmonary alveolar lipoproteinosis (acute silicosis). In a report on the hazards of exposure to crystalline silica, the American Thoracic Society (1997) stated: "Studies from many different work environments suggest that exposure to working environments contaminated by silica at dust levels that appear not to cause roentgenographically visible simple silicosis can cause chronic airflow limitation and/or mucus hypersecretion and/or pathologic emphysema." Other researchers also concluded that "chronic levels of silica dust that do not cause disabling silicosis may cause the development of chronic bronchitis, emphysema, and/or small airways disease that can lead to airflow obstruction, even in the absence of radiological silicosis." Fibrotic lesions associated with crystalline silica have also been found at autopsy in the lungs of granite workers who lacked radiological evidence of silicosis.

Silicosis results from chronic exposure; it is characterized by the presence of histologically unique silicotic nodules and by fibrotic scarring of the lung. Lung diseases other than cancer associated with silica exposure include silicosis, tuberculosis/silicotuberculosis, chronic bronchitis, small airways disease, and emphysema. Silica exposure has been implicated in autoimmune diseases (rheumatoid arthritis, scleroderma, systemic lupus erythematosus) in gold miners and granite workers and in the causation of kidney disease in some occupations, possibly by an immune mechanism.

Acetaldehyde

Acetaldehyde is classified as a Federal hazardous air pollutant and as a California TAC. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere from photochemical oxidation. Sources include combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. In California, photochemical oxidation is the largest source of acetaldehyde concentrations in the ambient air. In general, acetaldehyde concentrations are higher indoors than outdoors, due in part to the abundance of combustion sources, such as cigarettes, fireplaces, and woodstoves.

The primary acute effect of inhalation exposure to acetaldehyde is irritation of the eyes, skin, and respiratory tract in humans. At higher exposure levels, erythema, coughing, pulmonary edema, and necrosis may also occur. Acute inhalation of acetaldehyde resulted in a depressed respiratory rate and elevated blood pressure in experimental animals. Tests involving acute exposure of rats, rabbits, and hamsters have demonstrated acetaldehyde to have low acute toxicity from inhalation and moderate acute toxicity from oral or dermal exposure.

Benzene

Benzene is highly carcinogenic and occurs throughout California; benzene also has noncancer–related health effects. The primary sources of benzene emissions in the MDAB are mobile sources and stationary sources. The mobile source emissions are primarily gasoline-fueled.

Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness. Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness in humans. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to benzene in liquid and vapor form may irritate the skin, eyes, and upper respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.

Chronic inhalation of certain levels of benzene causes blood disorders in humans; specifically, benzene affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans who have been occupationally exposed to benzene.

1,3-Butadiene (Vinyl Ethylene)

1,3-butadiene has been identified as a carcinogen in California. The majority of 1,3-butadiene emissions come from incomplete combustion of petroleum-based fuels. Since the majority of 1,3-butadiene emissions are from incomplete combustion of gasoline and diesel fuels, CARB's 1990 adopted low-emission vehicle/Clean Fuels regulations and the 1996 Phase II reformulated gasoline regulations are expected to continue to reduce 1,3-butadiene emissions from cars and light-duty trucks as the fleet turns over and new low-emission vehicles are introduced into the fleet.

At very high levels, butadiene vapors cause neurological effects, such as blurred vision, fatigue, headache, and vertigo. Dermal exposure of humans to 1,3-butadiene causes a sensation of cold, followed by a burning sensation, which may lead to frostbite.

One epidemiological study reported that chronic (long-term) exposure to 1,3-butadiene by inhalation resulted in an increase in cardiovascular diseases, such as rheumatic and arteriosclerotic heart diseases, while other human studies have reported effects on the blood. A large epidemiological study of synthetic rubber industry workers demonstrated a consistent association between 1,3-butadiene exposure and occurrence of leukemia. Several epidemiological studies of workers in styrene-butadiene rubber factories have shown an increased incidence of respiratory, bladder, stomach, and lymphato-hematopoietic cancers. However, these studies are not sufficient to determine a causal association between 1,3-butadiene exposure and cancer, due to possible exposure to other chemicals and other confounding factors.

Carbon Tetrachloride (Tetrachloromethane)

Carbon tetrachloride is a central nervous system depressant, which the USEPA has classified as Group B2 (probable human carcinogen). The primary sources of carbon tetrachloride in California include chemical and allied product manufacturers and petroleum refineries. Unlike many of the other TACs, carbon tetrachloride is emitted primarily by sources other than motor vehicles, and there are virtually no emissions within the MDAB or California.

Acute inhalation and oral exposures to high levels of carbon tetrachloride have been observed primarily to damage the liver (e.g., swollen, tender liver; changes in enzyme levels; jaundice) and kidneys (e.g., nephritis, nephrosis, proteinuria) of humans. Depression of the central nervous system has also been reported. Symptoms of acute exposure in humans include headache, weakness, lethargy, nausea, and vomiting. Delayed pulmonary edema (fluid in lungs) has been observed in humans who have been exposed to high levels of carbon tetrachloride by inhalation and ingestion, but this is believed to be due to injury to the kidney rather than direct action of carbon tetrachloride on the lung. Chronic inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans and animals.

Hexavalent Chromium

Hexavalent chromium emissions come mainly from electric generation, aircraft and parts manufacturing, and fabricated metal product manufacturing. In California, hexavalent chromium has been identified as a carcinogen. Epidemiological evidence suggests that exposure to inhaled hexavalent chromium may result in lung cancer.

The respiratory tract is the major target organ for chromium (VI) following inhalation exposure in humans. Other effects noted from acute inhalation exposure to very high concentrations of chromium (VI) include gastrointestinal and neurological effects, while dermal exposure causes skin burns in humans. Chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, with perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness reported. Chronic human exposure to high levels of chromium (VI) by inhalation or oral exposure may produce effects on the liver, kidney, gastrointestinal and immune systems, and possibly the blood.

Para-Dichlorobenzene

In California, para-dichlorobenzene has been identified as a carcinogen. In addition to the carcinogenic impact, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. Para-dichlorobenzene is a chlorinated aromatic hydrocarbon. It was first registered for use in the United States in 1942, and it is sometimes called 1,4-dichlorobenzene. It is a fumigant insecticide and repellent. Para-dichlorobenzene turns directly from a solid into a gas, a process called sublimation.

The primary sources of para-dichlorobenzene include consumer products such as nonaerosol insect repellents and solid/gel air fresheners.

People who have been exposed to para-dichlorobenzene have experienced nausea, vomiting, dizziness, fatigue, and headaches. Para-dichlorobenzene vapor can also irritate the eyes and nasal passages. It may also cause kidney and liver damage in pets.

Formaldehyde

Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation, which is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of formaldehyde is vehicular exhaust. Formaldehyde

is also used in resins, fumigants, and soil disinfectants, and it can be found in many consumer products as an antimicrobial agent.

The major toxic effects caused by acute formaldehyde exposure via inhalation are eye, nose, and throat irritation and effects on the nasal cavity. Other effects seen from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic exposure to formaldehyde by inhalation in humans has been associated with respiratory symptoms and irritation of the eye, nose, and throat. Animal studies have reported effects on the nasal respiratory epithelium and lesions in the respiratory system from chronic inhalation exposure to formaldehyde.

Occupational studies have noted statistically significant associations between exposure to formaldehyde and increased incidence of lung and nasopharyngeal cancer. This evidence is considered to be "limited," rather than "sufficient," due to possible exposure to other agents that may have contributed to the excess cancers. The USEPA considers formaldehyde to be a probable human carcinogen and has ranked it in Group B1 (probable human carcinogen). In California, formaldehyde has been identified as a carcinogen.

Methylene Chloride (Dichloromethane)

In California, methylene chloride has been identified as a carcinogen. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and a solvent in paint stripping operations. The statewide trend for methylene chloride shows that by comparing the statewide average methylene chloride concentration for 1990–1992 to that for 2005–2007 the result is a 77% decrease in both concentration and health risk.

Case studies of methylene chloride poisoning during paint stripping operations have demonstrated that inhalation exposure to extremely high levels of methylene chloride can be fatal to humans. Acute inhalation exposure to high levels of methylene chloride in humans has affected the central nervous system including decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Methylene chloride also irritates the nose and throat at high concentrations. The major effects from chronic inhalation exposure to methylene chloride in humans are effects on the central nervous system, such as headaches, dizziness, nausea, and memory loss. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. The USEPA considers methylene chloride to be a probable human carcinogen and has ranked it in Group B2. The State of California considers methylene chloride to be a carcinogen.

Perchloroethylene (Tetrachloroethylene)

In California, perchloroethylene (PRC) has been identified as a carcinogen. PRC vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity as well as kidney dysfunction and neurological disorders.

PRC is used as a solvent, primarily in dry cleaning operations. PRC is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. Areawide sources contribute

approximately 35%. In comparing the statewide perchloroethylene concentration for 1990-1992 to that for 2005-2007 the result is an 84% decrease in both concentration and health risk.

Breathing PRC for short periods of time can adversely affect the human nervous system. Effects range from dizziness, fatigue, headaches, and sweating to incoordination and unconsciousness. Contact with PRC liquid or vapor irritates the skin, eyes, nose, and throat. These effects are not likely to occur at levels of PRC that are normally found in the environment.

Breathing PRC over longer periods of time can cause liver and kidney damage in humans. Workers exposed repeatedly to large amounts of PRC in air can also experience memory loss and confusion. Laboratory studies show that PRC causes kidney and liver damage and cancer in animals exposed repeatedly by inhalation and by mouth. Repeat exposure to large amounts of PRC in air may likewise cause cancer in humans.

Diesel Particulate Matter (DPM)

DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute about 24% of the Statewide total, with an additional 71% attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about 5% 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). The CARB estimates that about 70% of the cancer risk that the average Californian faces from breathing TACs stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, the 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 the 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 (NIOSH), have calculated cancer risks from diesel exhaust that are similar to those calculated by the 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.

Diesel engines are a major source of fine-particle pollution. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can reduce lung function in children. In California, diesel exhaust particles have been identified as carcinogens (OEHHA and American Lung Association of California [ALAC] 2001).

Polycyclic Aromatic Hydrocarbons (PAHs)

The term polycyclic aromatic hydrocarbons (PAHs) refers to a group of several hundred chemically related, environmentally persistent organic compounds of various structures and varied toxicity. Most of them are formed by a process of thermal decomposition (pyrolysis) and subsequent recombination (pyrosynthesis) of organic molecules. PAHs enter the environment through various routes and are usually found as a mixture containing two or more of these compounds, e.g., soot. They have been shown to cause carcinogenic and mutagenic effects and are potent immunosuppressants. Effects have been documented on immune system development. They are by-products of natural gas combustion.

Airborne Fungus (Valley Fever)

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 multicelluar structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

About 60% 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 indicates prior exposure to the fungus (Valley Fever Center for Excellence [VFCE] 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 6 months and would have a lifelong 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 (VFCE 2019).

The usual course of Valley Fever in healthy people is complete recovery within 6 months. In most cases, the body's immune response is effective, and no specific course of treatment is necessary. About 5% of cases of Valley Fever result in pneumonia (infection of the lungs), while another 5% of patients develop lung cavities after their initial infection with Valley Fever. These cavities occur most often in older adults, usually without symptoms, and about 50% of them disappear within 2 years. Occasionally, these cavities rupture, causing chest pain and difficulty breathing, and require surgical repair. Only 1% to 2% of those exposed who seek medical attention would develop a disease that disseminates (spreads) to other parts of the body other than the lungs (VFCE 2019).

Table 4.2-3, *Range of Valley Fever Cases*, presents the range of Valley Fever cases based on research conducted by the VFCE.

Table 4.2-3 Range of Valley Fever Cases

Infection Classification	Percent of Total Diagnosed Cases
Unapparent infections	60%
Mild to moderate infections	30%
Infections resulting in complications	5–10%
Fatal infections	<1%

Source: VFCE 2019.

Factors that affect the susceptibility to coccidioidal dissemination are race, sex, pregnancy, age, and immunosuppression. While there are no racial or gender differences in susceptibility to primary infection with coccidioidomycosis, differences in risk of disseminated infection do appear to exist. Men have a higher rate of dissemination than do women and several studies have shown that the rate of dissemination in African Americans and Filipinos is several times higher than in the rest of the U.S. population. Native Americans, Hispanics, and Asians may

also have a higher rate of dissemination than the general population, but these population differences are not well defined (VFCE 2019).

The CI fungal spores are often found in the soil around rodent burrows, Indian ruins, and burial grounds. The spores become airborne when the soil is disturbed by winds, construction, farming, and soil-disturbing activities. This type of fungus is endemic to the southwestern United States and more common in Kern County. The ecological factors that appear to be most conducive to the survival and replication of the fungal spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils. During drought years, the number of organisms competing with CI decreases, and the CI remains alive, but dormant. When rain finally occurs, the arthrocondia germinate and multiply more than usual because of a decreased number of other competing organisms. Later, the soil dries out in the summer and fall, and the fungi can become airborne and potentially infectious.

Asbestos

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 90–95% of all asbestos contained in buildings in the United States. Asbestos occurs in certain geologic environments that contain serpentinite and ultramafic rocks, which 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, Klamath Mountains, and Coast Ranges. According to information provided by the California 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 (USGS 2014).

Asbestos can only adversely affect humans in its fibrous form and these fibers must be broken and dispersed into the air and then inhaled. During geological processes, the asbestos mineral can be crushed, causing it to become airborne. It also enters the air or water from the breakdown of natural deposits. Constant exposure to asbestos at high levels on a regular basis may cause cancer in humans. The two most common forms of cancer are lung cancer and mesothelioma, a rare cancer of the lining that covers the lungs and stomach.

Coronavirus Disease 2019

Coronavirus Disease 2019 (COVID-19) is a new disease, caused by a novel (or new) human coronavirus that has not previously been seen in humans. The first known case of COVID-19 was confirmed in the United States on January 20, 2020 (Holshue et al. 2020). There are many types of human coronaviruses, including some that commonly cause mild upper-respiratory tract illnesses. COVID-19 is a respiratory illness that can spread from person to person. According to the Center for Disease Control (CDC), older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness. Symptoms may appear 2 to 14 days after the exposure to the virus and may include, but are not limited to, fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, and diarrhea (CDC 2022). According to the CDC, COVID-19 is believed to spread between people who are in close contact with one another (within about 6 feet) through respiratory droplets produced when an infected person coughs, sneezes, or talks (CDC 2021). COVID-19 research and causality

are still in the beginning stages. A nationwide study by Harvard University found a linkage between long-term exposure to $PM_{2.5}$ (averaged from 2000 to 2016) as air pollution and statistically significant increased risk of COVID-19 death in the United States (Wu et al. 2020).

4.2.3 Regulatory Setting

In California, air quality is regulated by several agencies, including the USEPA, 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 USEPA regulations may not be superseded, some State and local regulations may be more stringent than Federal regulations. The project site is located within a portion of the MDAB under the jurisdiction of the EKAPCD.

Federal

U.S. Environmental Protection Agency Clean Air Act

The principal air quality regulatory mechanism on the Federal level is the CAA and, in particular, the 1990 amendments to the CAA and the NAAQS that it establishes. 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 sulfur oxide [SO_X]), PM_{10}, $PM_{2.5}$, and lead. The USEPA 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 aircrafts, locomotives, and interstate trucking. The USEPA's primary role at the State level is to oversee the State air quality programs. The USEPA sets Federal vehicle and stationary source emission standards and oversees approval of all State Implementation Plans (SIPs) and provides 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 help the State meet the NAAQS.

As discussed previously and shown in **Table 4.2-1,** *National and California Ambient Air Quality Standards*, the USEPA has designated the portion of the MDAB where the project is located within Kern County as being in attainment or unclassified with respect to all NAAQS with the exception of the 8-hour ozone standard. Attainment defines the status of a given airshed with regard to NAAQS requirements. Airsheds not meeting these standards are classified as "nonattainment."

Title V and Extreme Designation

Title V of the CAA, as amended in 1990, creates an operating permits 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 USEPA participation in the permitting process and requires additional record-keeping and reporting by businesses, which results in significant administrative requirements. The project will not emit NOx or ROG above the applicable thresholds, and, therefore, will not be required to obtain a Title V permit.

State

California Air Resources Board California Clean Air Act

The CARB, a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1989 amendments to the CCAA, responding to the Federal CAA requirements, and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish the CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the Federal CAA, and also include sulfates, visibility-reducing particulates, hydrogen sulfide, and vinyl chloride (there are currently no NAAQS for these latter pollutants). They are also more stringent than the Federal standards in most cases, although recently promulgated NAAQS for 1-hour NO_2 and SO_2 can in some instances be more stringent than the respective CAAQS. As shown shown in **Table 4.2-1,** *National and California Ambient Air Quality Standards*, the Kern County portion of the MDAB is designated as nonattainment for the State ozone and PM_{10} standards. Concentrations of all other pollutants are presumed to meet State standards as the area is designated as either attainment or unclassified.

The CARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the air basin. Each APCD ranks the data into high-, intermediate-, and low-priority categories. When considering the ranking, the potency, toxicity, quantity, volume, and proximity of the facility to receptors are given consideration by an APCD.

The CARB also has on- and off-road engine emission-reduction programs that would indirectly affect the project's emissions through the phasing in of cleaner on- and off-road engines. Additionally, the CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a Statewide program to operate their equipment, which must meet specified program emission requirements, throughout California, without having to obtain individual permits from local APCDs. Since the project is not proposing to install any applicable stationary sources, the AB 2588 program would not apply to the project.

In 2007, the CARB enacted a regulation for the reduction of DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (13 California Code of Regulations [CCR] Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for

particulate matter and NO_X emissions for owners of fleets of diesel-fueled off-road vehicles and applies to equipment fleets of three specific sizes, and the target emission rates are reduced over time.

California Renewable Portfolio Standard Program

Senate Bill (SB) 1078 established California's Renewable Portfolio Standard (RPS) program in 2002. The RPS program requires electrical corporations and electric service providers to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources. The bill requires the California Energy Commission to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy. Under SB 1078, each electrical corporation was required to increase its total procurement of eligible renewable energy resources by at least 1% per year so that 20% of its retail sales were procured from eligible renewable energy resources.

In 2006 SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010, for achieving the goal of having 20% of total electricity sold to retail customers in California per year generated from eligible renewable energy resources.

The RPS goal was increased to 33% when Governor Schwarzenegger signed Executive Order (EO) S-14-08 in November 2008. EO S-14-08 was later superseded by EO S-21-09 on September 15, 2009. EO S-21-09 directed the CARB to adopt regulations requiring that 33% of electricity sold in the State come from renewable energy by 2020. On September 23, 2010, the CARB approved a Renewable Electricity Standard regulation.

On April 12, 2011, the California Senate passed legislation paralleling and expressly superseding CARB's RPS program rules set forth on September 23, 2010. Pursuant to SB 1X-2, the statutory RPS was increased to 33% and expanded the RPS program to include customer-owned utilities. In addition, SB 1X-2 limits the use of out-of-state tradable renewable energy certificates to 25% in 2013, 15% in 2016, and 10% thereafter.

On October 7, 2015, Governor Brown signed the Clean Energy and Pollution Act of 2015 or SB 350 that increased the RPS goal from 33% to 50% by 2030. The legislation also required local publicly owned electric utilities to establish annual targets for energy efficiency savings and demand reduction consistent with this goal.

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, but, as stated in **Chapter 2**, *Introduction*, 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 General Provisions

1.10.2 Air Quality Element

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 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.
- **Policy 19.** In considering discretionary projects for which an EIR 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 the 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 Eastern Kern 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.
- **Policy 23.** The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District.

Implementation Measures

- **Implementation Measure F.** All discretionary permits shall be referred to the appropriate air district for review and comment.
- **Implementation 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.

- **Implementation 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. Residential fireplaces – Does not apply

  g. Bicycle lockers – Does not apply

  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.

Eastern Kern Air Pollution Control District

The project site, located in the MDAB portion of Kern County, is under the jurisdiction of the EKAPCD, which has regulatory authority over stationary source air pollution control and is responsible for implementing certain Federal CAA and CCAA programs and regulations. EKAPCD also maintains air quality plans to attain CAAQS and NAAQS. EKAPCD regulations that may apply to the proposed project include Regulation II (Permits), and Regulation IV (Prohibitions). The EKAPCD also identifies thresholds of significance against which project impacts are analyzed to determine whether a project will have a significant impact on air quality.

Air Quality Management Plan

As required by the federal and state CAA, air basins or portions thereof have been classified as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the standards have been achieved. Jurisdictions of nonattainment areas also are required to prepare an air quality management plan (AQMP) that includes strategies for achieving attainment. 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 Federal Clean Air Act, 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. Although the project is located in an area that is attainment for NAAQs standards, the area is considered in nonattainment for the CAAQS for 1-hour ozone, 8-hour ozone and PM_{10}. Air quality impacts are controlled locally through and provisions of EKAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations.

Eastern Kern Air Pollution Control District Regulations and Rules

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. Potentially applicable regulations and rules are discussed below.

Regulation II – Permits

List D addresses permit applications involving a TAC and provides risk management guidance for EKAPCD to determine compliance with EKAPCD Rules 419 and 423, parts of Regulation IV, Section 41700 and Division 26, Part 6 of the California Health and Safety Code, CARB's toxic air contaminant control program, and Title III of the 1990 Federal Clean Air Act Amendments. Health risk shall be determined following the most current California Air Pollution Control Officer's Association (CAPCOA) Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2015).

Rule 201 (Permits Required)

EKAPCD 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 projects 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 (New and Modified Stationary Source Review [NSR])

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 human made or natural sources. A violation is a discharge for a period or periods aggregating more than 3 minutes in any 1 hour which is:

A. 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

B. 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 human made dust sources from large operations. A large operation is defined as, "any active operation, including vehicle movement on unpaved roadways, on property involving in excess of 10 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:

1. 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.
2. 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.
3. 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 USEPA-approved equivalent method(s).

4. 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.

Additionally, pursuant to Rule 402, an owner or operator of a Large Operation will be required to submit a Fugitive Dust Control Plan to the EKAPCD prior to the start of any earthmoving activity. The project shall not commence until the EKAPCD has approved or conditionally approved the plan.

Rule 404.1 – Particulate Matter Concentrations – Desert Basin

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

Rule 423 adopts the EPA's National Emissions Standards for Hazardous Air Pollutants by reference, which grants EKAPCD the ability to ensure that all sources of hazardous air pollution would comply with applicable standards, criteria, and requirements set forth in Title 40, Chapter 1, Parts 61 and 63, of the Code of Federal Regulations that are in effect as of October 10, 2017.

2017 Ozone Attainment Plan

In 2008, USEPA adopted a more stringent 8-hour ozone NAAQS of 0.075 ppm. Although the 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, the 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).

The 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 the 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 2017b). USEPA has not yet approved the plan.

Air Quality Conformity Determination for Transportation Plans and Programs

The CAA Amendments of 1990 require a finding to be made stating that any project, program, or plan subject to approval by a metropolitan planning organization conforms to air plans for attainment of air quality standards. The Kern Council of Governments (Kern COG) is designated the Regional Transportation Planning Agency and Metropolitan Planning Organization for Kern County. In that capacity, Kern COG models air quality projections on population projections in conjunction with current general plan designations and estimated vehicle miles as well as the current Regional Transportation Plan (RTP) and the Federal transportation plan for Kern County. These results are compared to pollutant budgets for each basin approved by the USEPA in the 1999 base year. Kern County is contained within two air basins: SJVAB and the MDAB. Each air basin has its own plans and pollutant budgets. Kern COG makes conformity findings for each air basin.

The Federal Transportation Improvement Program (FTIP) for the Kern County region is a 6-year schedule of multimodal transportation improvements, and the RTP is a long-range, 26-year transportation plan. The conformity findings conclude that the FTIP and RTP result in emissions that are less than the emission budgets of baseline emissions for CO, VOC, NO_X, and PM_{10} (Kern COG 2022).

4.2.4 Impacts and Mitigation Measures

This section describes the impact analysis relating to air quality for the proposed 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. Where warranted, measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany an impact discussion.

Methodology

The air quality significance criteria were developed considering the California Environmental Quality Act (CEQA) significance criteria developed by the local air quality districts in the

project area, approved CEQA air quality checklists, and considering other Federal criteria. The air quality analysis is supported by the *Air Quality and Greenhouse Gas Assessment for Gem Hill Quarry, Kern County, California* (Lilburn 2022a), included as Appendix C.1, and *Gem Hill Quarry Project Health Risk Assessment Analysis* (Ganddini 2022), included as Appendix C.2, and incorporated by reference herein.

The air quality impact assessment depends on the project description, the estimated production rates, and on-site equipment and vehicles. In particular, the "tier" level for the diesel engines and their related emission factors that are substantially lower with higher tier level. Currently, all new diesel engines must meet Tier 4 Final emission levels for diesel engines based on engine horsepower. The proposed project is essentially a construction-type project as the material would be excavated by loaders and transported to markets by street-legal haul trucks. Approximately 82.2 acres would be disturbed, which includes mined area, overburden stockpiles, haul roads, work areas, and retention basins. The secondary access road is proposed to be to be 24 feet wide with a 6-foot shoulder on either side (for a surface disturbance width of 36 feet) over a length of approximately 0.3 mile. In addition, the primary access road would be widened to 24 feet wide with a 6-foot shoulder on either side (for a surface disturbance width of 36 feet) over a length of approximately 845 feet (Lilburn 2022a).

The construction and operational emissions associated with the project were estimated using the latest emission factors from the following sources (Lilburn 2022a):

- EKAPCD's Guidelines for Implementation of CEQA;
- CARB's EMFAC 2017 (v1.0.2) Emission Factors;
- SCAQMD and the California Emissions Estimator Model (CalEEMOD) Off-Road Mobile Source Emissions Factors;
- Equipment that will meet the project proponent's fleet averaging requirements;
- EPA's AP-42 Section 13.2.2 unpaved roads (November 2006);
- EPA's AP-42 and SCAQMD Particulate Matter Emission Factors (July 2010); and
- CARB Carl Moyer Program Guidelines for In-Use Off-Road Diesel-Fueled Emissions (2017) and CARB Fleets Regulations.

Thresholds of Significance

Kern County has adopted the following significance thresholds concerning air quality for projects located within the MDAB portion of Kern County. The thresholds for operational and area source emissions are as follows:

- 25 tons per year for ROG;
- 25 tons per year for NO_X;
- 15 tons per year for PM_{10}; and
- 25 tons per year for stationary sources (non-pollutant specific).

These standards are utilized in air quality analysis along with Federal and State guidelines for assessing air quality impacts. Kern County-adopted thresholds are defined for purposes of determining cumulative effects as the baseline for "considerable."

Additionally, in order to be consistent with Federal guidance documents, actions that violate Federal standards for criteria pollutants (i.e., primary standards designed to safeguard the health of people considered to be sensitive receptors while outdoors and secondary standards designed to safeguard human welfare) are considered significant impacts, and actions that violate State standards developed by the CARB or criteria developed by the EKAPCD, including thresholds for criteria pollutants, are considered significant impacts. The EKAPCD's thresholds are presented below in **Table 4.2-4**, *EKAPCD Emission Thresholds*.

Table 4.2-4 EKAPCD Emission Thresholds

Criteria Pollutant Emission Thresholds	
Nitrogen Dioxide (NO_2)	137 lbs./day (mobile); 25 tons/yr.
Reactive Organic Gases (ROG)	137 lbs./day (mobile); 25 tons/yr.
Sulfur Dioxide (SO_2)	--- lbs./day; 27 tons/yr.
Particulate Matter (PM10)	--- lbs./day; 15 tons/yr.
Particulate Matter PM (2.5)	--- lbs./day; 15 tons/yr.
Toxic Air Contaminants (TACs) Thresholds[1]	
TACs (Including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million. Hazard Index (project increment) 1.0 or greater.

Source: 2019 EKAPCD Annual AB 2588 Air Toxics Reports

Visibility

The CAAQS for VRP represents a policy judgment that a certain minimum degree of visibility is conducive to public welfare, regardless of location. This policy is manifested as a Statewide minimum dry air particle extinction limit of 0.23/kilometer (230 Mm-1) averaged from 9:00 a.m. to 5:00 p.m. (PST) when Relative Humidity (RH) is less than 70%. This is roughly equivalent to Vr = 10 miles. The standard is 0.07/kilometer (70 Mm-1) for the Lake Tahoe Air Basin (roughly equivalent to Vr = 30 miles). Equivalent PM_{10} concentrations when this standard is just met range from about 50 micrograms per cubic meter ($\mu g/m^3$) for a fine particle dominated urban setting (e.g., Sacramento in the winter) to 90 or more $\mu g/m^3$ for a mixture of coarse and fine particles (e.g., Central Valley in the summer). The Lake Tahoe VRP limit equates to PM_{10} concentrations ranging from about 16 to 25 $\mu g/m^3$ over a similar range of aerosol characteristics.

Health Risk-Based Thresholds

The OEHHA is responsible for setting health risk thresholds for air toxics. These thresholds include Reference Exposure Levels (RELs) for non-carcinogenic toxins that pose potential acute and/or chronic health risks and Unit Risk Factors (URFs) for carcinogens. The RELs and URFs represent exposure levels that OEHHA deems not likely to cause adverse effects in a human population, including sensitive receptors. These thresholds are based on the most recent scientific data and are designed to protect the most sensitive individuals in the population by inclusion of margins of safety. The thresholds approved by the EKAPCD are a potential to

increase cancer risk for the person with maximum exposure potential by 10 in 1 million or a non-cancer Hazard Index greater than 1 for both acute and chronic exposure.

There are no thresholds of significance for Valley Fever that have been adopted by the State. However, the likelihood of its occurrence can be determined based on the proposed project location.

Kern County Environmental Checklist Thresholds

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA Guidelines, to determine if a project could potentially have a significant adverse effect related to air quality. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related 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, would implementation of the project (in a specific location) exceed any of the following adopted thresholds:

    ii. Eastern Kern Air Pollution Control District.

    Operational and Area Sources:

    Reactive Organic Gases (ROG): 25 tons per year.

    Oxides of nitrogen (NO_x): 25 tons per year.

    Particulate Matter (PM_{10}): 15 tons per year.

    Stationary Sources - determined by District Rules: 25 tons per year.

c. Expose sensitive receptors to substantial pollutant concentrations; or

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The Lead Agency determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/ IS and additional information regarding the following impact:

- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Project Impacts

Impact 4.2-1: The project would conflict with or obstruct implementation of applicable air quality plans.

The project site is located within the administrative boundaries of the EKAPCD, which has jurisdiction over air quality in the Kern County portion of the MDAB. The EKAPCD has developed plans to attain Federal and State standards for ozone and particulate matter. The EKAPCD's air quality plans include emissions inventories to identify the sources and quantities of air pollutant emissions, evaluate how well different control methods have worked, and demonstrate how air pollution will be reduced. The plans also use computer modeling to estimate future levels of pollution to ensure that the MDAB will meet air quality goals. The following attainment/maintenance plans are in effect, as detailed in **Section 4.2.3**, *Regulatory Setting*, above.

Eight-Hour Ozone 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 Federal Clean Air Act, 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.

PM_{10} and $PM_{2.5}$

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.

Consistency with EKAPCD Applicable Rules

The proposed project will result in emissions from non-permitted sources (e.g., trucks, employee and contractor trips, onsite vehicles). Air pollutants will also be emitted during project activities. The following is a list of the EKAPCD rules that could potentially apply to the proposed project.

- Rule 201 (Permits Required)
- Rule 210.1 (New & Modified Stationary Source Review [NSR])
- Rule 210.2 (Standards for Permits to Operate)
- Rule 210.3 (Emission Reductions Banking)
- Rule 210.4 (Prevention of Significant Deterioration)
- Rule 210.5 (Visibility Protection)

- Rule 210.7 (Federal General Conformity Rule)
- Rule 210.8 (Federal Transportation Conformity)
- Rule 210.9 (Construction or Reconstruction of Major Stationary Sources of Hazardous Air Pollutants)
- Rule 301 (Permit Fees)
- Rule 301.4 (Greenhouse Gas Fee)
- Rule 401 (Visible Emissions)
- Rule 402 (Fugitive Dust)
- Rule 404.1 (Particulate Matter Concentration-Desert Basin)
- Rule 405 (Particulate Matter-Emission Rate)
- Rule 410 (Organic Solvents)
- Rule 410.1 (Architectural Coating Controls)
- Rule 410.2 (Disposal and Evaporation of Solvents)
- Rule 410.3 (Organic Solvent Degreasing Operations)
- Rule 411 (Storage of Organic Liquids)
- Rule 412 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants)
- Rule 412.1 (Transfer of Gasoline into Vehicle Fuel Tanks)
- Rule 416 (Open Burning)
- Rule 419 (Nuisance)
- Rule 422 (Standards of Performance for New Stationary Sources [NSPS])

This evaluation is based on the quantified criteria pollutant thresholds used for assessing regional air quality impacts. The project must comply with the EKAPCD's rules and regulations and conform to all adopted mitigation measures to reduce those impacts.

Consistency with Kern County General Plan

Implementation of the project is consistent with the goals of the *Kern County General Plan* in providing an adequate and geographically balanced supply of land designated for a range of industrial purposes. With the exception of residences located to the northeast of the project site, the nearest of which is approximately 858 feet from the site boundary, and approximately 1,800 feet from project activities, the proposed project is geographically isolated from sensitive uses; as such, the project promotes compatibility with land uses that may be affected by mining operations while simultaneously ensuring economic strength and well-being of Kern County and its residents without detriment to its environmental quality. In conclusion, the proposed project is consistent with the *Kern County General Plan* and will adhere to all EKAPCD rules and regulations necessary to ensure ongoing compliance with all adopted attainment plans.

Based on the factors discussed above, the potential for the project to conflict with or obstruct the implementation of an applicable air quality plan is less than significant. Nevertheless, the

County considers the project emissions to be potentially significant. Mitigation Measure MM 4.2-1, outlined below, has been included to ensure the project complies with any applicable requirement of the EKAPCD. With implementation of the required mitigation measures, impacts are considered less than significant.

Mitigation Measures

MM 4.2-1 The project shall comply with any applicable requirement of the Eastern Kern Air Pollution Control District (EKAPCD).

Level of Significance After Mitigation

With implementation of Mitigation Measure MM 4.2-1, impacts would remain less than significant.

Impact 4.2-2: The project would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard.

The following thresholds of significance for criteria pollutants were adopted by the Kern County Air Pollution Control District Board of Directors in 1999 and remain applicable within the EKAPCD (EKAPCD, 1999). To determine if a proposed project has the potential to significantly impact the ambient air quality, the EKACPD utilizes the following net daily/annual emission increases as CEQA thresholds of significance. If the potential emissions exceed these thresholds, then the project may have a significant air quality impact:

- Nitrogen Dioxide (NO2): 137 lbs./day (mobile); 25 tons/year
- Reactive Organic Gases (ROG): 137 lbs./day (mobile); 25 tons/year
- Sulfur Dioxide (SO2): lbs./day; 27 tons/year
- Particulate Matter (PM10): lbs./day; 15 tons/year
- Particulate Matter PM (2.5): lbs./day; 15 tons/year

The proposed project would result in both short-term construction emissions and long-term operational emissions. As discussed above, the proposed project's short-term construction emissions and long-term operational emissions were estimated using the latest emission factors from the following sources (Lilburn 2022a):

- EKAPCD's Guidelines for Implementation of CEQA;
- CARB's EMFAC 2017 (v1.0.2) Emission Factors;
- SCAQMD and the California Emissions Estimator Model (CalEEMOD) Off-Road Mobile Source Emissions Factors;
- Equipment that will meet the project proponent's fleet averaging requirements;
- EPA's AP-42 Section 13.2.2 unpaved roads (November 2006);
- EPA's AP-42 and SCAQMD Particulate Matter Emission Factors (July 2010); and

- CARB Carl Moyer Program Guidelines for In-Use Off-Road Diesel-Fueled Emissions (2017) and CARB Fleets Regulations.

The sections below discuss short-term construction emissions and long-term operational emissions predicted for the project and compare emissions against the criteria pollutant thresholds discussed above.

Short-Term Emissions

Short-term emissions associated with the proposed project would include vehicle and equipment exhaust and fugitive particulate matter during site preparation including preparation of on-site access roads and stormwater basins.

Table 4.2-5, *Construction-Related Emissions*, presents estimate construction emissions for construction of the project primary access road (anticipated to require approximately two days to complete) and construction of the secondary access road and other on-site roads and stormwater basins (anticipated to require approximately 40 days to complete).

Table 4.2-5 Construction-Related Emissions

Emissions Source	Tons per Year[1]				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Primary Access Road Construction	0.0004	0.0004	0.017	0.009	0.0025
On-Site Roads and Stormwater Basins Construction	0.39	2.05	17.31	8.83	2.5
Total Construction Emissions	**0.3904**	**2.0504**	**17.327**	**8.839**	**2.5025**
Significance Threshold (tons per year)	25	25	--[1]	15	15[2]
Significant?	No	No	No	No	No

Source: Lilburn 2022a.
Notes:
1. Tons per year shown are for total construction emissions anticipated to occur during a single year (two-day period for primary access road and 40-day period for secondary access road, other on-site roads, and stormwater basins).
2. MDAB is in attainment for CO; therefore, no specific level emissions from a project are considered significant.
3. USEPA specified interim use of PM_{10} threshold for $PM_{2.5}$

As shown in **Table 4.2-5,** *Construction-Related Emissions*, the levels of air pollutants emitted by the project for the site preparation/construction phase would be below the Kern County level of significance.

The Kern County area and the MDAB is designated nonattainment for PM_{10} particulates for both Federal and State standards and unclassified for $PM_{2.5}$ particulates. Fugitive particulate emissions would occur during construction and operation. Control measures are required and enforced by the EKAPVD under Regulation IV. Implementation of these control measures would further reduce short-term emissions that are considered less than significant. In accordance with EKAPCD rules, the dust control measures are required to be in place and operative with an approved Fugitive Dust Emission Control Plan and periodic monitoring by EKAPCD and the project proponent ensuring that the regulatory standards are met. Principal

dust control measures to be implemented for the project are discussed further below under operational emissions, but would also be implemented during the construction phase.

Long-Term Emissions

Long-term emissions associated with project operations would be generated from vehicles and equipment exhaust associated with project operation and area source fugitive particulate matter. Typical mining operations associated with the project would involve use of a loader, excavator, and a dozer to break, move, and load material directly into single trailer or double trailers trucks with capacities of up to approximately 25 tons (typical). The proposed annual production is estimated at 500,000 tpy; which equates to an average of approximately 1,670 tons/day on 300 operational days/year. A water truck will be utilized for dust control on mining areas, haul roads, and stockpiles. Exhaust or criteria pollutants will be produced from the mobile equipment and portable generators. Dust will be produced from mining and truck travel on gravel/dirt haul and access roads. Operations will be required to comply with the existing EKAPCD regulations for mobile equipment and fugitive dust control. No crushing, screening or other processing is proposed onsite; therefore, there are no stationary emission sources planned on-site. **Table 4.2-6**, *Typical Quarry Equipment*, lists the typical equipment to be used on-site and the number of anticipated operational days for each equipment type per year.

Table 4.2-6 Typical Quarry Equipment

Equipment	Typical Number	Typical Days/Year	Purpose
Front-End Loader (CAT 980 typ.)	1	300	Loading of excavated materials into haul trucks at quarry.
Dozer (CAT D8 typ.)	1	150	Mining and stockpiling of pozzolan material. Removal of topsoil and waste rock. Construction and maintenance of roads and quarry benches.
Excavator (CAT 325 typ.)	1	60	Mining and stockpiling of pozzolan material and overburden.
Grader (CAT 140 typ.)	1	60	Removal of topsoil and waste rock. Construction and maintenance of roads.
Drill Rig (PowerROC T25 typ.)	1	130	Drill holes for placement of explosives.
On-Road Haul Trucks (25-ton trucks typ.)	10	300	Transportation of excavated material to various clients and overburden to stockpiles.
Water Truck (4,000 gallons)	1	300	Water spray haul roads, active quarry areas, overburden stockpiles, and general dust control onsite.
Tractor skid steer	1	60	Removal of topsoil and waste rock. Construction and maintenance of roads.
Generator Sets (50 hp typ) (CAT XQ 35 typ)	2	300	Power for water well pump and scale/office trailer.

Table 4.2-6 Typical Quarry Equipment

Ancillary Equipment	Varies	Varies	Maintenance vehicles, bobcat, backhoe, pick-ups, SUVs, etc.

Source: Lilburn 2022a
Notes:
1. Equipment listed is typical equipment to be used on-site. Specific equipment will change during the life of the project due to replacement of aging equipment and updated equipment and fleet averaging requirements. Hours per day varies with demand and ore/overburden quantities.

Operational emissions for the proposed project's mobile equipment and trucks were estimated utilizing the following emission factors and methodologies.

- ***Production:*** average of 1,670 tons/day and up to 500,000 tons/year (depending on market demand)
- ***Hours of Operation:*** Typical operations will be completed in one shift; approximately 10 hours/day, 6 days/week; 300 days/year (equipment usage hours vary). Additional shifts or a change in hours may be required due to operational constraints.
- ***Material Transport:*** Street-legal 25-ton capacity haul trucks directly from the quarry off-site to various clients and markets; 25-ton trucks, 6 days/week averaging approximately 67 truck roundtrips per day.
- ***Overburden Transport:*** Approximately 4% of the material mined (varies annually depending on quarry excavation location) transported in same 25-ton capacity street-legal haul trucks to on-site overburden stockpile areas; six days/week, average of three truck trips/day.
- ***Regulatory Compliance:*** All equipment will meet current and future diesel emission regulations.

Table 4.2-7, *Operational Emissions Summary*, provides the estimated emissions for the planned operations in comparison to EKAPCD and Kern County thresholds. Emissions for each equipment/activity type are presented in pounds per day and converted as subtotals to tons per year for comparison to significance thresholds.

Table 4.2-7 Operational Emissions Summary

Source/Phase	ROC/VOC	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site (pounds per day)					
Loader	*0.115*	*0.76*	*6.43*	*0.03*	*0.02*
Excavator	*0.03*	*014*	*1.20*	*<0.01*	*<0.01*
Grader	*0.02*	*0.13*	*1.07*	*<0.01*	*<0.01*
Dozer	*0.08*	*0.43*	*3.60*	*0.02*	*0.02*
Water Truck	*0.11*	*0.57*	*4.82*	*0.02*	*0.02*
Skip Steer	*0.05*	*0.08*	*1.14*	*<0.01*	*<0.01*
Drill rig	*0.06*	*0.23*	*3.28*	*0.01*	*0.01*
Portable Generators	*0.01*	*2.90*	*0.39*	*<0.01*	*<0.01*
Backhoe/bobcat	*0.06*	*0.30*	*2.57*	*0.01*	*0.01*

Table 4.2-7 Operational Emissions Summary

Source/Phase	ROC/VOC	NO_X	CO	PM_{10}	$PM_{2.5}$
Haul Trucks[1] On-Site	*0.02*	*0.73*	*0.08*	*0.08*	*0.07*
Fugitive Dust Emissions[2]	---	---	---	*42.4*	*8.0*
On-Site Sub-Total (pounds per day)	***0.58***	***6.27***	***24.57***	***42.59***	***8.18***
Off-Site (pounds per day)					
Haul Trucks[1]	*0.40*	*19.10*	*2.11*	*0.37*	*0.34*
Employee Trips[1]	*0.27*	*0.20*	*2.19*	*0.05*	*0.05*
Maintenance and Service Vehicles[1]	*0.01*	*0.48*	*0.05*	*0.01*	*0.01*
Off-Site Sub-Total	***0.68***	***19.78***	***4.35***	***0.43***	***0.40***
Total On- and Off-Site Pounds per Day	**1.26**	**26.05**	**28.92**	**43.02**	**8.72**
Tons Per Year (300 Operational Days/Year)					
On-Site	0.09	0.94	3.69	6.39	1.23
Off-Site	0.10	2.97	0.65	0.07	0.06
Total Tons per Year	**0.19**	**3.91**	**4.34**	**6.46**	**1.29**
Significance Threshold	25	25	NA	15	15
Significant?	No	No	No	No	No

Source: Lilburn 2022a
Emission Sources: CARB Carl Moyer Program Guidelines 2017 Revisions
1. Source: Lilburn 2022a, Appendix A; EMFAC2017 On-Road Heavy Heavy-Duty Diesel Truck & On-Road Passenger Vehicles.
2. Fugitive dust PM_{10} and $PM_{2.5}$ emissions estimated using EPA AP-42 and South Coast Air Quality Management District (SCAQMD) guidance.
3. Operational emissions from SO_X is less than 0.01.

Fugitive dust would be generated by mining activities, wind, and the transporting of material on unpaved haul roads. Activities onsite will include drilling, blasting, dozing, loading and dumping material, and wind erosion of overburden stockpiles and active quarry areas. Water spraying will be used at the active quarrying and loading areas, active overburden stockpiles, other operational areas, and roads. The volcanic tuff pozzolan to be mined has a minimal silt content and relatively high moisture content (10.4%) (Lilburn 2022a).

Fugitive dust emissions from planned on-site activities and road dust are estimated and summarized in **Table 4.2-7**, *Operational Emissions Summary*, above. As shown in the table, nearly all of the PM_{10} and $PM_{2.5}$ emissions predicted for project operations are associated with fugitive dust emissions which are estimated at a combined total of approximately 50.4 pounds per day and approximately 6.6 tons per year.

As shown in **Table 4.2-7**, *Operational Emissions Summary*, above, the anticipated operational emissions are less than the EKAPCD thresholds and would be considered less than significant. However, compliance with EKAPCD rules and CARB's Off-Road Diesel Vehicle regulations would further reduce emissions. These rules include but not limited to the following:

Rule 401. Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emission, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

1. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or
2. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A of the rule.

Rule 402. The purpose of Rule 402 is to reduce the amount of PM_{10} from significant manmade fugitive dust sources from large operations and in an amount sufficient to maintain National Ambient Air Quality Standards. A large operation is defined as "any active operation, including vehicle movement on unpaved roadways, on property involving in excess of 10 contiguous acres of disturbed surface area, or any earth-morning activity exceeding a daily volume of 7,700 cubic meters (10,000 cubic yards) three (3) times during the most recent 365-day period." This rule shall apply to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion. Rule 402 includes the following requirements:

a) 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. This Subsection shall not apply to unpaved roadways.

b) A person shall utilize one (1) or more Reasonably Available Control Measures to minimize fugitive dust emissions from each fugitive dust source type which is part of any active operation subject to this Rule, including unpaved roadways.

c) For any large operation, except those satisfying Subsection V.D.3. (implementation of RACM's), a person shall not cause or allow downwind PM10 ambient concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations as determined by simultaneous upwind and downwind sampling. High-volume particulate matter samplers, or other EPA-approved equivalent method(s) for PM_{10} monitoring shall be used.

d) No person shall conduct or authorize conducting a large operation subject to requirements of this Rule without either: (1) conducting on-site PM_{10} air quality monitoring and associated recordkeeping, or (2) filing for and obtaining an approved fugitive dust emissions control plan pursuant to Subsection V.D.3.

Dust control measures to be implemented on-site are required to be consistent with EKAPCD Regulation IV rules. The principal dust control measures proposed to be implemented during construction and operation as identified by the project proponent include those listed below (Lilburn 2022a):

- Water spraying of roads, operational quarry areas, and active overburden stockpiles with dedicated on-site water truck with on-site water well source as needed;
- Use of approved dust palliatives for roads as appropriate;
- Use a rumble grate with paved entrance apron to reduce track out;
- Remove any spilled or tracked out material on adjacent portion of Mojave Tropico Road as needed;
- Truck loads to be loaded in compliance with California Vehicle Code No. 23114;

- Production shall be scheduled to minimize daily equipment operations and idling equipment and trucks;
- Limit disturbed areas;
- Revegetate areas when complete;
- Trucks in loading queues will have their engines turned off when not in use for more than 5 minutes to reduce idling and vehicle emissions in compliance with Title 13, California Code of Regulations, Section 2485 (Anti-Idling Policy); and
- Surface mining operations, including excavating, shall be suspended during high winds or if dust plumes of 20% opacity impact off-site roads, occupied structures, or neighboring property.

Based on the emissions analysis and modelling included in Appendix C.1, the project's emissions during construction and operations do not exceed Kern County thresholds of significance for any criteria pollutant. Additionally, upon completion of mining, all disturbed slopes will be reclaimed and revegetated per SMARA standards as outlined in the proposed project's reclamation plan. Reclamation activities would occur within a one-year period after the completion of mining, requiring an estimated 80 days of grading and earthmoving similar to mining operations but without off-site haul truck operations. Reclamation emissions are projected to be approximately 25 percent of operational emissions; and therefore, would not exceed EKAPCD or Kern County thresholds.

Although construction, operations, and reclamation emissions are predicted to be below the thresholds of significance, the Lead Agency considers the project emissions related to fugitive dust to be potentially significant and has included Mitigation Measures MM 4.3-2 through MM 4.3-7 to ensure impacts would be reduced to be less than significant. With implementation of the required mitigation measures, impacts will remain less than significant.

Mitigation Measures

MM 4.2-2 As proposed, the project will meet the definition of a "large operation" under the Eastern Kern Air Pollution Control District's (EKAPCD) Rule 402. The project proponent/operator shall develop and implement a Fugitive Dust Control Plan in compliance with EKAPCD's Rule 402 for fugitive dust suppression regulations to further reduce emissions, during operations, of particulate matter that is 10 microns or less in diameter (PM_{10}) and 2.5 microns or less in diameter ($PM_{2.5}$). The Fugitive Dust Control Plan shall include:

A. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.

B. Description and location of operation(s).

C. Listing of all fugitive dust emissions sources included in the operation.

D. Listing of dust control measures to be included, such as the following:

1. All on-site unpaved roads shall be effectively stabilized using water or chemical soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than

California Air Resources Board-approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.

2. All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles will be watered as needed to limit dust emissions to less than 20% opacity or covered with temporary coverings.
3. Activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes. Such activities may continue if dust suppression measures are used to minimize visible dust plumes.
4. Track-out debris onto public paved roads shall not extend 50 feet or more from an active operation and track-out shall be removed or isolated such as behind a locked gate at the conclusion of each workday.
5. All hauling materials shall be moist while being loaded into haul trucks.
6. All material on haul trucks shall be effectively contained in accordance with EKAPCD regulations.
7. Material loads on trucks shall maintain at least 6 inches of freeboard space below the top of the container.
8. Drop heights shall be minimized when loaders dump material into trucks.
9. Gate seals shall be tight on haul trucks.
10. Limit vehicular speed while traveling on the work site sufficient to limit Visible Dust Emissions (VDE) to 20% opacity, or load all haul trucks such that the freeboard is not less than six (6) inches when material is transported across any paved public access road sufficient to limit VDE to 20% opacity, or apply water to the top of the load sufficient to limit VDE to 20% opacity, or cover haul trucks with a tarp or other suitable cover.
11. All grading activities shall be suspended when visible dust emissions exceed 20%.
12. Other fugitive dust control measures as necessary to comply with EKAPCD Rules and Regulations.
13. Disturbed areas shall be minimized.
14. Disturbed areas shall be revegetated as soon as possible after disturbance if area is no longer needed for mining activities.

MM 4.2-3 Surface disturbance shall be kept to a minimum in advance of mining. At such time as surface mining or associated activities have been completed on an area of disturbed land, reclamation efforts shall be initiated on those portions of the disturbed lands that will not be subject to further disturbance by the surface mining operation or its associated activities.

MM 4.2-4 Fugitive dust emissions shall be minimized during the course of mining and reclamation utilizing the application of water or by presoaking. Haul roads shall be watered or have a palliative applied, depending on weather and road conditions, as necessary to adhere to the requirements of the Eastern Kern Air Pollution Control District.

MM 4.2-5 Mined materials transported off-site shall be covered, effectively wetted to limit visible dust emissions, or employ at least 6 inches of freeboard space to separate material from the top of the container.

MM 4.2-6 The fleet of diesel engines in off-road vehicles operating at the project site shall comply with the In-Use Off-Road Engine Air Toxic Control Measure (13 California Code of Regulations [CCR] Sections 2449 and 2449.1).

A. All equipment shall be turned off when not in use. Engine idling of all equipment shall be limited to 5 minutes, except under exemptions specified in 13 CCR Section 2449(d)(2). In addition, the facility shall have a written idling policy and distribute it to vehicle operators as required by this regulation.

B. All equipment engines shall be maintained in good operating condition and in proper tune per manufacturers' specifications.

MM 4.2-7 To further reduce emissions of nitrogen oxides from on-road heavy-duty diesel haul vehicles:

A. 2007 engines or pre-2007 engines shall comply with California Air Resources Board retrofit requirements set forth in 13 California Code of Regulations (CCR) Section 2025.

B. All on-road haul trucks, except those meeting the 2007/California Air Resources Board-certified Level 3 diesel emissions controls, shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to worker personal vehicles.

C. All on-road haul trucks shall be properly tuned and maintained in accordance with the manufacturers' specifications.

Level of Significance After Mitigation

With implementation of Mitigation Measures MM 4.2-2 through 4.2-7, impacts will remain less than significant.

Impact 4.2-3: The project would expose sensitive receptors to substantial pollutant concentrations.

Determination of whether project emissions would expose sensitive receptors to substantial pollutant concentrations is a function of assessing potential health risks. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. When evaluating whether a project has the potential to result in localized impacts, the nature of the air pollutant emissions, the proximity between the emitting facility and sensitive receptors, the direction of prevailing winds, and local topography must be considered.

A Health Risk Assessment was performed to evaluate the effects of toxic air contaminants (TACs) including diesel particulate matter (DPM) from vehicles and various substances found in fugitive dust emissions, as discussed in detail below.

Sensitive receptors to air pollutant emissions are locations where human populations, especially children, senior citizens, and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, such as 24-hour, 8-hour or 1-hour. Examples of sensitive receptors include residences, hospitals, and schools. Industrial and commercial uses are not considered sensitive receptors for the purposes of this evaluation.

Potential Effect on Sensitive Receptors

Sierra Club vs. County of Fresno (December 24, 2018)

In Sierra Club v. County of Fresno (S219783) (*Sierra Club*) the California 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 South Coast Air Quality Management District (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 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 the 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, ROGs, and VOCs; O_3 is not directly emitted into the air, but is instead formed as ozone precursors that 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 (State 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 proposed 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 amounts 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 Appendix C.3 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 where the project is located is designated as an attainment area for O_3 (1- hour), unclassifiable/attachment for PM_{10}, and $PM_{2.5}$, and nonattainment for O_3 (8-hour) under the NAAQS, and nonattainment for O_3, PM_{10}, and $PM_{2.5}$ under the CAAQS.

As discussed above at Impact 4.2-2 and presented above in **Table 4.2-5**, *Construction-Related Emissions*, and **Table 4.2-7**, *Operational Emissions Summary*, project criteria pollutant emissions would be well below the significance thresholds established by the EKAPCD and the County. As these thresholds are established in consideration of ambient air quality and human health factors and because the project would not exceed the thresholds, the analysis concludes that the project impact associated with health effects of criteria pollutant emissions would be less than significant.

Health Risk Thresholds for Toxic Air Contaminants (TACs) Emissions on Existing Sensitive Receptors

As previously discussed, the EKAPCD has approved the following health risk thresholds for air toxics:

- Does the project have the potential to increase cancer risk for a person with maximum exposure potential by 10 in 1 million; and
- Does the project have the potential to increase a non-cancer Hazard Index greater than 1 for both acute and chronic exposure?

Health Risk Analysis of Project Toxic Air Contaminants (TACs) Emissions on Existing Sensitive Receptors

Sources of toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3- butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as from accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death (Ganddini 2022).

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust (Ganddini 2022).

According to the 2013 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of $PM_{2.5}$ because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led CARB to adopt the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles* in September 2000. The risk reduction plan's goals are a 75 percent reduction in DPM emissions by 2010 and an 85 percent reduction in DPM emissions by 2020, both as compared to the year 2000 baseline.

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot". Diesel exhaust also contains a variety of harmful gases and over 40 other cancer- causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

CARB has monitoring networks that measure ambient concentrations of certain TACs that are associated with important health-related effects, and are present in appreciable concentrations in each area. The CARB publishes annual statewide, air basin, and location-specific summaries of the concentration levels of several TACs and their resulting cancer risks. The most recent summary is the CARB Air Quality Almanac for 2013 (CARB 2013). The Almanac presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. These TACs are:

- acetaldehyde,
- benzene,
- 1,3-butadiene,
- carbon tetrachloride,
- hexavalent chromium,
- para-dichlorobenzene,
- formaldehyde,
- methylene chloride, and
- perchloroethylene.

DPM is not directly measured but is indirectly estimated based on fine particulate matter measurements and special studies on the chemical speciation of ambient fine particulate data along with receptor modeling techniques. CARB showed that DPM emissions decreased 37 percent from 2000 to 2010 primarily as a result of more stringent emissions standards and the introduction of cleaner burning diesel fuel. Emissions from diesel mobile sources are projected to continue to decrease after 2010. Overall, statewide emissions are forecasted to decline by 71 percent between 2000 and 2035. CARB estimates that 78 percent of the known statewide cancer risks are from the top 10 outdoor air toxics in addition to DPM (Ganddini 2022).

Estimates of total cancer risk statewide have shown a steady decline from the early 1990s when the cancer risk from DPM was estimated to be 1,696 in one million. By the year 2000, the cancer risk was estimated to be 1,005 in one million or a reduction of 41 percent. Reductions in cancer risk are expected to continue into the future as new emission controls are implemented that further reduce DPM emissions, the major component of the total airborne cancer risk. Review of data from the three-year period 2018-2020 for the Bakersfield air monitoring station (approximately 55 miles northwest of the project site) indicates that the cancer risk attributable to non-DPM chemicals (i.e., the 10 TACs measured by the ARB listed above) have also shown significant reductions declining from an estimated cancer risk of 262 in one million in 2018, to 209 in one million in 2019, a reduction of approximately 20 percent (Ganddini 2022).

Risk Characterization

Cancer risk represents the probability (in terms of risk per million individuals) that an individual would contract cancer resulting from exposure to TACs continuously over a lifetime exposure period of 30 years for sensitive receptors. Thus, an individual located in an area with a cancer risk of one would experience a one chance out of a population of one million of contracting cancer over a 30-year time period, assuming that individual lives in that area for the entire 30-year time period. TACs can also cause chronic (long-term) and acute (short-term) related non-cancer illnesses such as reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system effects, birth defects, or other adverse environmental effects. Risk characterization for non-cancer health hazards from TACs is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of the project's emissions to a concentration considered acceptable to public health professionals, termed the Reference Exposure Level (REL).

The 2019 EKAPCD Annual AB 2588 Air Toxics Report has established the following health risk thresholds, which are used as the significance thresholds for this impact analysis:

- Maximum Incremental Cancer Risk: 10 in 1 million at the nearest sensitive receptor.
- Hazard Index (project increment) 1.0 or greater.

Operational Phase Direct Toxic Impacts

The health risk assessment prepared for the project involved the following four general steps:

1. Quantify project-generated TAC emissions.

2. Identify nearby ground-level receptor locations that may be affected by the emissions (including any special sensitive receptor locations such as residences, schools, hospitals, convalescent homes, and daycare centers).
3. Perform air dispersion modeling analyses to estimate ambient pollutant concentrations at each receptor location using project TAC emissions and representative meteorological data to define the transport and dispersion of those emissions in the atmosphere.
4. Characterize and compare the calculated health risks with the applicable health risk significance thresholds.

A detailed description of the methodology and modeling inputs for the health risk assessment are described in Appendix C.2 of this EIR. DPM emissions from the various on-site and off-site sources were obtained from the *Air Quality and Greenhouse Gas Assessment for Gem Hill Quarry* (Lilburn 2022a) discussed previously and included as Appendix C.1 of this EIR. As discussed previously, the project would generate about 67 roundtrip haul truck trips each operational day. To account for potential variation and to provide a conservative estimate of health risk, 80 roundtrips per day were assumed for a total of 160 truck trips on study area road segments per day, which were modeled reflecting a rate of 8 trucks (16 trips) per hour over the duration of the 10-hour workday (Ganddini 2022).

The assessment identified a network of receptors where the impacts can be computed at various locations surrounding the project. Receptors were located at the ten existing sensitive receptors (residences) closest to the proposed project and haul truck route along Mojave-Tropico Road and Backus Road, as shown on **Figure 4.2-1**, *Air Quality Analysis Sensitive Receptor Locations*. In addition, the identified sensitive receptor locations were supplemented by the specification of a Cartesian Receptor modeling grid that extended around the proposed project to identify other potential locations of impact.

The assessment applied the USEPA AERMOD Model, which is the air dispersion model accepted by the EKAPCD for performing air quality impact analyses. AERMOD predicts pollutant concentrations from point, area, volume, line, and flare sources with variable emissions in terrain from flat to complex with the inclusion of building downwash effects from buildings on pollutant dispersion. It captures the essential atmospheric physical processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios.

Carcinogenic Health Risk Impacts

The assessment of cancer-related health risk to the text sensitive receptors within the project vicinity is based on the following most-conservative exposure scenario consisting of the following factors for an individual:

- an unborn child in its 3rd trimester is potentially exposed to DPM emissions (via exposure of the mother) during the opening year;
- that child is born opening year and then remains at home for 85 percent of the first two years of life;
- from age 2 to 16, the child remains at home 72 percent of the time; and

- from age 16 to 30, the child continues to live at home, growing into an adult that spends 73 percent of its time at home and lives there until age 30.

Based on the above, ultra-conservative assumptions, the 30.25-year, cumulative carcinogenic health risk (calculated via HARP per EKAPCD requirements) to an individual born during the opening year of the project, and located in the project vicinity for the entire 30-year duration, is a maximum of 2.43 in 1 million (Receptor 5), as shown in **Table 4.2-8**, *Carcinogenic Health Risk Summary*.

Table 4.2-8 Carcinogenic Health Risk Summary

Receptor	Cumulative Carcinogenic Risk[1]
1	0.80
2	1.12
3	1.38
4	2.37
5	**2.43**
6	0.70
7	0.34
8	1.23
9	0.20
10	0.83
Significance Threshold	10.0

Source: Ganddini 2022
Notes:
1. Risk shown as cumulative 30.25-year exposure for most-conservative scenario.

Since the modeled risk (2.43 in 1 million) is lower than the 10 in 1 million threshold, the impact is considered less than significant.

The closest commercial use to the project site is a solar farm located north of Favorito Avenue and west of 60th Street West, approximately 5,500 feet southwest of the project site. As the closest residential receptor is located approximately 858 feet east-northeast of the site and the residential cancer risk does not exceed 10 in 1 million, it is reasonably anticipated that any offsite worker risk, where the distance is greater between the sources and the receptor and the potential for exposure is only 8 hours instead of 24 hours per day, would also not exceed 10 in 1 million.

Non-Carcinogenic Health Risk Impacts

As discussed above, risk characterization for non-cancer health hazards from TACs is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of the project's emissions to a concentration considered acceptable to public health professionals, termed the Reference Exposure Level (REL). The non-carcinogenic hazards to residential adult, 3rd trimester, child and infant receptors were evaluated using the maximum DPM concentration

for the opening year (2021) and the results for each of the ten sensitive receptor locations are presented in **Table 4.2-9**, *Non-Carcinogenic Health Risk Summary*.

As shown in the table, the highest hazard index is 0.0006 and well below the significance hazard index significance threshold of 1. Since the modeled risk indicates a hazard index lower than 1, the impact is considered less than significant.

Table 4.2-9 Non-Carcinogenic Health Risk Summary

Receptor	Noncarcinogenic Hazard Index[1]
1	0.0002
2	0.0003
3	0.0003
4	0.0005
5	**0.0006**
6	0.0002
7	0.0001
8	0.0003
9	0.0000
10	0.0002
Significance Threshold	1.0

Source: Ganddini 2022
Notes:
1. Index values are the same for all scenarios evaluated: 3rd Trimester Exposure Scenario (0.25-Year); Infant Exposure Scenario (2-Year); Child Exposure Scenario (2-16 Years); and Hazards Adult Exposure Scenario (16-30 Years).

CO Hotspots

A CO "hotspot" can occur when vehicles are idling at highly congested intersections. CO hotspots can adversely affect nearby sensitive receptors. The Kern County Planning and Natural Resources Department's, Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (2006) states that CO hotspots must be analyzed when one of the following conditions occur: (a) a project increases traffic at an intersection or roadway that operates at a Level of Service (LOS) E or worse; (b) a project involves adding signalization and/or channelization to an intersection; or (c) sensitive receptors such as residences, schools, hospitals, etc., are located in the vicinity of the affected intersection or signalization.

The proposed project is not located in the vicinity of an intersection operating at level of service (LOS) E or worse. The project trip generation (discussed further in Section 4.14, Transportation, is not anticipated to have the potential to cause a decrease the LOS of any intersection in the project vicinity. Therefore, the project would not have CO hotspot-related impacts, and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded. Therefore, impacts would be less than significant, and a CO hotspot analysis is not required.

Valley Fever

The project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that on-site workers could be exposed to Valley Fever as fugitive dust is generated during construction. The project would be required to comply with EKAPCD Rule 402, the project proponent will be required to submit a Fugitive Dust Control Plan to the EKAPCD and implement fugitive dust control measures, which would reduce fugitive dust impacts to less than significant for all phases of the project and would also control the potential release of the *Coccidioides immitis* fungus from construction activities. This requirement is included in Mitigation Measure MM 4.2-2; however, exposure to the *Coccidioides immitis* fungus would be potentially significant and Mitigation Measure MM 4.2-8 is provided to further reduce impacts associated with Valley Fever and to protect on-site construction workers and nearby receptors. Therefore, the exposure to Valley Fever would be minimized and impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified above.

Asbestos

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

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

Mitigation Measures

MM 4.2-8 Prior to ground disturbance activities, the project proponent shall provide a "Valley Fever Training Information Packet" and conduct training sessions for all personnel. A copy of the handout and a schedule of education sessions shall be provided to the Kern County Planning and Natural Resources Department. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department upon request. Multiple training sessions may be conducted if different work crews come to the site for different stages of work; however, all personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and Natural Resources Department regarding the "Valley Fever Training Handout" and Session(s) shall include the following:

A. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.

B. Distribution of an information packet that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever, symptoms of exposure, and instruction for reporting cases of flu-like or respiratory illness symptoms to the Site Safety Officer. Those with persistent symptoms lasting more than 3 days shall be recommended to seek immediate medical advice.

C. Training on methods that may help prevent Valley Fever infection.

D. A demonstration to employees on how to use personal protective equipment (PPE), such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not mandatory during work, the equipment shall be readily available and shall be provided to employees for use during work, if requested by an employee. Proof that the demonstration is included in the training shall be submitted to Kern County. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs.

MM 4.2-9 The project proponent shall submit a COVID-19 Health and Safety Plan 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 4.2-10 Prior to commencement of operations as authorized by this approval, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for public awareness programs.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.2-8 through MM 4.2-10, impacts will remain less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The current nonattainment status of regional pollutants is determined by past development and present activities. The EKAPCD's attainment plans are designed to ensure the future attainment of Federal or State ambient air quality standards. Consequently, the EKAPCD's application of thresholds of significance for emission of criteria pollutants determines whether a project's emissions would have a cumulatively considerable contribution of emissions of a criteria pollutant for which the EKAPCD is nonattainment. If project emissions exceed the thresholds of significance for criteria pollutants, the project would be expected to result in a considerable net increase of any criteria pollutant for which the EKAPCD is in nonattainment under applicable Federal or State ambient air quality standards. The portion of the MDAB within EKAPCD jurisdiction is in nonattainment for $PM_{2.5}$, PM_{10}, and ozone. Ozone is addressed by examining its precursors which are NO_X, ROG, and CO.

As discussed above at Impact 4.2-2 and presented above in **Table 4.2-5**, *Construction-Related Emissions*, and **Table 4.2-7**, *Operational Emissions Summary*, project criteria pollutant emissions would be well below the significance thresholds established by the EKAPCD and the County. Development of the proposed project will not exceed the EKAPCD or Kern County significance thresholds and will be conditioned to comply with current EKAPCD rules and regulations to minimize impacts to air quality as discussed herein. Further, as discussed at Impact 4.2-3, the project is not expected to cause or substantially contribute to significant human health effects associated with criteria air pollutants, toxic air contaminants, CO "hot spots", valley fever, or asbestos. Therefore, construction and operation of the proposed project is not anticipated to generate significant impacts or generate significant criteria pollutant emissions. As such, cumulative air quality impacts are anticipated to be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.2-1 through MM 4.2-10.

Level of Significance After Mitigation

With implementation of Mitigation Measures MM 4.2-1 through 4.2-10, cumulative impacts would be less than significant.

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Section 4.3
Biological Resources

4.3.1 Introduction

This section of the Environmental Impact Report (EIR) describes effects on biological resources that would result from implementation of the project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the project, and recommends measures to reduce or avoid significant impacts anticipated from project construction and operation. In addition, existing laws and regulations relevant to biological resources are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the project.

The information in this section is based in part on the following (included in Appendix D of this EIR), which were prepared by the project proponent and peer reviewed by the EIR consultant before use in this EIR:

- *Gem Hill Project Habitat Assessment and Desert Tortoise Presence/Absence Survey Report,* prepared by ELMT Consulting, Inc. Updated January 2022 (ELMT 2022a), included as Appendix D.1; and
- *Gem Hill Quary Project Delineation of State and Federal Jurisdictional Waters,* prepared by ELMT Consulting, Inc. Updated January 2022 (ELMT 2022b), included as Appendix D.2.

The analysis in this section is also based on a review of the project description, aerial maps, and available literature from Federal, State, and local agencies, as cited herein.

Concepts and Terminology

Special-Status Species

Special-status species are plants, animals, and fish species that are legally protected under the Federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include:

- Species listed or proposed for listing as threatened or endangered under the ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the *Federal Register* [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (69 FR 24876, May 4, 2004).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5).

- Species that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA; State CEQA *Guidelines* Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code [CFGC] Section 1900 et seq.).
- Plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1B and 2); plants ranked by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution (CRPR 3 and 4), which may be included as special-status species on the basis of local significance or recent biological information.
- Animals considered Species of Special Concern (SSC) to the California Department of Fish and Wildlife (CDFW).
- Animals fully protected in California (CFGC Sections 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).

4.3.2 Environmental Setting

This section discusses the existing biological resources conditions within, and adjacent to, the project site. Methods for evaluating site conditions (e.g., literature review, field surveys) and a description of the habitat types and species composition are provided.

Regional Setting

The project area is in the southeastern portion of unincorporated Kern County, on the west side of Mojave-Tropico Road approximately four miles northwest of the unincorporated community of Rosamond (**Figure 3-1**, *Site Vicinity*). The project site is in the northwestern portion of the Mojave Desert. The desert climate is characterized by hot, dry summers and cold, dry winters. The inland position of the MDAB lacks the cooling effects of the Pacific Ocean, while the presence of the mountains that separate the MDAB from the ocean remove much of the atmospheric moisture before reaching the MDAB. Therefore, the region is relatively dry with little precipitation in the summer or winter. Summer high temperatures reach over 100 degrees Fahrenheit (ºF) and averages in the mid to upper 90s with lows in the upper 60s to low 70s. Extreme highs reach over 110º F. Winter highs average in the 60s with lows in the 30s. About 65 percent of the precipitation in the MDAB occurs as rainfall during the winter. Average monthly precipitation in the region ranges from 0.03 inches in June to 1.3 inches in February. The total annual average rainfall is 5.9 inches, with 70 percent of precipitation occurring between December and March and little to no rainfall in the summer months.

The project site is located in the northwest portion of the Rosamond Hills in a primarily undeveloped area in unincorporated Kern County, California. There is minimal development in proximity to the project site. Scattered residential plots occur to the north, and undeveloped, vacant land occurs to the east, south, and west. The nearest residence is approximately 884 feet northeast of the northeast corner of the site. There is also a solar panel field 1.2 miles to the southwest of the project site on the western site of the Rosamond Hills.

Local Setting

The project site primarily consists of vacant, undeveloped land with several dirt access roads that traverse the site and two graded pads. The steeper slopes of the project site are barren or support minimal vegetation (<5% cover) while the flatland areas at the bottom of the slopes support a denser (<30% cover) cover of vegetation. On-site elevation ranges from approximately 2,620 to 3,050 feet above mean sea level and generally slopes from northwest to southeast. The northwestern portion of the site supports steep slopes that extend southeast to flat areas.

Vegetation

The vegetative association within the project site consists primarily of creosote brush scrub. The creosote brush scrub and disturbed area cover types are discussed below.

Creosote Brush Scrub

Creosote bush scrub is an open scrub plant community characterized by sparse, evenly spaced plants and dominated by creosote (*Larrea tridentata*). This plant community typically occurs below 3,500 feet above msl in the southeastern deserts of California. An abundance of open ground is common in creosote brush scrub, as an adaptation by the associated plants to prevent the spreading of wildfires. Plants found in this plant community are adapted to extreme seasonal shifts in temperature and high winds. Plant species found on the project site within the creosote bush scrub community included creosote, burrobush (*Ambrosia dumosa*), California buckwheat (*Eriogonum fasciculatum*), beavertail (*Opuntia basilaris*), chia (*Salvia columbariae*), Mormon tea (*Ephedra nevadensis*), cheesebush (*Ambrosia salsola*), matchweed (*Gutierrezia californica*), cryptantha (*Cryptantha* sp.), blackbush (*Coleogyne ramosissima*), allscale (*Atriplex polycarpa*), red brome (*Bromus madritensis* ssp. *rubens*), and Mediterranean grass (*Schismus* sp.) (ELMT 2022a).

Disturbed

Disturbed areas refer to unpaved or dirt access roads and the graded pads that have been exposed to anthropogenic disturbances and do not comprise a plant community. Surface soils within these areas are generally devoid of vegetation or support non-native and ruderal/weedy plant species and have been heavily disturbed/compacted from anthropogenic disturbances. Disturbed areas on-site encompass all dirt access roads, graded pads, and areas that have been subject to off-road vehicle use.

Soils

Based on the NRCS USDA Web Soil Survey reviewed by ELMT (2022a), the project site is underlain by the following soil units: Arizo gravelly loam sand (2 to 9 percent slopes), Cajon sand (5 to 15 percent slopes), Porterville cobbly clay (5 to 9 percent slopes), and rock outcrop. The Arizo series consists of very deep, excessively drained soils that formed in mixed alluvium on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, floodplains of intermittent streams and channels. The Porterville series consists of deep, well drained soils that formed in fine textured alluvial material from basic and metabasic igneous rock on fans and foothills.

Hydrology

The project site was evaluated for the presence of jurisdictional waters of the United States, waters of the State, and/or jurisdictional streambed. Nine (9) unnamed ephemeral drainage features (Drainages 1-9) were observed within the boundaries of the project site during the field delineation. All of the onsite drainage features generally flow in a northwest to southeast direction across the project site. No surface water was present within the drainage during the site visit; however, evidence of an Ordinary High Water Mark (OHWM) was observed via scour, changes in substrate, shelving, and lack of vegetation. Across all of the drainage features, the OHWM ranged from approximately 1-5 feet in width throughout the length of the drainages. The onsite drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site. These features only convey surface flow in direct response to precipitation, and do not support riparian vegetation. All of the onsite drainage features, after flowing offsite, eventually converge into one drainage and terminate approximately 4 miles southeast of the project site at the Rosamond Skypark (airport). The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States; however, the on-site drainage will fall under the regulatory authority of the Regional Board as waters of the State, and, potentially, CDFW as jurisdictional streambed. The drainages feature, at the origin, primarily consisted of rock with minimal vegetation. However, as the drainages extended across the site, they became more vegetated, consisting primarily of upland scrub indicative of the surrounding area (ELMT 2022a, 2022b).

Common plant species observed in association with the onsite drainages include creosote, burrobush (*Ambrosia dumosa*), California buckwheat (*Eriogonum fasciculatum*), beavertail (*Opuntia basilaris*), chia (*Salvia columbariae*), Mormon tea (*Ephedra* nevadensis), cheesebush (*Ambrosia salsola*), matchweed (*Gutierrezia californica*), cryptantha (*Cryptantha* sp.), blackbush (*Coleogyne ramosissima*), allscale (*Atriplex polycarpa*), red brome (*Bromus madritensis* ssp. *rubens*), and Mediterranean grass (*Schismus* sp.). Of the common plant species observed, it should be noted that only red brome and Mediterranean grass are the only non-native/invasive plant species. None of these plants are threatened, endangered, or have special status in California. Although evidence of hydrology (i.e., scour, changes in substrate, shelving) was present within the onsite drainages, these areas were primarily dominated by upland plant species. Further, water does not persist long enough on the project site to create hydric soil (anaerobic) conditions, and none of the onsite drainages supported a dominance of hydrophytic vegetation (ELMT 2022a, 2022b).

Critical Habitat

The project site is not located within federally designated Critical Habitat. The closest Critical Habitat designation is located over 16 miles west of the project site for California condor (*Gymnogyps californianus*) in the Tehachapi Mountains (ELMT 2022a).

Connectivity and Migration Corridors

The importance of continuous habitat corridors and the effects of habitat fragmentation on wildlife populations have been studied extensively and are well understood. Land development and linear structures (e.g., roadways) convert large habitat blocks into noncontiguous patches separated by barriers; individual animals and entire populations can become isolated in remnant

habitat "fragments." Depending on their size and other characteristics, these fragments may not support viable populations of some animals.

Wildlife movement corridors are linear habitats that function to connect two or more areas of significant wildlife habitat. These corridors may function on a local level as links between small habitat patches (e.g., streams in urban settings) or may provide critical connections between regionally significant habitats (e.g., deer movement corridors). Wildlife corridors typically include vegetation and topography that facilitate the movements of wild animals from one area of suitable habitat to another in order to fulfill foraging, breeding, and territorial needs. These corridors often provide cover and protection from predators that may be lacking in surrounding habitats. Wildlife corridors generally include riparian zones and similar linear expanses of contiguous habitat.

The project site is located on the eastern side of Rosamond Hills and terminates along the highest points of elevation adjacent to the site. This forms a naturally occurring bowl-shaped depression along the entirety of the site, which isolates the project site from the surrounding area. These kinds of geographical features typically preclude most terrestrial wildlife from utilizing an area as a corridor. Undeveloped land in the immediate vicinity of the project site has the potential to provide local wildlife movement opportunities for species (e.g., coyote, bobcat, etc.) moving through the immediate area; however, the project site does not function as a major wildlife movement corridor or linkage (ELMT 2022a).

Literature Review

A literature review was conducted by ELMT (2022a) for special-status biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project site were determined through a query of the CDFW QuickView Tool in the Biogeographic Information and Observation System (BIOS), CNDDB Rarefind 5, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, and the United States Fish and Wildlife Service (USFWS) species listings.

All available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the project site were reviewed to understand existing site conditions and note the extent of any disturbances that have occurred on the project site that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Google Earth Pro historic aerial imagery (1994-2017);
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey;
- USFWS Critical Habitat designations for Threatened and Endangered Species; and
- USFWS Endangered Species Profile and Primary Constituent Elements for desert tortoise.

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the subject property. The CNDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project site (ELMT 2022a).

Survey Methodology

ELMT biologists evaluated the extent and conditions of the plant communities found within the boundaries of the project site on May 5 and September 26, 2019. Plant communities were evaluated for their potential to support special-status plant and wildlife species. In addition, field staff identified any natural corridors and linkages that may support the movement of wildlife through the area. Special attention was given to special-status habitats and/or undeveloped areas, which have higher potentials than developed areas to support special-status plant and wildlife species. All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted (ELMT 2022a).

ELMT biologists conducted a desert tortoise presence/absence survey on September 26, 2019, in accordance with the USFWS 2018 Survey Protocols (Preparing for any Action that may Occur within the Range of the Mojave Desert Tortoise - October 9, 2019) using the "Small Project Surveys" protocol. ELMT biologists conducted a 100 percent coverage survey from 0630 to 1130 hours on September 26, 2019, which falls within the desert tortoise's most active periods (April through May and September through October). No live desert tortoises, potential desert tortoise burrows, or signs of desert tortoises were observed. The estimated desert tortoise abundance is directly proportional to the number of tortoises observed above ground. Since no live desert tortoises were observed during the surveys, the estimated number of desert tortoises within the survey area is zero (ELMT 2022a).

Associated with the *Gem Hill Quarry Project Delineation of State and Federal Jurisdictional Waters* (ELMT 2022b), included as Appendix D.2, field surveys and verification of site conditions was conducted on September 25, 2019, and May 9, 2020. ELMT field delineation was performed to determine the jurisdictional limits of "waters of the United States", "waters of the State" and jurisdictional streambed (including potential wetlands), located within the boundaries of the project site. Jurisdictional features were recorded on an aerial base map at a scale of 1" = 50' using topographic contours and visible landmarks as guidelines. Data points were obtained with GPS to record and identify specific widths for ordinary high water mark (OHWM) indicators and the locations of photographs, soil pits, and other pertinent jurisdictional features, if present.

Common Wildlife

Wildlife species detected during ELMT field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were used to assist with identification of wildlife species during the survey included *The Sibley Field Guide to the Birds of Western North America* (Sibley 2003), *A Field Guide to Western Reptiles and Amphibians*

(Stebbins 2003), and *A Field Guide to Mammals of North America* (Reid 2006). Plant communities provide foraging habitat, nesting and denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species that were observed during the field survey or that are expected to occur within the project site (ELMT 2022a).

- **Amphibians.** No amphibians or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for amphibian species were observed on or immediately adjacent to the project site. Therefore, no amphibians are expected to occur on the project site and are presumed absent.
- **Reptiles.** The project site provides suitable foraging and cover habitat for a variety of reptile species. Reptiles observed during the field investigation include western side-blotched lizard (*Uta stansburiana*) and California king snake (*Lampropeltis californiae*). Common reptilian species that have the potential to occur on-site include Great Basin whiptail (*Aspidoscelis tigris tigris*), northern Mohave rattlesnake (*Crotalus scutulatus scutulatus*), Great Basin gopher snake (*Pituophis catenifer deserticola*), and red racer (*Coluber flagellum piceus*).
- **Birds.** The project site provides suitable foraging and cover habitat for a variety of resident and migrant bird species adapted to conditions within the Mojave Desert. Avian species detected during the survey included horned lark (*Eremophila alpestris*), red-tailed hawk (*Buteo jamaicensis*), cactus wren (*Campulorhynchys brunneicapillus*), common raven (*Corvus corax*), and black-throated sparrow (*Amphispiza bilineata*).
- **Mammals.** The project site provides suitable habitat for a variety of mammalian species adapted to conditions within the Mojave Desert. Most naturally occurring mammal species are nocturnal and are difficult to observe during a diurnal field visit. Mammalian species observed on-site during the field investigation include black-tailed jackrabbit (*Lepus californicus*) and white-tailed antelope squirrel (*Ammospermophilus leucurus*). Mammalian species expected to occur include desert woodrat (*Neotoma lepida*), Audubon's cottontail (*Sylvilagus audubonii*), non-special status kangaroo rat (Dipodomys sp.), and desert cottontail (*Sylvilagus audubonii*). Cliffs and minimal rocky outcrops are present in on the northern boundary of the project site. Specifically, the northwest corner of the project site provides rock outcrops/cervices that have a low potential to support suitable roosting habitat for bats. Common bat species that roost in cliffs and rocky outcrops that have the potential to occur include western canyon bat (*Parastrellus hesperus*), California myotis (*Myotis californicus*), big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*). It should be noted that the northeast corner of the project site, the portion of the site that has a greater potential to support rocky outcrops for bat species, is located outside of the proposed limits of disturbance and will not be impacted by the project.
- **Invertebrates.** Invertebrates play a crucial role in a number of biological processes. They serve as the primary or secondary food source for a variety of bird, reptile, and mammal predators; provide important pollination vectors for numerous plant species; act as efficient components in controlling pest populations; and support the naturally occurring maintenance of an area by consuming detritus and contributing to necessary soil nutrients. However, no invertebrates were reported to have been observed by

ELMT on the project site and, consequently, no special-status invertebrates are expected to occur on-site.

- **Fish.** No fish or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) with frequent sources of water that would provide suitable habitat for fish were observed on or immediately adjacent to the project site. Therefore, no fish are expected to occur and are presumed absent from the project site.

Special-Status Species and Habitats

Table 4.3-1, *Potentially Occurring Special-Status Species*, present the special-status wildlife and plant species, respectively, with potential to occur within or near the project site. The tables also denote the current status of each species as a Federally and/or State-listed species, or any other designations, as well as the rationale for the species' potential to occur within the project site. Those sensitive vegetation communities and special-status species that were determined not to have the potential to occur within the project site or immediate vicinity are not discussed further in this section.

Nesting birds protected by the Migratory Bird Treaty Act (MBTA) and the following five wildlife species are identified as having a low potential to occur within the project site:

- **desert tortoise (*Gopherus agassizii*)** is widely distributed in the Mojave, Sonoran and Colorado deserts from below sea level to 7,220 feet. The species is most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes. Plant communities on the project site provide marginal foraging habitat for the species; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).
- **golden eagle (*Aquila chrysaetos*)** occupies nearly all terrestrial habitats of the western states except densely forested areas, and favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats, and deeply cut canyons rising to open mountain slopes and crags are ideal habitat. The project site provides marginal foraging habitat but does not provide suitable nesting opportunities; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).
- **burrowing owl (*Athene cunicularia*)** is primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. The species occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation. The site provides marginal foraging habitat but does not provide suitable nesting opportunities; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).
- **loggerhead shrike (*Lanius ludovicianus*)** are often found in broken woodlands, shrublands, and other habitats. The species prefers open country with scattered perches for hunting and fairly dense brush for nesting. The plant communities on the project site provide marginal foraging habitat (ELMT 2022a).

- **American badger (*Toxostoma lecontei*)** primarily occupies grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where individuals can dig more easily for prey. Occasionally the species is found in open chaparral (with less than 50% plant cover) and riparian zones. The project site supports marginally suitable habitat; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).

The following four special-status plant species are identified as having a low potential to occur within the project site:

- **alkali mariposa-lily (*Calochortus striatus*)** grows in seasonally moist alkaline soils in meadows, seeps, and ephemeral washes, especially within chaparral, chenopod scrub, and Mojavean desert scrub at elevations from 230 to 5,233 feet amsl. The project site supports marginal suitable habitat; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).
- **Mojave spineflower (*Chorizanthe spinosa*)** grows in alkaline or non-alkaline soils in chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and playas at elevations ranging from 20 to 4,265 feet amsl. The project site supports marginal suitable habitat; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).
- **recurved larkspur (*Delphinium recurvatum*)** grows in alkaline soils in chenopod scrub, cismontane woodland, and valley and foothill grasslands at elevations ranging from 10 to 2,592 feet amsl. The project site supports marginal suitable habitat; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).
- **sagebrush loeflingia (*loeflingia Loeflingia squarrosa* var. *artemisiarum*)** grows in sandy soils within desert dunes, Great Basin scrub, and Sonoran desert scrub habitats at elevations ranging from 2,297 to 5,299 feet amsl. The project site supports marginal suitable habitat; thus, the potential for the species to occur on the site is considered low (ELMT 2022a).

All other special-status plant and animal species listed in **Table 4.3-1**, *Potentially Occurring Special-Status Species,* are presumed to be absent from the project site due to lack of suitable habitat or other reasons as provided in the table. Mohave ground squirrel and western Joshua tree are not identified on the following table, because the project site contains no suitable habitat for the species, and none were observed onsite. Thus, those species are presumed absent.

Following focused biological surveys for the special status species that were deemed to have a low potential to occur onsite, it was determined that these species are all absent from the project site. Given the transitory nature of certain nesting and migratory birds, such as golden eagle and loggerheaded shrike, however, mitigation measures are recommended to reduce potential impacts to those particular species.

Table 4.3-1 Potentially Occurring Special-Status Species

Scientific Name Common Name	Status (see table notes)		Habitat	Present/ Absent	Potential to Occur
Wildlife Species					
Aquila chrysaetos golden eagle	Fed: CA	None FP; WL	Occupies nearly all terrestrial habitats of the western states except densely forested areas. Favors secluded cliffs with overhanging ledges and large trees for nesting and cover. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats. Deeply cut canyons rising to open mountain slopes and crags are ideal habitat.	Absent	**Low.** The site provides marginal foraging habitat but does not provide suitable nesting opportunities.
Asio otus long-eared owl	Fed: CA	None SSC	Requires riparian or other thickets with small, densely canopied trees for roosting and nesting. Also occurs in dense conifer stands at higher elevations.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Athene cunicularia burrowing owl	Fed: CA	None SSC	Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	Absent	**Low.** The site provides marginal foraging habitat but does not provide suitable nesting opportunities. No burrowing owl were observed on site during focused field surveys.
Buteo regalis ferruginous hawk	Fed: CA	None WL	Occurs primarily in open grasslands and fields, but may be found in sagebrush flats, desert scrub, low foothills, or along the edges of pinyon-juniper woodland. Feeds primarily on small mammals and typically found in agricultural or open fields.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Buteo swainsonii Swainson's hawk	Fed: CA	None THR	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.

Table 4.3-1 Potentially Occurring Special-Status Species

Scientific Name Common Name	Status (see table notes)		Habitat	Present/ Absent	Potential to Occur
Circus hudsonius northern harrier	Fed: CA	None SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses moist or dry shrubs, and edges for nesting, cover, and feeding.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Corynorhinus townsendii Townsend's big-eared bat	Fed: CA	None CTHR , SSC	A colonial species found in caves and human-made structures such as old mine workings and buildings. Roosts in the open, hanging from walls and ceilings.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Falco columbarius merlin	Fed: CA	None WL	Nest in forested openings, edges, and along rivers across northern North America. Found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Falco mexicanus prairie falcon	Fed: CA	None WL	Commonly occur in arid and semiarid shrubland and grassland community types. Also occasionally found in open parklands within coniferous forests. During the breeding season, they are found commonly in foothills and mountains which provide cliffs and escarpments suitable for nest sites.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Gopherus agassizii desert tortoise	Fed: CA	**THR** **THR**	Widely distributed in the Mojave, Sonoran and Colorado deserts from below sea level to 7,220 feet. Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes.	Absent	**Low.** The plant communities on the project site provide marginal foraging habitat.
Helminthoglypta greggi Mojave shoulderband	Fed: CA	None None	Currently limited to three isolated mountain peaks in southern Kern County, California. Occupies moist microhabitat like rock outcroppings, rockslides, talus areas, and clusters of rocks embedded in soils. Requires deep enough crevices to avoid desiccation.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Lanius ludovicianus loggerhead shrike	Fed: CA	None SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	Absent	**Low.** The plant communities on the project site provide marginal foraging habitat.

Table 4.3-1 Potentially Occurring Special-Status Species

Scientific Name Common Name	Status (see table notes)		Habitat	Present/ Absent	Potential to Occur
Onychomys torridus tularensis Tulare grasshopper mouse	Fed: CA	None SSC	Occurs in low, open scrub and semiscrub habitats in arid, deserts and favors compact soils with sparse growth of perennial grasses intermixed with shrubs.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Perognathus alticola inexpectatus Tehachapi pocket mouse	Fed: CA	None SSC	Occurs in native and non-native grasslands, Joshua tree woodland, pinyon-juniper woodland, yellow pone woodland, and oak savannah. Constructs burrows in loose, sandy soil.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Perognathus inornatus San Joaquin pocket mouse	Fed: CA	None None	Occurs in dry, open grasslands or scrub areas on fine-textures soils between 1,100 and 2,000 feet in the Central and Salinas valleys. Digs own burrow for cover.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Plegadis chihi white-faced ibis	Fed: CA	None WL	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Taxidea taxus American badger	Fed: CA	None SSC	Primarily occupy grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where it can dig more easily for its prey. Occasionally found in open chaparral (with less than 50% plant cover) and riparian zones.	Absent	**Low.** The project site supports marginally suitable habitat, but no species were observed onsite during focused field surveys.
Toxostoma lecontei Le Conte's thrasher	Fed: CA	None CSC	Occurs primarily in desert washes and flats with scattered shrubs and large areas of open, sandy terrain in desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus. Rarely found on rocky soils, hillsides, riparian, or on agricultural lands.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.

Table 4.3-1 Potentially Occurring Special-Status Species

Scientific Name Common Name	Status (see table notes)		Habitat	Present/ Absent	Potential to Occur
Xanthocephalus xanthocephalus yellow-headed blackbird	Fed: CA	None SSC	Uncommon yearlong resident of southern California throughout freshwater emergent wetlands, and moist, open areas along agricultural areas, and mudflats of lacustrine habitats. Prefers to nest in dense wetland vegetation characterized by cattails, tules, or other similar plant species along the border of lakes and ponds.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Plant Species					
Astralagus hornii* var. *hornii Horn's milk-vetch	Fed: CA: CNPS:	None None 1B.1	Grows along lake margins, meadows, seeps, and playas in alkaline soils. Blooming period is from May to October. Grows in elevation from 197 to 2,789 feet.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Calochortus striatus alkali mariposa-lily	Fed: CA: CNPS:	None None 1B.2	Grows in seasonally moist alkaline soils in meadows, seeps, and ephemeral washes, especially within chaparral, chenopod scrub, and Mojavean desert scrub. Blooming period is from April to June. Grows in elevation from 230 to 5,233 feet.	Absent	**Low.** The project site supports marginal suitable habitat, however, none were observed during focused field surveys.
Chorizanthe spinosa Mojave spineflower	Fed: CA: CNPS:	None None 4.2	Grows in alkaline or non-alkaline soils in chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and playas. Blooming period is from March to July. Grows in elevation from 20 to 4,265 feet.	Absent	**Low.** The project site supports marginal suitable habitat, however, none were observed during focused field surveys.
Delphinium recurvatum recurved larkspur	Fed: CA: CNPS:	None None 1B.2	Grows in alkaline soils in chenopod scrub, cismontane woodland, and valley and foothill grasslands. Blooming period is from March to June. Grows in elevation from 10 to 2,592 feet.	Absent	**Low.** The project site supports marginal suitable habitat, however, none were observed during focused field surveys.
Loeflingia squarrosa* var. *artemisiarum sagebrush loeflingia	Fed: CA: CNPS:	None None 2B.2	Grows in sandy soils within desert dunes, Great Basin scrub, and Sonoran desert scrub habitats. Blooming period is from April to May. Grows in elevation from 2,297 to 5,299 feet.	Absent	**Low.** The project site supports marginal suitable habitat, however, none were observed during focused field surveys.

Table 4.3-1 Potentially Occurring Special-Status Species

Scientific Name Common Name	Status (see table notes)		Habitat	Present/ Absent	Potential to Occur
Perideridia pringlei adobe yampah	Fed: CA: CNPS:	None None 4.3	Grows in serpentinite, often clay soils in chaparral, cismontane woodland, coastal scrub, and pinyon-juniper woodlands. Blooming period is from April to June or July, depending on seasonal rainfall. Grows in elevation from 984 to 5,906 feet.	Absent	**None:** There is no suitable habitat within or adjacent to the project site.
Syntrichopappus lemmonii Lemmon's syntrichopappus	Fed: CA: CNPS:	None None 4.3	Occurs in sandy or gravelly soils within chaparral, Joshua tree woodland, and Pinyon and juniper woodland habitats. Found at elevations ranging from 1,640 to 6,004 feet above msl. Blooming period is from April to May (June).	Absent	**None:** There is no suitable habitat within or adjacent to the project site.

Source: ELMT 2022a
Notes:

U.S. Fish and Wildlife Service (USFWS) - Federal
END- Federal Endangered
THR- Federal Threatened

California Department of Fish and Wildlife (CDFW) - California
END- California Endangered
THR- California Threatened
FP- California Fully Protected
SSC- California Species of Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1A Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B Plants Rare, Threatened, or 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

California Native Plant Society (CNPS)
Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

4.3.3 Regulatory Setting

Federal

Federal Endangered Species Act

The ESA of 1973 (16 United States Code [USC] Sections 1531–1543) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. The ESA defines species as "threatened" or "endangered" and provides regulatory protection for listed species. The ESA provides a program for conservation and recovery of threatened and endangered species, and conservation of designated critical habitat that USFWS has determined is required for the survival and recovery of these listed species. Certain sections of the ESA have specific potential applicability to the project and are discussed below:

Section 7 requires Federal agencies, in consultation with and with the assistance of 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. USFWS and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) share responsibilities for administering the ESA. Regulations governing interagency cooperation under Section 7 are found at 50 CFR Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing a take that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the ESA. Section 9 of the ESA prohibits take (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) of listed species of fish, wildlife, and plants without special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or shelter. "Harass" is further defined as actions that create the likelihood of injury to listed species to an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, and shelter.

Section 10 provides a means whereby a non-Federal action with a potential to result in the "take" of a listed species could be allowed under an incidental take permit. Application procedures are found at 50 CFR Parts 13 and 17 for species under the jurisdiction of USFWS and 50 CFR Parts 217, 220, and 222 for species under the jurisdiction of NOAA Fisheries.

Migratory Bird Treaty Act

The 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" (16 USC 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

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 USC 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "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" (72 FR 31132; 50 CFR 22.3).

On November 10, 2009, USFWS implemented new rules (74 FR 46835) governing the "take" of golden and bald eagles. The new rules were released under the existing BGEPA which has been the primary regulation protection for unlisted eagle populations since 1940. All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act.

Federal Clean Water Act

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. Certain sections of the CWA have specific potential applicability to the project and are discussed below:

Section 401 of the CWA requires that the project proponent for any project that affects waters of the United States must request a 401 Water Quality Certification, which must be issued before the start of project construction. In association with obtaining a Section 404 permit, a Water Quality Certification must be obtained from the Regional Water Quality Control Board (RWQCB). To obtain approval of the application for Water Quality Certification, projects must follow the U.S. Army Corps of Engineers (USACE) Section 404(b)(1) Guidelines, which specify avoidance of wetland impacts and minimization and mitigation of impacts to any affected wetlands.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States.

Section 404 establishes a permit program, administered by the USACE, regulating the discharge of dredged or fill material into waters of the United States, including wetlands.

Implementing regulations by USACE are found at 33 CFR Parts 320–330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines and were developed by the U.S. Environmental Protection Agency (USEPA) in conjunction with the USACE (40 CFR Parts 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.

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 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 (OHWM). Typically, the OHWM corresponds to the 2-year flood event.

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 ground water 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 (i.e., 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 the USACE.

As discussed above, USACE regulatory jurisdiction under Section 404 is founded on a connection between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the USACE regulations. On January 9, 2001, the Supreme Court issued a decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* concerning CWA jurisdiction over isolated waters. This decision substantially affected the extent of USACE's regulatory authority over "non-navigable, isolated, intrastate waters," and, particularly, the use of indirect indicators of interstate commerce (e.g., use by migratory birds that cross state lines) as a basis for jurisdiction.

State

California Environmental Quality Act

CEQA was adopted in 1970 and applies to public agencies in California with discretionary authority over project approvals and permits. CEQA requires that impacts of proposed projects be assessed before the project is approved. Projects with significant impacts on the environment cannot be approved without adequate mitigation or compensation, unless a finding of overriding consideration is made. Discretionary approval from public agencies may require avoidance measures or compensatory mitigation. CEQA also provides that less-than-

significant impacts of an individual project can be treated as significant if they contribute to significant cumulative impacts on the environment.

California Endangered Species Act

The CESA is similar to the ESA but pertains to State-listed endangered and threatened species. It requires State agencies to consult with the CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the existence of listed species. It directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that there are "overriding considerations;" however, the agencies are prohibited from approving projects that would result in the extinction of a listed species. The CESA prohibits the taking of State-listed endangered or threatened plant and wildlife species. The CDFW exercises authority over mitigation projects involving State-listed species, including those resulting from CEQA mitigation requirements. The CDFW may authorize "take" if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. The CDFW requires preparation of mitigation plans (CDFW 2081 permit) in accordance with published guidelines.

California Fish and Game Code

The CFGC establishes the foundation of fish, wildlife, and native plant protections and management in the State. Certain sections of the CFGC have specific potential applicability to the project and are discussed below:

Sections 1600 through 1616 require the project proponent to notify the 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 CFGC, 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 streams valuable to fish and wildlife are subject to CDFW jurisdiction. The CDFW also has jurisdiction over dry washes that carry water ephemerally during storm events. Consultation with the CDFW shall be conducted to determine if the two dry washes on the project site are jurisdictional to the CDFW and if they might require a Streambed Alteration Agreement (SAA).

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, the CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a SAA that becomes part of the plans, specifications, and bid documents for the project.

Section 2080 states, "No person shall import into this state, export out of this state, 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, or the Native Plant Protection Act, or the California Desert Native Plants Act."

Section 2081 authorizes individuals or public agencies to import, export, take, or possess, any State-listed endangered, threatened, or candidate species with approval from CDFW. These otherwise prohibited acts may be authorized through permits or a Memorandum of Understanding (MOU) if: (1) the take is incidental to an otherwise lawful activity; (2) impacts of the authorized take are minimized and fully mitigated; (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species; and (4) the project proponent ensures adequate funding to implement the measures required by the CDFW. The CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Section 3503 and 3503.5 prohibits the project proponent from conducting activities that would result in the taking, possessing, or destroying of any birds of prey, taking or possessing of any migratory non-game bird as designated in the MBTA, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to CFGC Section 3800.

Native Plant Protection Act (California Fish and Game Code Sections 1900–1913)

The NPPA requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of the CDFW at least 10 days in advance of any change in land use. This allows the CDFW to salvage listed plant species that would otherwise be destroyed. The project proponent is required to conduct botanical inventories and consult with the CDFW during project planning to comply with the provisions of the NPPA and sections of CEQA that apply to rare or endangered plants.

California Desert Native Plants Act

The California Desert Native Plants Act (Division 23 of the California Food and Agriculture Code), was established to protect California desert native plants from unlawful harvesting on both public and privately owned lands. The Act also provides information necessary to legally harvest native plants so as to ultimately transplant those plants with the greatest possible chance of survival. The act further encourages public participation in implementing the safeguards established by this division and in evaluating the effectiveness and desirability of the safeguards.

Porter Cologne Act

The California Porter-Cologne Water Quality Control Act gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste

substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

Local

Kern County General Plan

The project site is located within the *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 impact biological resources.

Chapter 1. Land Use, Open Space, and Conservation Element

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 assuring the conservation of 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.

1.10 General Provisions

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 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 the California Environmental Quality Act (CEQA), 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 (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) 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 the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

- **Implementation Measure Q.** Discretionary projects shall consider effects to biological resources as required by the California Environmental Quality Act.
- **Implementation 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.
- **Implementation Measure S.** Pursue the development and implementation of conservation programs with state and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

4.3.4 Impacts and Mitigation Measures

This section describes the methodology used in conducting the impact analysis for biological resources, the thresholds of significance used in assessing impacts to biological resources, and the assessment of impacts to biological resources, including relevant mitigation measures.

Methodology

This section describes the potential biological resources impacts associated with development of the project. This analysis is based on the following:

- *Gem Hill Project Habitat Assessment and Desert Tortoise Presence/Absence Survey Report,* prepared by ELMT Consulting, Inc. Updated January 2022 (ELMT 2022a), included as Appendix D.1; and
- *Gem Hill Quary Project Delineation of State and Federal Jurisdictional Waters,* prepared by ELMT Consulting, Inc. Updated January 2022 (ELMT 2022b), included as Appendix D.2.

Baseline conditions were first established for the affected environment relevant to biological resources, as presented above in **Section 4.3.2,** *Environmental Setting*. Literature review and field survey methodologies are described in **Section 4.3.2,** *Environmental Setting*, and in each of the corresponding survey reports included in Appendix D.

Baseline conditions were evaluated based on their potential to be affected by project ground disturbance and other activities associated with mining and reclamation within the proposed disturbance areas. As described in **Chapter 3**, *Project Description*, the project would result in activities within the access and haul road alignments, stormwater basin areas, overburden and topsoil stockpile areas, quarry, and other that would remove existing vegetation and habitat; on-site transport of materials; and other activities, including drilling and blasting, that would create a potential for effects on habitat and wildlife. These activities would occur within approximately 82.2 acres of the site over the proposed 30-year life of operation. Following completion of mining, disturbed areas would be reclaimed and revegetated to open space in accordance with the proposed reclamation plan and revegetation plan. The predicted interactions between the affected environment and project activities are evaluated based on the significance criteria identified below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect on biological resources. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to biological resources if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

c. Have a substantial adverse effect on Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

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) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding these issue areas:

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Project Impacts

Impact 4.3-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

As discussed in **Section 4.3.2**, *Environmental Setting*, the project site is dominated by California creosote brush scrub habitat and consists of variable topography with steep slopes and ephemeral drainages. Based on the literature review and field surveys conducted for this project, no candidate, sensitive plant, or special-status species were observed onsite and, therefore, are presumed absent. Further, no sensitive plant communities or special-status plant species are known to occur or are considered to have the potential to occur within the project site. In addition to their confirmed absence, the project site has a low future potential to support the following special-status wildlife species (ELMT 2022):

- nesting birds protected by the MBTA;
- desert tortoise (*Gopherus agassizii*);
- golden eagle (Aquila chrysaetos);
- burrowing owl (*Athene cunicularia*);
- loggerhead shrike (*Lanius ludovicianus*); and
- American badger (*Toxostoma lecontei*).

Because the project site is not occupied, the project will not have a substantial adverse effect, either directly or through habitat modifications, on special desert tortoise, burrowing owl, and American badger.

Proposed mining activities would occur incrementally over the proposed 30-year life of operation. Because of their migratory nature, nesting birds, including golden eagle and loggerhead shrike, species listed considered to have a low potential to be present onsite, have a low potential to migrate onto the project site prior to commencement of the project. This could result in a potentially significant impact.

Therefore, Mitigation Measure MM 4.3-1 requires approval and implementation of an employee awareness program to identify sensitive and protected species that could exist on-site before project activities begin. Implementation of Mitigation Measure MM 4.3-1 would reduce impacts associated with the long timeframe of the project disturbing special-status species on-site to less than significant.

Raptors and Migratory Birds

Implementation of the proposed project could result in direct mortality or the loss of habitat for raptors and migratory birds. This would be a potentially significant impact. Removal of vegetation and other appropriate nesting habitat associated with construction and mining activities could result in the loss of nesting habitat used by nesting migratory birds or direct

mortality to these species. In addition to loss of nests associated with habitat or vegetation removal, construction and mining activities in the vicinity of active nests could potentially disturb the birds and cause them to abandon their nests. After initial development of the project site, project activities are not expected to indirectly affect migratory birds and raptors that nest surrounding the site, because the bird would have nested in the presence of noise and human activity. For each subsequent phase of the project, new surveys would be required to ensure that nests are not directly removed from vegetation clearing and ground disturbance. Construction activities that require the removal/disturbance of habitat or vegetation could cause direct and indirect impacts to nesting raptors and migratory birds. Construction activities could also result in noise, dust, increased human activity, and other indirect impacts to nesting raptors or migratory bird species in the project vicinity. The loss or disturbance of active nests or direct mortality is prohibited by the MBTA and CFGC Section 3503.5. This impact is considered potentially significant. Mitigation Measures MM 4.3-4 through MM 4.3-7 would identify areas where special-status bird species are present and avoid, where possible, impacts on the bird species. The measures also require identifying and reporting direct impacts that do occur. Implementation of Mitigation Measures MM 4.3-4 through MM 4.3-7 would reduce potential impacts to migratory birds and raptors to less than significant.

Mitigation Measures

MM 4.3-1 Prior to commencement of operations, the project proponent/operator shall develop and submit to the Kern County Planning and Natural Resources Department for review and approval an employee awareness program on the Migratory Bird Treaty Act and the Federal and State endangered species laws and regulations. The program shall provide employees with sufficient information to identify sensitive or protected species that could exist on-site, methods to avoid these species, and protection measures to reduce the potential for incidental take of these species. The employee awareness program shall be implemented by a qualified biologist until such time as reclamation has been completed and the site deemed fully reclaimed by the Kern County Planning and Natural Resources Department.

MM 4.3-2 The project proponent/operator shall implement the following measures to avoid and/or minimize potential impacts to special-status animal species.

A. Within no more than 30 days before ground-disturbing activities within the project site, a pre-construction clearance survey shall be performed by a qualified biologist within the project site to record existing conditions of the site, determine if conditions have changed since the most recent reconnaissance or botanical surveys were conducted, and to determine where sensitive species avoidance buffers will be established for special-status species considered to have the potential to occur within the project site, including but not limited to the following:

- nesting birds protected by the MBTA;
- desert tortoise (*Gopherus agassizii*);

- golden eagle (Aquila chrysaetos);
- burrowing owl (*Athene cunicularia*);
- loggerhead shrike (*Lanius ludovicianus*); and
- American badger (*Toxostoma lecontei*).

If ground-disturbing activities do not commence within 30 days of the initial survey date, surveys shall be repeated to refresh results.

B. If any sensitive species are observed, buffers shall be established by the qualified biologist as necessary to prevent incidental take of any observed sensitive species.

C. The project proponent/operator shall ensure that all employees working on the project site continuously implement the following measures:

1. A qualified biological monitor shall be present on the project site during any initial vegetation removal/grubbing activities. A biological monitor is not a substitute for an incidental take permit. If any threatened, endangered, or otherwise sensitive species are uncovered during project activities, work will be halted to determine the best course of action.
2. Keep all trash and food items picked up and removed from the site daily including microtrash (e.g., wrappers, bottle tops, food scraps).
3. No pets (dogs) shall be allowed on-site.
4. Vehicle traffic shall use established roadways. Cross-country travel is prohibited.
5. Conduct a 360-degree vehicle check before moving vehicle from site.
6. To the extent practicable, previously disturbed areas are to be used to stockpile excavated materials, storage of equipment, locations of trailers, parking of vehicles, and other surface-disturbing actions.
7. Open excavations or trenches shall be covered at the end of each workday to prevent wildlife entrapment. If an excavation or trench is too large to cover, then a 45-degree escape ramp shall be installed. All excavations and trenches shall be inspected for wildlife prior to the commencement of work.
8. If perimeter fencing is used, then the fencing shall include a 4- to 8-inch (0.1- to 0.2-meter) opening between the fence mesh and the ground or the fence shall be raised 4 inches above the ground or as otherwise established by a qualified

wildlife biologist to enable wildlife to pass through the project site.

9. All vertical tubes and chain-link fencing piles shall be temporarily or permanently capped to avoid the entrapment and death of special-status wildlife and birds. All pipes 1.5 inches (0.038 meter) or greater in diameter stored overnight on a project location must have end caps or other physical barriers that prevent wildlife from entering the pipe.
10. Any dead or injured special-status wildlife found on the project site shall be left in place and reported to the U.S. Fish and Wildlife Service/California Department of Fish and Wildlife within 48 hours of the discovery for rescue or salvage. Discovery of Federally or State-listed species that are injured or dead shall also be managed consistent with regulatory requirements, including being reported immediately via telephone and within 24 hours in writing, and a copy shall be furnished to the Kern County Planning and Natural Resources Department.
11. All washing of trucks, equipment, or similar activities shall occur in areas where runoff is fully contained for collection and off-site disposal. Wash water may not be discharged from the site and shall be located at least 100 feet (30.48 meters) from any water body or sensitive biological resources. If ground disturbance is intended to be temporary and does not occur on cultivated land, topsoil segregation shall be performed to preserve the seed bank for restoration efforts. Segregated topsoil shall be stored separate from the subsoil and segregated topsoil shall be restored to its original location. This will decrease unwanted invasive plant species (e.g., tumble weed, invasive grasses) from invading the area.
12. Contact a qualified biologist if any dens suitable for desert tortoise, burrowing owl, and/or American badger (4 inches or greater in diameter) are observed during project activities.
13. If any threatened, endangered, or otherwise sensitive species are encountered during project activities, all work that may harm that species shall stop immediately and a qualified biologist shall be contacted to determine the best course of action. Any threatened, endangered, or otherwise sensitive wildlife species shall be allowed to leave the site of their own accord.

MM 4.3-3 Active pits with slopes steeper than 2:1 (horizontal:vertical) shall have a minimum of one escape ramp or shall otherwise be fenced or obstructed to prevent wildlife entrapment.

MM 4.3-4 No more than 10 days prior to ground-disturbing activities, a pre-disturbance survey for active bird nests shall be conducted, if work occurs between February and September when nesting activity is most prevalent. If any active nests are observed, appropriate buffer areas (at least 50 feet) shall be established around each nest for avoidance as appropriate.

MM 4.3-5 If initial mining activities are planned to occur during the nesting seasons for raptors and migratory birds (typically February 1 through August 31), the project proponent shall retain a qualified biologist to conduct a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 500 feet outside project boundaries, where possible) no more than 30 days before mining activities and at the onset of each phase. These surveys shall be conducted during breeding seasons for any special-status birds potentially present prior to initial disturbance.

MM 4.3-6 If active nests are located during pre-disturbance surveys, U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife shall be notified regarding the status of the nests. If an active golden eagle nest is located within 500 feet of ground-disturbing activities, or if any other active raptor nest is located within 100 feet of ground-disturbing activities, or if an active migratory bird nest is located within 50 feet of ground-disturbing activities protection measures will be applied and enforced. Protection measures would include delaying project activities until the end of the breeding season, or if, project activities must take place during the breeding season, establishing an appropriate avoidance area (buffer zone) around the nest as determined by a qualified biologist in consultation with the appropriate resource agency. A qualified wildlife biologist shall monitor the nest to determine when the young have fledged and submit bi-weekly reports to the Kern County Planning Department throughout the nesting season. The biological monitor shall have the authority to cease mining activities or other activities if sign of distress to the raptor or migratory bird occurs.

MM 4.3-7 Ground-disturbing activities shall be restricted as necessary to avoid disturbance of a nest until it is abandoned or a qualified biologist deems disturbance potential to be minimal (in consultation with U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife). Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment) or alteration of the schedule for initiation of mining or other activities. No action is necessary if ground disturbance occurs during the raptor and migratory bird nonbreeding season (September 1 through January 31).

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7, impacts would be less than significant.

Impact 4.3-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

As discussed previously, nine unnamed ephemeral drainages have been delineated within the project site (see **Figure 4.3-1,** *Water Resources Map*). The site is not located within a Floodplain Safety Overlay District or Dam Inundation Overlay. All of the onsite drainage features generally flow in a northwest to southeast direction across the project site. The onsite drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site. These features only convey surface flow in direct response to precipitation, and do not support riparian vegetation.

All of the onsite drainage features, after flowing offsite, eventually converge into one drainage and terminate approximately 4 miles southeast of the project site at the Rosamond Skypark (airport).

The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States; however, the onside drainages will fall under the regulatory authority of the Lahontan RWQCB as waters of the State, and, potentially, CDFW as jurisdictional streambed. Although the project is not expected to result in significant impacts to fish or wildlife resources, the onsite drainage features exhibit characteristics consistent with CDFW's methodology and would be considered CDFW streambed.

Approximately 0.79 acre (19,526 linear feet) of CDFW jurisdictional streambed was mapped within boundaries of the project site. Approximately 0.28 acre (7,894 liner feet) of CDFW jurisdictional streambed would be impacted by the project as proposed (ELMT 2022b).

Any impacts to on-site jurisdictional areas will likely require a Lahontan RWQCB Waste Discharge permit prior to project implementation. Impacts to onsite jurisdictional areas may require a CDFW Section 1602 Lake or Streambed Alteration Agreement.

As discussed previously, there are no sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service located on the project site.

No fish or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) with frequent sources of water that would provide suitable habitat for fish were observed, and it was determined that fish are absent from the project site. No amphibian or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) with frequent sources of water that would provide suitable habitat for amphibian species were observed, and it was determined that amphibians are absent from the project site.

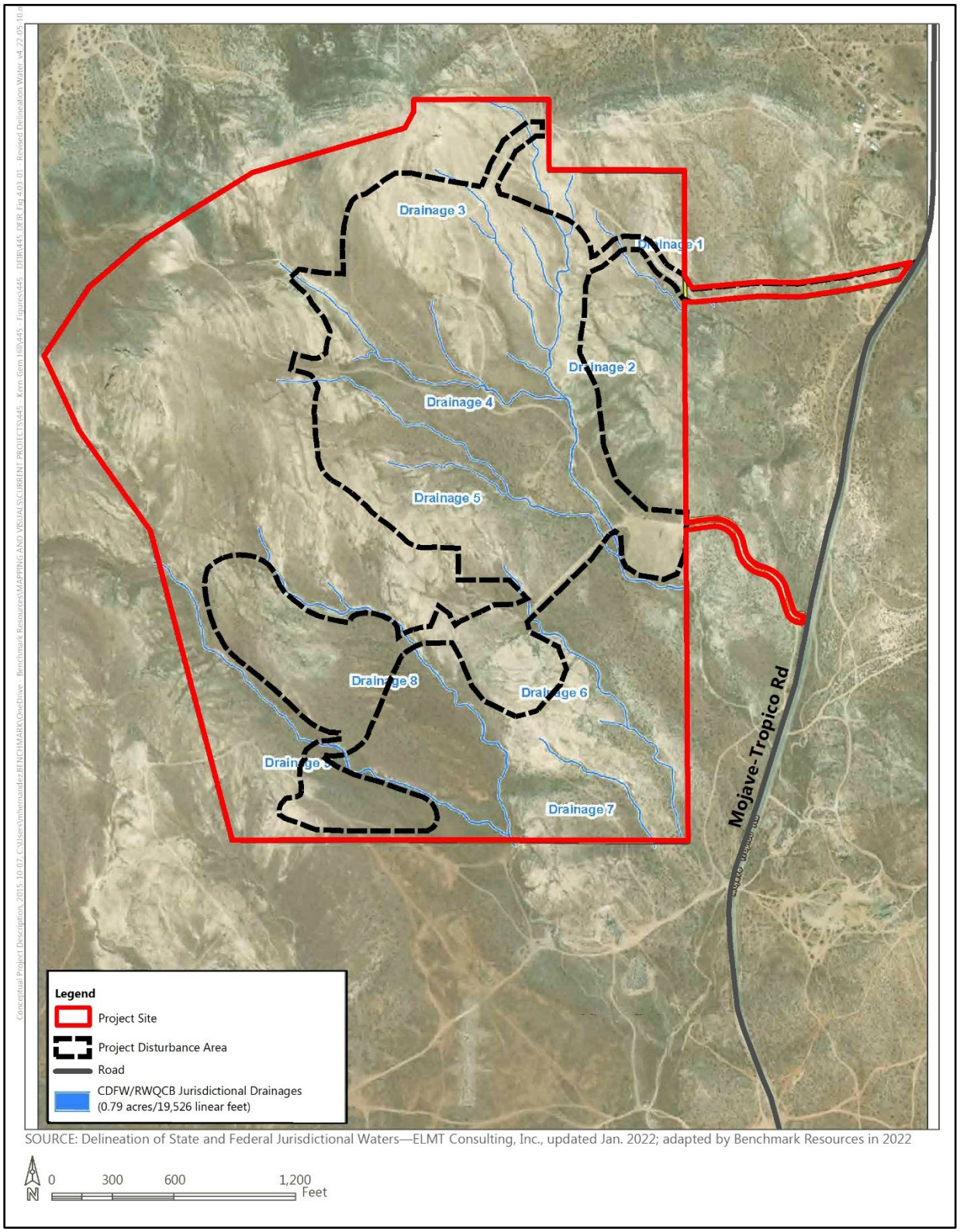


Figure 4.3-1
Water Resources Map

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.3-3: The project would have a substantial adverse effect on Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

There are no federally-protected wetlands on site, and the onsite drainage features do not have a hydrologic connection to downstream waters of the United States. The project would not have a substantial adverse effect on Federally protected wetlands. No impact would occur as a result of the proposed project.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.3-4: The project would 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.

Migratory corridors can include a variety of habitats. Many animals make regular localized movements between breeding, foraging, or aestivation habitat through areas that are indistinguishable from adjacent habitat that is not so used. As discussed previously, undeveloped land in the immediate vicinity of the project site has the potential to provide local wildlife movement opportunities for species moving through the immediate area (e.g., coyote, bobcat, etc.); however, the project site does not function as a major wildlife movement corridor or linkage (ELMT 2022a). Although the project area may be traversed by some species at different times, it does not include any wildlife movement corridors that are considered significant on a regional basis. Therefore, this impact is considered less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.3-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The project would not conflict with policies contained in the *Kern County General Plan* (see discussion in Section 4.10, *Land Use and Planning*, of this EIR). In addition, no western Joshua tree, or suitable habitat for western Joshua tree, was observed onsite. Accordingly, the project will have no impact on western Joshua tree. Therefore, this impact is considered less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The geographic scope for cumulative impacts to biological resources considers projects or other activities generally within a 6-mile radius of the project site. **Section 3.7,** *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis). Analysis of cumulative impacts includes considering the entirety of impacts that the cumulative projects and other actions discussed in **Section 3.7,** *Cumulative Effects Overview*, would have on biological resources. This geographic scope of analysis is appropriate because, although impacts of the project are primarily localized to the impact areas, losses of vegetation types or fragmentation of wildlife corridors could combine with similar impacts of other projects beyond these limited impact areas.

Impact 4.3-6: The project would contribute to cumulative biological resource impacts.

Although there are no significant project-specific biological resources impacts, as discussed above, the potential for cumulative biological resources impacts of the project exists as a result of biological resources impacts from other past, present (ongoing), and reasonably foreseeable future development and other activities. Historic and ongoing land uses such as agricultural activities, oil and gas development, utility infrastructure, dispersed residential development, and other development, as well as mining, have reduced the quantity and quality of wildlife habitats provided by undeveloped grassland and overall wetland habitats in the project area.

It is reasonable to anticipate that ongoing land uses and future development within the project vicinity will continue to result in vegetation removal, grading, and loss of habitat. The project would result in a long-term loss of creosote scrub habitat that could potentially provide future marginal foraging and nesting habitat for special-status species.

The mitigation measures identified above for potential project-specific impacts would serve to avoid or minimize the project's impacts as well as its contribution to cumulative impacts. Due

to Federal and State regulatory requirements and Kern County policies geared toward biological resources protection, it is also reasonable to anticipate that similar mitigation will be required of other projects to minimize their impacts to biological resources. However, it is possible that significant impacts to migratory birds could occur even after mitigation, given their migratory nature. Further, as take authorization for migratory bird species is not available, any mortality of migratory birds would be considered significant under CEQA. Therefore, the proposed project, in combination with all identified cumulative projects, would result in a cumulatively significant impact on migratory birds that may remain significant and unavoidable after implementation of mitigation.

Mitigation Measures

Implement Mitigation Measures MM 4.1-2, MM 4.1-3, and MM 4.3-1 through MM 4.3-7.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-2, MM 4.1-3, and MM 4.3-1 through MM 4.3-7, cumulative impacts would be significant and unavoidable.

Section 4.4
Cultural Resources

4.4.1 Introduction

This section of the Environmental Impact Report (EIR) provides contextual background information on cultural resources in the project area, including the area's prehistoric, ethnographic, and historical settings. This section also summarizes the results of cultural surveys conducted for the project site, analyzes the project's potential impacts on cultural resources, and identifies mitigation measures to address adverse impacts, where applicable. Additional information regarding tribal cultural resources and results of the Native American consultation conducted by Kern County is provided in **Section 4.15**, *Tribal Cultural Resources*, of this EIR.

Information regarding cultural resources is based in part on the following studies prepared for the project:

- *Phase I Historical/Archaeological Resources Survey, Rosamond Hills Mine Project, Assessor's Parcel Nos. 345-294-17, 0345-031-02, and 0345-032-02, -05, and -31*, prepared by CRM Tech, dated March 6, 2019, redacted version included in Appendix E.1 of this EIR;
- *A Phase II Cultural Resources Investigation of the Cal-Portland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County*, prepared by McKenna et al., dated June 26, 2019, redacted version included in Appendix E.2 of this EIR;
- *Addendum Report: A Phase II Cultural Resources Investigation of the CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County*, prepared by McKenna et al., dated January 4, 2020, redacted version included in Appendix E.3 of this EIR; and
- *Supplemental Report: Cultural Resource Investigations of Additional Acreage at The CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County, California*, prepared by McKenna et al., dated August 23, 2021, redacted version included in Appendix E.4 of this EIR.

For the purposes of the California Environmental Quality Act (CEQA), "cultural resources" generally refer to prehistoric and historical archaeological sites and the built environment. Cultural resources can also include areas determined to be important to Native Americans, called tribal cultural resources. **Section 4.15**, *Tribal Cultural Resources*, of this EIR specifically addresses tribal cultural resources and the County's tribal notifications and consultation. Paleontological resources are evaluated in **Section 4.6**, *Geology and Soils*, of this EIR.

Concepts and Terminology

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, nonutilitarian objects), features (e.g., remnants of walls, cooking hearths, 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 Resource:** 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.
- **Cultural Resources Survey Area:** All areas of potential permanent and temporary project impacts.
- **Ethnographic:** Relating to the study of human cultures. "Ethnographic resources" represent the heritage resources 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. In 1772, Commander Don Pedro Fages was the first European to enter the desert of Kern County, initiating the historic period in the project study area.
- **Historical Resource:** Used for the purposes of CEQA and defined in the State 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 Public Resources Code (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 that 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 (CEQA Statute Section 21083.2 and State 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.
- **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 lifeways.
- **Quaternary Age:** The most recent of the three periods of the Cenozoic Era. 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.
- **Tribal Cultural Resources:** 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 CRHR or included in a local register of historical resources (PRC Section 21074 (a)(1)).
- **Unique Archaeological Resource:** This term is used for the purposes of CEQA and is defined in the State CEQA *Guidelines* (Section 15064.5) 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, 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.

4.4.2 Environmental Setting

The project site is in the southeastern portion of unincorporated Kern County, situated in the Rosamond Hills on the west side of Mojave-Tropico Road approximately four miles northwest of the unincorporated community of Rosamond (**Figure 3-1**, *Site Vicinity*). The region is relatively dry with little precipitation in the summer or winter. Summer high temperatures reach over 100 degrees Fahrenheit (ºF) and averages in the mid to upper 90s with lows in the upper 60s to low 70s. Extreme highs reach over 110º F. Winter highs average in the 60s with lows in the 30s.

The project site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two recently graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation cover (less than 5 percent) while the flatland areas at the bottom of the slopes support denser vegetation cover (less than 30 percent). Creosote bush scrub is the dominant plant community. Several unnamed ephemeral drainage features are present within the project site. The drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site and generally flow to the southeast.

Based on the NRCS USDA Web Soil Survey reviewed by ELMT (2022a), the project site is underlain by the following soil units: Arizo gravelly loam sand (2 to 9 percent slopes), Cajon sand (5 to 15 percent slopes), Porterville cobbly clay (5 to 9 percent slopes), and rock outcrop. The Arizo series consists of very deep, excessively drained soils that formed in mixed alluvium on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, floodplains of intermittent streams and channels. The Porterville series consists of deep, well drained soils that formed in fine textured alluvial material from basic and metabasic igneous rock on fans and foothills.

4.4.3 Cultural Setting

Prehistoric Setting

In order to understand Native American cultures prior to European contact, archaeologists have devised chronological frameworks on the basis of artifacts and site types dating back some 12,000 years. One of the more frequently used time frames for the Mojave Desert divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings. According to Warren (1984) and Warren and Crabtree (1986), these five periods are the Lake Mojave Period (12,000-7,000 years ago), the Pinto Period (7,000-4,000 years ago), the Gypsum Period (4,000-1,500 years ago), the Saratoga Springs Period (1,500-800 years ago), and the Protohistoric Period (800 years ago to European contact). This time frame is based on general technological changes from large stone projectile points, with few milling stones for grinding food products,

to smaller projectile points with an increase in milling stones. The scheme also notes increases in population, changes in food procurement and resource exploitation, and more cultural complexity over time. During the Protohistoric Period, there is evidence of contact with the Colorado River tribes and the introduction of pottery across the Mojave Desert (CRM Tech 2019).

Ethnographic Setting

The present-day Rosamond area lies on the southern edge of the traditional homeland of the Kitanemuk, a small Native American group located principally on the southern and western flanks of the Tehachapi Mountains (Blackburn and Bean 1978 as cited in CRM Tech 2019). Although their general ecological adaptation and subsistence technology differed little from that of their neighbors to the north or west, the Kitanemuk would descend to the Antelope Valley floor to take advantage of seasonal desert resources and engage in trade. Prior to European contact, the Antelope Valley was a nexus of goods exchange between the Kitanemuk and other nearby tribal groups, including Vanyumé, Serrano, Tataviam, and interior Chumash (Sutton 1980; Sutton et al. 2009; Scharlotta 2014 as cited in CRM Tech 2019).

Desert resources utilized by the Kitanemuk for food, medicine, and utilitarian purposes would have included Joshua tree for cordage, dye, and edible blossoms; creosote, ephedra, and salt bush for medicine and firewood; and various cacti for food. In wetter paleo-environment of the late Pleistocene and early Holocene, the region was the site of Lake Thompson (Hilu et al. 1982; Orme 2004; Sutton et al. 2009 as cited in CRM Tech 2019). The receding of the lake has left behind three dry lakes in the region, including Lake Rosamond, that still flood during storm events (Orme 2004). The area would have hosted desert grasses, the seeds of which were collected with seed beaters, and stands of mesquite (Hilu et al. 1982 as cited in CRM Tech 2019). Pronghorns were plentiful in the valley during prehistoric times (Hammond 2017 as cited in CRM Tech 2019).

Precise data on the demographic characteristics and political organization of the Kitanemuk can no longer be obtained, however, archaeological evidence points to a somewhat stratified society. It is known ethnographically that each village had a chief, ceremonial manager, messengers, and shamans (Blackburn and Bean 1978:567 as cited in CRM Tech 2019). The Kitanemuk utilized formal cemeteries, and excavations have revealed the presence of grave goods implying status among tribal members (Sutton 1980:218 as cited in CRM Tech 2019). These grave goods include trade items from the Santa Barbara coast, San Joaquin Valley, and eastern Mojave Desert (Sutton 1980 as cited in CRM Tech 2019).

The Kitanemuk may have had contacts with the Spanish colonizers as early as the 1770s, and disease and epidemic that may have preceded them along heavily utilized trade routes had an enormous impact on this small group (Sutton et al. 2009 as cited in CRM Tech 2019). During the Spanish and Mexican Periods, the Kitanemuk were apparently represented at the San Fernando, San Gabriel, and San Buenaventura Missions. After the American annexation of Alta California, some Kitanemuk were found on the Tejon Reservation in the 1850s, and later on at the Tule River Reservation, where some of their descendants still reside (CRM Tech 2019).

Historic Setting

In 1772, a small force of Spanish soldiers under the command of Pedro Fages became the first Europeans to set foot in the Antelope Valley. Over the next century, a number of famous explorers, including Francisco Garcés, Jedediah Smith, Kit Carson, and John C. Fremont, traversed the Antelope Valley, but their explorations brought little change to the region. For much of the 19th century, the Antelope Valley continued to receive only the occasional hunters, drawn by its legendary herds of pronghorns, and travelers. For example, Don Alexander and Phineas Banning's first stage line between Los Angeles and northern California ran through the southern edge of the valley (CRM Tech 2019).

In 1876, when the Southern Pacific Railroad Company (SP) chose the essentially uninhabited Antelope Valley for its line between the San Joaquin Valley and the Los Angeles Basin, it established a string of regularly spaced sidings and water stops across the desert. The arrival of the railroad ended the isolation of the region and began development of a string of new towns that would spring up around the SP stations as settlers arrived to work on the railroad or earn a living providing services for the railroad workers. Among these railroad towns was Rosamond, a siding and a water stop established in 1877 by the SP and named for the daughter of a railroad official (Larson n.d.; WAVHS n.d. as cited in CRM Tech 2019).

Rosamond soon prospered, facilitate in part by the abundance of artesian water in the vicinity. The first Rosamond post office opened in 1885, and the first local industries were mining and cattle ranching (WAVHS n.d. as cited in CRM Tech 2019). In 1896, a mini mining boom spread in the area after gold was discovered by Ezra Hamilton, who had bought land northwest of Rosamond, about two miles south of the project site, to harvest clay for his Los Angeles pottery company. The Lida Mine, as Hamilton named it, was sold to brothers Clifford and Cecil Burton in 1908 and renamed the Tropico Gold Mine. It eventually ceased operation in 1958 after closing and reopening a few times over the years (Larson n.d. as cited in CRM Tech 2019).

With the adoption of electric water pumps, irrigated agriculture became the primary means of livelihood in the region. Alfalfa, which was first introduced around 1890, emerged as the principal crop, so much so that "alfalfa is king" became the slogan for the agricultural interests in the valley. After WWII, the aerospace and defense industry overtook agriculture as the most important sector in the Antelope Valley economy. In 1968, the Antelope Valley Freeway (State Route 14) was extended to Rosamond (WAVHS n.d. as cited in CRM Tech 2019). As a direct result, Rosamond has experienced accelerated growth in residential development since then and, like the other communities in the Antelope Valleys, has increasingly taken on the characteristics of a "bedroom community" in support of the Greater Los Angeles area (CRM Tech 2019).

Existing Cultural Resources

Methods Used to Identify Known Cultural Resources

To identify potential presence of cultural resources within the project site and to evaluate the project's potential effects on significant cultural resources, a series of cultural resources studies were prepared for the project. A summary of these studies is provided here and the areas of coverage are illustrated on **Figure 4.4-1**, *Coverage Areas of Project Cultural Resources Studies*.

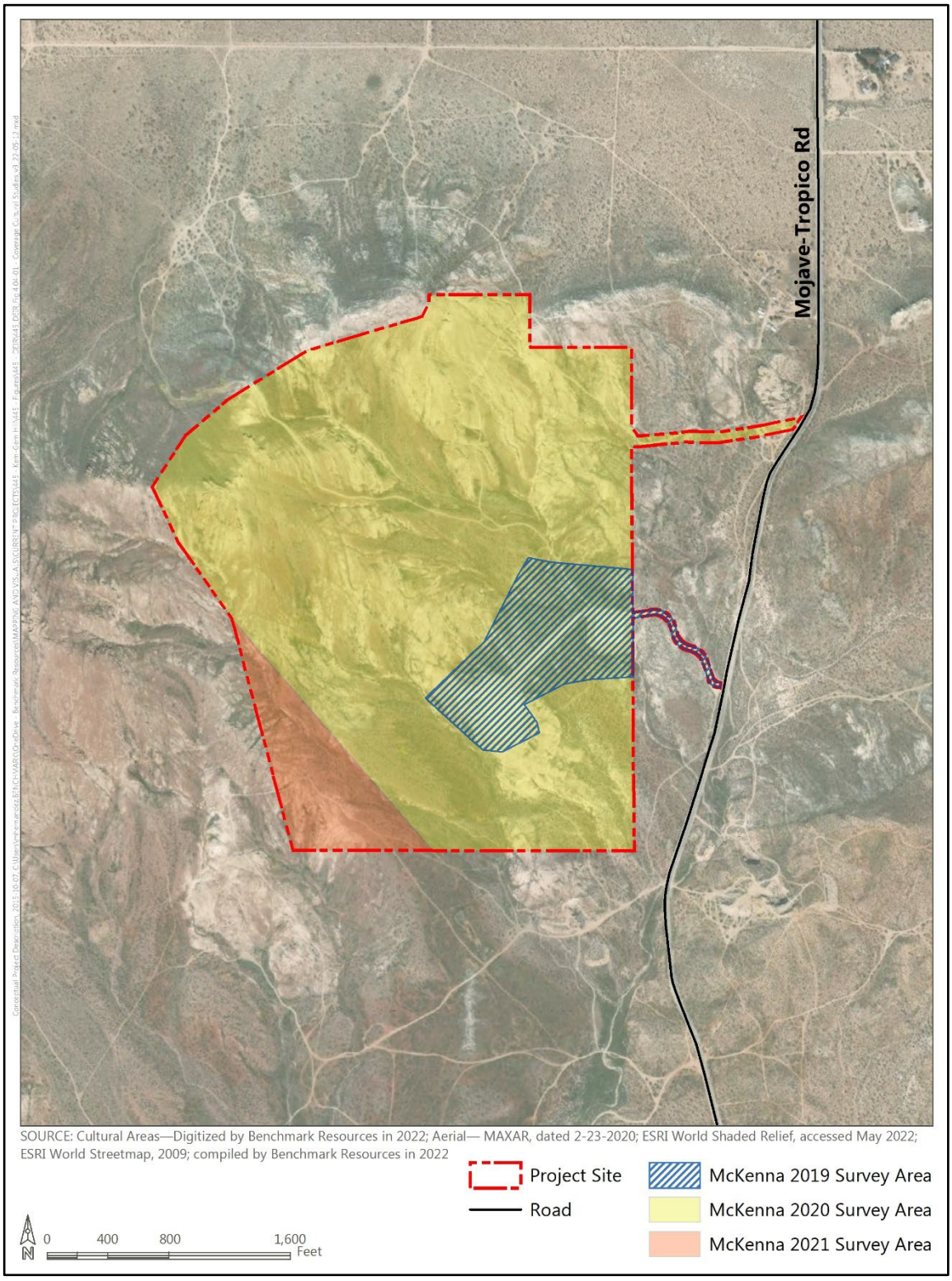


Figure 4.4-1
Coverage Areas of Project Cultural Resources Studies

The *Phase I Historical/Archaeological Resources Survey, Rosamond Hills Mine Project, Assessor's Parcel Nos. 345-294-17, 0345-031-02, and 0345-032-02, -05, and -31* was prepared by CRM Tech, dated March 6, 2019. A redacted version of the report is included in Appendix E.1 of this EIR. The purpose of the CRM Tech study was to provide information and analysis to determine whether the proposed project would potentially cause a substantial adverse change to any historical resources, as defined by CEQA, that may exist in or around the project area. To identify such resources, CRM Tech initiated a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey of the 190-acre project area as defined at the time of the study. (CRM Tech 2019) As shown on **Figure 4.4-1**, *Coverage Areas of Project Cultural Resources Studies*, the CRM Tech 2019 evaluation covered most of the currently defined project site, but did not include the secondary access road alignment or an approximately 17-acre area in the southwestern portion of the site, as those areas were not included within the site boundary under consideration at the time of the studies.

The *Phase II Cultural Resources Investigation of the CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County*, was prepared by McKenna et al., dated June 26, 2019. A redacted version of the report is included in Appendix E.2 of this EIR. CRM Tech (2019) recommended a Phase II cultural resources testing program to address the resources identified during their survey. In response to the CRM Tech recommendations and in consideration of an approximately 30-acre portion of the project site for which a grading plan was under consideration, McKenna et al. performed a Phase II cultural resources investigation of the 30-acre grading plan area. As shown on **Figure 4.4-1**, *Coverage Areas of Project Cultural Resources Studies*, the McKenna et al. 2019 Phase II evaluation covered 30 acres in the south-central portion of the site and the proposed project's primary access road alignment.

The *Addendum Report: A Phase II Cultural Resources Investigation of the CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County*, was prepared by McKenna et al., dated January 4, 2020. A redacted version included in Appendix E.3 of this EIR. After completion of the Phase II testing of the approximately 30-areas discussed above, McKenna et al. prepared the Phase II addendum report (McKenna et al. 2020a) to assess the remaining areas of the then-defined project site in furtherance of CRM Tech (2019) recommendations and to evaluate cultural resources along the proposed project's secondary access road alignment. The studies were completed in November and December of 2019 and documented in the January 4, 2020, report (McKenna et al. 2020a). As shown on **Figure 4.4-1**, *Coverage Areas of Project Cultural Resources Studies*, the McKenna et al. 2020 Phase II evaluation covered approximately 190 acres of the project site including the secondary access road alignment and including the 30 acres previously evaluated by McKenna et al. (2019).

The *Supplemental Report: Cultural Resource Investigations of Additional Acreage at The CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County, California*, was prepared by McKenna et al., dated August 23, 2021. A redacted version of the report is included in Appendix E.4 of this EIR. In combination, the two Phase II reports discussed above (McKenna 2019, 2020) provided Phase II level

evaluations for the entirety of the project site including the primary and secondary access road alignments, with the exception of an approximately 17-acre area in the southwestern portion of the site that had not been previously included in CRM Tech (2019) or McKenna et al. (2019, 2020a) evaluations. The supplemental report (McKenna et al. 2021) documents McKenna et al. supplemental Phase II evaluation for this 17-acre survey area. **Figure 4.4-1**, *Coverage Areas of Project Cultural Resources Studies*, shows the survey area of the McKenna et al. 2021 supplemental evaluation.

In total, the reports above provide Phase I and Phase II cultural resources investigation of the project site in its entirety.

SSJVIC Records Search

On December 14, 2018, the Southern San Joaquin Valley Information Center (SSJVIC), completed a records search to support the *Phase I Historical/Archaeological Resources Survey* (CRM Tech 2019). The records search involved examination of maps and records on file at the SSJVIC for previously identified cultural resources in or near the project area and existing cultural resources reports pertaining to the project vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks or Points of Historical Interest as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory (CRM Tech 2019).

According to SSJVIC records, one previous study completed in 1980 included the easternmost portion of the current project area, namely the proposed route of the main access road to Mojave-Tropico Road (Schiffman and Lewis 1980; KE-01481 in Fig. 5), but the rest of the project area had not been surveyed systematically for cultural resources prior to the CRM Tech 2019 study. The 1980 survey, covering mainly the adjacent land to the east and the south of the main project site, recorded one large prehistoric (i.e., Native American) archaeological site, 15-001203 (CA-KER-1203), that extended into the CRM Tech (2019) study area boundaries. Described as primarily a lithic quarry site, CA-KER-1203 also contained rock rings, hearths, and chipping circles (Lewis 1980 as cited in CRM Tech 2019).

Outside the project site, but within a one-mile radius, SSJVIC records show at least five other previous studies completed on various tracts of land between 1980 and 1992, which collectively covered roughly 20 percent of the land within the scope of the records search. As a result of these and other similar studies, six additional archaeological sites and one isolate (i.e., a locality with fewer than three artifacts) were recorded within the scope of the records search, as listed in **Table 4.4-1**, *Previously Recorded Cultural Resources within 1 Mile of Project Site* (CRM Tech 2019).

All of the known cultural resources identified through the 2019 records search were prehistoric in origin. CA-KER-1203, also described as a quarry site, was the nearest to the project area at the distance of roughly 0.4 mile to the south. The other five sites represented an additional lithic quarry, two lithic scatters, a group of bedrock milling features, a temporary camp site, and an isolate consisting of a single rhyolite core or tool. With the exception of CA-KER-1203, none of these resources was located in the immediate vicinity of the project site, and none required further consideration. Results from the records search indicated that CA-KER-1203, a

prehistoric site described as a large lithic quarry, was previously recorded as lying partially within the project site (CRM Tech 2019).

Table 4.4-1 Previously Recorded Cultural Resources within 1 Mile of Project Site

Primary No.	Trinomial	Site Description	Citation
15-000248	CA-KER-248	Quarry site	Apostolides 1965
15-000753	CA-KER-753	Bedrock mortars	Serfoss 19972
15-0012031	CA-KER-1203	Quarry site	Lewis 1980
15-002490	CA-KER-2490	Temporary camp with flakes and projectile point	Norwood 1989
15-002722	CA-KER-2722	Quarry site	Parr 1990
15-002829	CA-KER-2829	Lithic scatter	Osborne et al. 1990
15-003358	CA-KER-3358	Lithic scatter/lithic reduction site	Brock & Davidson 1992
15-007494	N/A	Isolate: rhyolite core/tool	Parr & Osborne 1990

Source: CRM Tech 2019
Notes:
1. Identified by CRM (2019) as located partially within project boundaries.

Field Surveys

CRM Tech 2019 Surveys and Recommendations

CA-KER-1203 is identified as a prehistoric lithic quarry site previously recorded as lying partially within the eastern portion of the project area and extending further east and south beyond project boundaries. As recorded in 1980, CA-KER-1203 measured more than a half-mile long and a quarter-mile wide, oriented north-south along the eastern boundary of the project site, and consisted of lithic flake deposits of varying density along drainages as well as rock rings, hearths, and chipping circles (Lewis 1980 as cited in CRM Tech 2019).

During the CRM Tech 2019 field survey, numerous lithic artifacts were observed on the ground surface throughout the project site, both within and outside the previously established boundary of CA-KER-1203. Among them were a complete projectile point and numerous “tested” rocks and flakes lying in all areas where cobbles were present, along with two ground-stone fragments. Some larger rocks still embedded in the ground had flakes removed. At least six discrete flaking stations were identified, some of which are possibly among those recorded in 1980s (CRM Tech 2019).

In addition, three potential rock shelters were found in the northwestern portion of the project site, and six rock rings/hearths were found in both the northern and the southern portions. At least three historic-period refuse scatters were also noted in the southern half of the site. All of the artifacts and features encountered within the project area were determined by CMR Tech to be part CA-KER-1203. As a result, the understood boundary of CA-KER-1203 was expanded significantly to the west within the project site to include the locations of the new

discoveries such that CA-KER-1203 is now considered to encompass almost the entire project site (CRM Tech 2019).

Due to the potential presence of subsurface archaeological deposits at the site, CRM Tech (2019) concluded that the historic significance of CA-KER-1203 and its qualification as a historical resource could not be determined on the basis of surface findings, and CRM Tech recommended that a Phase II archaeological testing and evaluation program be completed at the portion of CA-KER-1203 within the project site to determine the presence or absence of any substantial subsurface cultural remains. CRM Tech (2019) recommended that a testing and evaluation program should consist of, at a minimum, detailed recordation and mapping of the flaking stations, surface collection of unique artifacts such as the projectile point, and subsurface excavations at the rock shelters and at a selection of dense scatters of tested stones. CMR Tech also recommended that the evaluation should also include laboratory analysis of recovered archaeological materials, preparation of a final report to document the findings, and permanent curation of the artifact assemblage at an appropriate facility, and anticipated that further recommendations regarding the treatment of CA-KER-1203 would be formulated and presented on the basis of the results of the testing and evaluation program (CRM Tech 2019).

McKenna et al 2019 – 2021 Surveys and Recommendations

McKenna et al. was contracted by the project proponent to complete the Phase II studies per CRM (2019) recommendations discussed above, with an understanding that the relocation of the identified CRM Tech resources would be subjected to recovery. Actual testing (excavations) was only to be conducted should the archaeological context confirm the presence of soils with sufficient depth to be suggest buried resources. McKenna et al. obtained locational data from CRM Tech and attempted to relocate and assess the identified components. McKenna et al. initial studies (2019) within approximately 30 acres of the project site yielded relocation and assessment of five isolated site components reported by CRM Tech. Of these resources, McKenna et al. confirmed that the two CRM Tech-reported fragments of ground stone were not fragments of ground stone. Additionally, a rock circle reported by CRM Tech was determined to be a modern hearth with no identifiable association to the prehistoric quarry site. McKenna et al. identified a large flake scatter and an isolated biface/core associated with CRM Tech flagging. McKenna et al. recovered the core from an area that was not conducive to subsurface deposits (e.g., light desert pavement). A sample of the quarry-related flake scatter was recovered and confirmed to be a scatter dominated by unused rhyolite flakes indicative of primary and secondary flaking (from large cores) and discarded as debitage (the more usable materials having been carried away). These materials were identified in an area of very shallow soil development and not evidence of any significant depth. Subsurface testing was not conducted, as it was deemed unnecessary to disturb the area further. All of the artifacts identified by McKenna et al. as prehistoric were considered additional components of CA-KER-1203. None of the identified hearths were considered prehistoric, as all showed signs of recent burning, recently overturned rocks, and/or nearby modern refuse associated with the recent use of the hearths (e.g., fragment of firewood and/or modern cans and paper wrappers) (McKenna et al. 2020).

McKenna et al. November and December 2019 investigations included attempts to relocate three rock shelters and an isolated projectile point reported by CRM Tech (2019). The

remaining resources were deemed consistent with the general scattering of quarry-related resources.

McKenna et al. failed to relocate the isolated projectile point reported by CRM Tech, but noted that the possibility that the artifact was recovered prior to the McKenna et al. relocation effort. McKenna et al. confirmed the presence of numerous rock rings and determined all of them to be of modern origin and not culturally significant. Likewise, the many dirt road alignments within the project site were determined to post-date ca. 1947 and are also of no historical significance. McKenna et al. noted the entire area is associated with the scatters (dense to sparse) of quarry-related debitage and noted the presence of large to small cores (primarily rhyolite) as well as thousands of scattered waste flakes (large to small). There are areas of concentration that represent source areas and there are isolated flakes and/or sparse scatters of flakes that are representative of the subjective search for useable material. A limited amount of non-rhyolite materials were identified, include one chert flake, one quartzite flake, and many areas of exposed limestone deposits. None of the reported fragments of ground stone were confirmed to be ground stone, but McKenna et al. did identify some rocks with evidence of pecking (scarring from breaking other rocks) (McKenna et al. 2020).

McKenna et al. also attempted to relocate the three CRM Tech (2019) reported locations of rock shelters. McKenna et al. identified six possible rock shelter locations and determined each to be non-cultural. None of the locations yielded evidence of human activity, although sparse scatters of flakes were identified nearby (and consistent with typical quarrying activities). In each case, McKenna et al. identified the cavities as relatively small, shallow, and yielding no evidence of use other than possibly by animals. McKenna et al. noted some evidence of very recent rock movement (hearths from modern human activity), but of no historic or prehistoric significance. McKenna et al. concluded there is no evidence of prehistoric use of these natural rock overhangs or cavities, and determined that no subsurface testing was necessary, as there was no cultural context to justify the excavations (McKenna et al. 2020).

McKenna et al. (2020) notes that CA-KER-1203 is a large, prehistoric quarry site dominated by the presence of naturally occurring rhyolite deposits, limestone, and scant evidence of other rocks or minerals. The evidence within the site area indicated the Native American populations were quarrying the rhyolite rock for use in the production of lithic tools, with the final stages of tool production accomplished elsewhere as CA-KER-1203 yielded evidence of raw material procurement. The isolated artifacts (non-rhyolite) were extremely sparse and not indicative of any particular activity. Overall, as a quarry site, CA-KER-1203 is indicative of many sites used for raw material procurement on the peripheries of the Mojave Desert. With no soil development or evidence of subsurface deposits, this area is considered to be primarily a surface site. There are no outstanding features other than the sparse-to-dense surface scatters of rhyolite cores, flakes, and debitage. While large in area and likely extending outside the currently identified boundaries, the site does not appear to be a significant cultural resource, as defined in the federal and state guidelines, as there is no immediately identifiable research potential. The use of the area is defined as a surface quarry. The raw materials procured were identified as rhyolite (a common material for prehistoric lithic tool production) (McKenna et al. 2020).

McKenna et al. (2020) notes that there are no identifiable diagnostic artifacts and no indications as to when the site was active or how long procurement lasted. McKenna et al. concluded the site is not a significant cultural resource, as defined in the federal or state guidelines. McKenna et al. noted that CA-KER-1203 is a prehistoric resource and may, outside the studied project site boundaries, yield evidence that may alter the present conclusion (McKenna et al. 2020).

With regard to historic resources, McKenna et al. (2019) noted that the alignment of Mojave-Tropico Road is a historic roadway and can be identified as a dirt road in ca. 1915 and a paved roadway by 1943. As a recognized historic road alignment, McKenna et al. recorded the alignment on the appropriate California DPR-523 forms.

McKenna et al. (2019) concluded that the recovery of artifacts has resulted in the clearing of the study area (at that time 30 acres) with respect to prehistoric resources, while acknowledging there is always a potential to identified additional components of CA-KER-1203 which, based on its identified loci, diversity of features, etc., should be considered significant and worthy of recognition as eligible for listing in the National Register of Historic Resources and the California Register of Historical Resources, and noting that it would also qualify as a locally significant cultural resource. Because CA-KER-1203, without fully being evaluation, should be considered a potentially significant prehistoric cultural resource, McKenna et al. (2019) recommended a limited archaeological monitoring program to insure any previously unidentified cultural resources within the site are addressed in accordance with current professional standards, and recommended the monitoring program should include:

1. The presence of a full-time archaeological monitor at the intersection of Mojave/Tropico Road (during road construction) to ensure any evidence of the historic road alignment that may be identified is adequately documented and recorded;
2. The presence of an archaeological monitor on a part-time basis during initial road development, facilities development, and shallow surface disturbances within the APE. The extent of the monitoring can be defined upon the completion of the task schedule. Monitoring of deeper subsurface excavations need not be monitored if the subsurface deposits are determined to be bedrock and not associated with soils or artifact-bearing deposits;
3. The monitoring program should be flexible and, if necessary, extended to a full-time program, should potentially significant resources be identified on a level that cannot be managed during the monitoring program;
4. At the completion of the monitoring program, a technical document detailing the methodology and findings must be prepared, including the photo-documentation and inventory of any items recovered as a result of the monitoring;
5. If, at any time, evidence of human remains (or suspected human remains) is identified, the County Coroner must be notified immediately and permitted to inspect the find in situ and make a determination. If the remains are human, the Coroner will determine whether they are archaeological or forensic and, if deemed archaeological, will notify the Native American Heritage Commission. The Commission will identify the "Most Likely Descendent" (MLD) and, in consultation with the property owner and Lead

Agency, will determine the disposition of the remains. All costs would be borne by the property owner.

In August of 2021, McKenna et al. completed an intensive survey of an approximately 17-acre areas of the southwestern portion of the project site that had not been previously surveyed. McKenna et al. (2021) maintained a photographic record and noted the presence of additional cultural resource components considered to be a general extension of the boundaries of CA-KER-1203. The cultural materials identified by McKenna et al. consisted of concentrations and scatters of additional quarrying material (primarily rhyolite) in the form of cores, primary flakes, waste flakes, and debitage. These items were similar to others identified within CA-KER-1203 and representative of the prehistoric quarrying activities in the area of Gem Hill. McKenna et al. also identifies utilized flakes and burins (awls) within the greater lithic scatter. The 17-acre survey area yielded resources consistent with the defined site of CA-KER-1203. No unique or exotic materials were identified, and no formal tools were documented (though utilized flakes were identified). The site is still likely to extend outside the recently defined boundaries (based solely on the extent of the survey area) (McKenna et al. 2021).

McKenna et al. (2020a, 2021) recommended the project area be considered clear of any significant cultural resources, but that as an identified archaeological site of considerable size, also recommended that project activities within the site be subjected to spot-monitoring during road development and mining activities that involve areas not dominated by limestone deposits. McKenna et al. (2020a) recommended that monitoring could be undertaken on a part-time basis, depending on the nature of the proposed activities and that, should any previously unidentified feature or deposits be uncovered, such resources should be assessed in context and recommendations be presented, as warranted, should they alter the primary use and description of CA-KER-1203 (McKenna et al. 2020a, 2021).

Native American Outreach

The Lead Agency sent consultation notification to applicable Native American tribes in accordance with AB 52. Responses were received as summarized in **Table 4.4-2**, *Summary of AB 52 Consultation Efforts*.

Table 4.4-2 Summary of AB 52 Consultation Efforts

Tribe/Organization	Consultation Type	Date Letter Mailed	Response Received
San Manuel Band of Mission Indians (Attn: Ryan Nordness)	AB 52	10/1/21	October 8, 2021, email requesting consultation and review of records. October 22, 2021, email concurring with the finding of the cultural report and advising that could not recommend on any mitigation measures until completion of phase II testing. May 24, 2022, email that 1) confirmed receipt and review of cultural resources documents provided by the County, 2) outlining preferred

Table 4.4-2 Summary of AB 52 Consultation Efforts

Tribe/Organization	Consultation Type	Date Letter Mailed	Response Received
			mitigation measures, 3) requesting that the County provide the final copy of the project conditions for review by the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN), and 4) noting that the May 24, 2022, email communication concluded input on the project with no additional consultation pursuant to CEQA required unless there is an unanticipated discover of cultural resources during project implementation.
Torres Martinez Desert Cahuilla Indians (Attn: Michael Mirelez)	AB 52	10/1/21	No response or request for consultation was received from Torres Martinez Desert Cahuilla Indians.
Tejon Indian Tribe (Attn: Colin Rambo)	AB 52	10/1/21	November 23, 2021, email requesting to initiate formal government-to-government consultation noting project is in sensitive cultural area and requesting copies of the DEIR and any archeological reports. July 18, 2022, email noting that the Tejon Indian Tribe does not have any unresolved questions or concerns related to the project, and advising that the Tribe would submit public comment during the EIR process.
Twenty-Nine Palms Band of Mission Indians (Attn: Anthony Madrigal Jr.)	AB 52	10/1/21	No response or request for consultation was received from Twenty-Nine Palms Band of Mission Indians.
Twenty-Nine Palms Band of Mission Indians (Attn: Darrell Mike)	AB 52	10/1/21	No response or request for consultation was received from Twenty-Nine Palms Band of Mission Indians.

While no tribal cultural resources have been identified within the project site through consultation with Native American representatives, the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures (MM) 4.4-1 through MM 4.4-4 would reduce impacts to a less-than-significant level.

Pursuant to Section 21080.3.2(b)(1) of AB 52, the Lead Agency's consultation obligations are satisfied sufficient for circulation of the draft EIR. 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.

Historic Map Review

A review of historic maps and aerial photographs to identify historic land uses within the project site and its vicinity was conducted (CRM Tech 2019; McKenna et al. 2019). Historical sources consulted by CRM (2019) suggested that the project area is relatively low in sensitivity for cultural resources from the historic period. No evidence of any settlement or land development activities was observed within the project site throughout the 1850s-1940s era. The forerunner of present-day Mojave-Tropico Road, first noted in the 1910s, and a winding dirt road, noted in the 1940s, were the only man-made features known to be present in or near the project area during the historic period. Since the early post-WWII era, some scattered rural residences have appeared in the surrounding area, but the project site has remained vacant and undeveloped. (CRM 2019) McKenna et al. (2019) subsequently identified Mojave-Tropico Road as a historic roadway that can be identified as a dirt road in ca. 1915 and a paved roadway by 1943. As a recognized historic road alignment, McKenna et al. recorded this alignment on the appropriate California DPR-523 forms.

4.4.4 Regulatory Setting

Federal

Section 106 of the National Historic Preservation Act of 1966

Archaeological resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code [USC] 470f), and its implementing regulation, Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an "undertaking" (e.g., issuing a federal permit), NHPA Section 106 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 (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. As indicated in NHPA Section 101(d)(6)(A), 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 at 36 CFR 60.4.

National Register of Historic Places

The NRHP was established by the NHPA 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

properties, including archaeological sites, 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 (U.S. Department of the Interior 1995):

- **Criterion 1:** Are associated with events that have made a significant contribution to the broad patterns of our history;
- **Criterion 2:** Are associated with the lives of persons significant in our past;
- **Criterion 3:** 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
- **Criterion 4:** 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. To retain historic integrity, a property must possess several, and usually most, of these seven qualities. Thus, the retention of the specific qualities of integrity is paramount for a property to convey its significance. The seven qualities that define integrity are location, design, setting, materials, workmanship, feeling, and association.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from Federal and Tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. NAGPRA requires any Federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

State

California Register of Historical Resources

Under PRC Section 5024.19(a), the CRHR was created in 1992 and implemented in 1998 as "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 historical 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:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 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.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under PRC 5024.1, California Code of Regulations (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 may be 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. However, archaeological sites may also be recommended eligible under CRHR Criteria 1, 2, and/or 3.

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:

- 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);
- It is associated with an individual or group having a profound influence on the history of California; or
- 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 (SHRC) 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:

- It is the first, last, only, or most significant of its type within the local geographic region (City or County);
- It is associated with an individual or group having a profound influence on the history of the local area; or
- 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 a historical resource is a project that may have a significant effect on the environment. The State CEQA *Guidelines* (14 CCR Section 15064.5) recognize that a historical resource includes: (1) a resource listed in, or determined to be eligible by the SHRC, 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 that 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 Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of CEQA Section 21084.1 and Section 15064.5 of the State 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 a historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (State CEQA *Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the State 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:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- 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 State CEQA *Guidelines* 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 State 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 (State CEQA *Guidelines* Section 15064.5(c)(4)).

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. 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.

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 California 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 a Notice of Preparation (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) define 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 CRHR 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 State 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 PRC 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.

California Public Records Act

California Public Records Act Sections 6254(r) and 6254.10 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 relating 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 Native American tribe and a State or local agency."

California Native American Graves Protection and Repatriation Act of 2001

Codified in California Health and Safety Code Sections 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, ground disturbance of the site or any nearby area reasonable suspected to overlie adjacent remains must cease until the Coroner in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code Section 622.5

The 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.

California 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 General Provisions

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policies

- **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

- **Implementation Measure K.** Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.
- **Implementation Measure L.** The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.
- **Implementation Measure M.** In areas of known paleontological resources, the County should address the preservation of these resources where feasible.
- **Implementation Measure N.** The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.
- **Implementation Measure O.** On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.4.5 Impacts and Mitigation Measures

Methodology

As described in detail above, to evaluate the project's potential effects on significant archaeological and historic built environment resources, CRM Tech (2019) and McKenna et al. (2019, 2020a, 2021) conducted cultural resources investigations of the project site, which included archival research and field surveys.

To identify tribal cultural resources that could be impacted, the NAHC performed a search of the Sacred Lands File. As part of their AB 52 consultation efforts, the Kern County Planning and Natural Resources Department sent tribal consultation letters in October 2021 to the San Manuel Band of Mission Indians, Torres Martinez Desert Cahuilla Indians, Tejon Indian Tribe, and Twenty-Nine Palms Band of Mission Indians inviting them to consult on the project. The Kern County Planning and Natural Resources Department received two responses to the AB 52 consultation letters: one from the San Manuel Band of Mission Indians and one from the Tejon Indian Tribe.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect on cultural resources. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to cultural resources if it would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5;

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5; or

c. Disturb any human remains, including those interred outside of dedicated cemeteries.

According to the State CEQA *Guidelines* (14 CCR 15064.5), a project with an effect that may cause a substantial adverse change in the significance of a historical resource (or a tribal cultural resource) is a project that may have a significant effect on the environment (14 CCR 15064.5(b)). The State CEQA *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).

Project Impacts

Impact 4.4-1: The proposed project would cause a substantial adverse change in the significance of a historical resource as defined in State CEQA *Guidelines* Section 15064.5.

As discussed in **Section 4.4.3**, *Cultural Setting*, based on the findings of the cultural resources investigations prepared for the project by CRM Tech (2019) and McKenna et al. (2019, 2020a, 2021) and a records search of the project area conducted at the SSJVIC, one historic-period resource has been identified with the potential to be adversely affected by the proposed project. McKenna et al. (2019) research confirmed the alignment for Mojave-Tropico Road is a historic period roadway. As a recognized historic road alignment, McKenna et al. recorded the alignment on the appropriate California DPR-523 forms. The project's proposed primary and secondary access road improvements could require some physical effects to the portion of Mojave-Tropic Road. McKenna et al. (2019) notes that the former dirt road alignment of the Mojave-Tropic Road was obliterated by the widening and paving of the road by 1943. McKenna et al. (2019) considers this road to be a locally significant cultural resource and notes that, through design, adverse project impacts can be avoided and concludes that the project improvements would not be extensive or result in an adverse impact, regardless of the potential significance of the road. (McKenna et al. 2019)

Although the project is not expected to adversely impact the historical significance of Mojave-Tropico Road and there are no other known historical resources within the project site (see Impact 4.4-2 for discussion of potential impacts to prehistoric archeological resources), the potential exists for unknown buried historical resources to be present on the site. Ground disturbance associated with the topsoil and overburden removal associated with mining activities create the potential for damage or destruction of previously unidentified cultural resources that could be present on the site. Undiscovered surface or subsurface historical resource deposits could exist, having been obscured from view during pedestrian surveys by site vegetation. Subsurface deposits could be buried, with no surface evidence. Therefore, the potential for disturbance or destruction of one or more currently unknown significant historical resources is considered potentially significant. Implementation of Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3 would reduce this impact to less than significant. (Mitigation Measures MM 4.4-1, MM 4.4-2, and 4.4-3 provide mitigation for historical resources impacts discussed here, as well as archaeological resources impacts discussed below at Impact 4.4-2.)

Mitigation Measures

MM 4.4-1 The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior 2011), to carry out all mitigation measures related to archaeological and historical resources.

A. Prior to initial excavation activities, the project proponent shall demonstrate that it has a Worker Environmental Awareness Program (WEAP) in place for all workers at the project site that includes cultural and paleontological resources training. The training shall be prepared and conducted, for all personnel working on the proposed project, by the qualified Lead Archeologist (as defined above) in

consultation with the Native American monitor(s). A copy of the WEAP guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form.

B. The training shall include an overview of potential cultural resources that could be encountered during ground-disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist and Native American Monitor for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources.

C. The project proponent/operator shall ensure all new employees or on-site workers who have not participated in earlier WEAP shall meet provisions specified above.

D. The WEAP shall be kept available for all personnel to review and be familiar with, as necessary.

MM 4.4-2 During initial excavation, the services of Native American Tribal Monitors, working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, ground-disturbing activities associated with project-related construction activities, as follows:

A. All initial excavation activities within the project site, shall be monitored by archaeological and Native American monitors.

B. The Lead Archaeologist, archaeological monitors, and Native American monitors shall be provided all project documentation related to cultural resources within the project site prior to initial excavation 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 Lead Archaeologist, archaeological monitor, and Native American monitor.

C. The archaeological monitor(s) shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report detailing the results of monitoring, which shall be submitted to the Kern County Planning and Natural Resources Department and to the southern San Joaquin Valley Information Center at California State University, Bakersfield.

MM 4.4-3 In the event archaeological or historical resources are encountered during ground-disturbing activities, the proposed project contractor shall cease any

ground-disturbing activities within 50 feet of the find and notify the Kern County Planning and Natural Resources Department. The Lead Archaeologist shall evaluate the significance of the resource(s) and recommend appropriate treatment measures. Per State CEQA *Guidelines* Section 15126.4(b)(3), proposed project redesign and preservation in place shall be the preferred means to avoid impacts to significant archaeological or historical resources. Consistent with State CEQA *Guidelines* Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist shall develop additional treatment measures in consultation with Kern County, which may include data recovery or other appropriate measures. Kern County shall consult with the project proponent and appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature; this consultation may also be conducted in advance of earth-disturbing work through a memorandum of agreement and/or an Unanticipated Discoveries Treatment Plan. Archaeological materials recovered during any investigation shall be presented for curation at an accredited curation facility. The Lead Archaeologist 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.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3, impacts would be less than significant.

Impact 4.4-2: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA *Guidelines* Section 15064.5.

As discussed in **Section 4.4.3**, *Cultural Setting*, the cultural resources investigations prepared for the project by CRM Tech (2019) and McKenna et al. (2019, 2020a, 2021) identify prehistoric archaeological resource components within the site that contribute to a prehistoric archaeological site designated as CA-KER-1203. CA-KER-1203 was first defined in 1980 during studies immediately east of the project site. Based on cultural resources investigations conducted for the proposed project, CA-KER-1203 is now defined as extending into the entirety of the project site. Components of CA-KER-1203 within the project site include concentrations and scatters of quarrying material (primarily rhyolite) in the form of cores, primary flakes, waste flakes, and debitage representative of the prehistoric quarrying activities in the area of Gem Hill. In assessing the prehistoric contributing elements within the project site, McKenna et al. concluded that there are no outstanding features of the site other than the sparse-to-dense surface scatters of rhyolite cores, flakes, and debitage; and that, while large in area and likely extending outside the currently identified boundaries of CA-KER-1203, CA-KER-1203 does not appear to be a significant cultural resource as defined in the federal and state guidelines and has no immediately identifiable research potential (McKenna et al. 2021).

Although McKenna et al. considers the site clear of any significant cultural resources, McKenna et al. (2021) notes that should any previously unidentified feature or deposits be uncovered, such resources should be assessed through a formal Phase II assessment and that such an assessment could result in a change in the status of CA-KER-1203 (McKenna et al. 2021). Although the known archaeological resources within the project site are not considered significant in isolation and are not considered to contribute to defining CA-KER-1203 as a significant unique archaeological resource, the potential exists for unknown buried cultural resources to be present on the site with archeological significance on their own or as contributing elements to CA-KER-1203.

Ground disturbance associated with site grading and other earthmoving activities during construction and operation, including topsoil and overburden removal associated with mining activities, would create the potential for damage or destruction of previously unidentified prehistoric archeological resources that could be present on the site. Undiscovered surface archaeological deposits could exist, having been obscured from view during pedestrian surveys by site vegetation, and subsurface deposits could be buried, with no surface evidence. Therefore, the potential for disturbance or destruction of one or more currently unknown significant prehistoric archaeological resources is considered a potentially significant impact. Implementation of Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3 would reduce this impact to less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-1, MM 4.4-2, and 4.4-3, impacts would be less than significant.

Impact 4.4-3: The proposed project would disturb human remains, including those interred outside of dedicated cemeteries.

Buried human remains could be inadvertently unearthed during excavation activities, which could result in damage to those human remains. This impact is considered potentially significant. Mitigation Measure MM 4.4-4 contains procedures for recording and treating human remains that are discovered during implementation of the project and would reduce this impact to less than significant.

Mitigation Measures

MM 4.4-4 If human remains are uncovered during the life of the proposed project, the project proponent/operator shall immediately halt work, 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 State CEQA *Guidelines*. At that time, the project proponent/operator shall contact the Kern County Planning and Natural Resources Department regarding the find. If the Kern County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with California Health and Safety Code Section 7050.5(c), and Public Resources

Code 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent (MLD) for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (Section 7100 et seq.) directing identification of the next-of-kin will apply. If any human remains are encountered, the Kern County Planning and Natural Resources Department shall be notified.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-4, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The geographic scope for cumulative impacts to cultural resources consists of all projects located within a 6-mile radius of the proposed project, as well as all similar (i.e., mining and/or reclamation) projects within Kern County under the jurisdiction of the San Joaquin Valley Air Pollution Control District (approximately the western half of Kern County. Analysis of cumulative impacts takes into consideration the entirety of impacts that the Conditional Use Permits and Zone Changes, discussed in **Section 3.7**, *Cumulative Effects Overview*, would have on cultural resources. This geographic scope of analysis is appropriate because the archaeological and historical resources within this area are expected to be similar to those in the project site because their proximity, similar environments, landforms, and hydrology would result in similar land use and thus, site types.

Impact 4.4-4: The project would contribute to cumulative cultural resources impacts.

Cumulative development within a 6-mile radius of the project site has the potential to result in cumulative impacts to cultural resources present. As discussed previously, there are no known cultural resources of significance within the project site. Implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4 would minimize the potential for the proposed project to result in impacts to unknown cultural resources, if discovered during project activities. Implementation of the proposed project would not result in off-site impacts to cultural resources, and it is expected that other development projects within a 6-mile radius would be required to mitigate for their individual impacts to cultural resources. Consequently, the incremental effects of the project, after mitigation, would not have the potential to make a considerable contribution, in combination with impacts from past, present, or reasonably foreseeable projects to a cumulative significant impact on cultural resources under CEQA.

Regarding disturbance of human remains (Impact 4.4-3), with implementation of Mitigation Measure MM 4.4-4, any human remains discovered during project activities would be appropriately treated and the project would not contribute to cumulative impacts within the region.

As a result of these factors and with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4, the project would not have the potential to substantially contribute to cumulative impacts associated with cultural resources.

Mitigation Measures

Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4, cumulative impacts would be less than significant.

Section 4.5
Energy

4.5.1 Introduction

This section of the Environmental Impact Report (EIR) analyzes the energy implications of the project, focusing on the following three 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 primarily based on the Energy Utilization Study for the proposed project (Lilburn 2022b), provided in Appendix F of this EIR. In addition, 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 4.2**, *Air Quality*; and **Section 4.7**, *Greenhouse Gas Emissions*.

4.5.2 Environmental Setting

Electricity

Electricity, a consumptive utility, is a manmade resource. The production of electricity requires the consumption or conversion of energy resources—which may include water, wind, oil, gas, coal, solar, geothermal, and nuclear resources—into energy. The delivery of electricity involves several 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 10 100-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 (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, including hydroelectric, natural gas, wind, and solar generating plants, and delivers through high-voltage transmission lines. Electrical service is available in the project area through connection to the SCE distribution system, but existing distribution systems do not currently serve the site.

Table 4.5-1, *SCE Electric Power Generation Mix (2017)*, shows the electric power generation mix for SCE electrical service in 2017 (most recently obtained) compared to the statewide power mix for 2018.

Table 4.5-1 SCE Electric Power Generation Mix (2017)

Energy Resource	2017 SCE Power Mix[1] SCE	SCE Green Rate (50% Renewable)	SCE Green Rate (100% Renewable)	2018 California Power Mix[1]
Eligible Renewable	32%	66%	100%	31%
Biomass and waste	0%	0%	0%	2%
Geothermal	8%	4%	0%	5%
Small Hydroelectric	1%	1%	0%	2%
Solar Electric	13%	100%	59%	11%
Wind	10%	5%	0%	11%
Coal	0%	0%	0%	3%
Large Hydroelectric	8%	4%	0%	11%
Natural Gas	20%	10%	0%	35%
Nuclear	6%	3%	0%	9%
Other	0%	0%	0%	<1%
Unspecified Sources[3]	34%	17%	0%	11%
TOTAL[4]	**100%**	**100%**	**100%**	**100%**

Source: SCE 2022 (SCE and RMEA Electric Power Generation Mix)
Notes:
1 Percentages are estimated annually by the California Energy Commission based on the electricity generated in California and net imports as reported to the Quarterly Fuel and Energy Report database and the Power Source Disclosure program.
2 A significant amount of energy generated by PG&E comes from clean, large hydroelectric power stations, which do not qualify as an eligible renewable resource under California law.
3 Unspecified" sources of power means electricity from transactions that are not traceable to specific generation sources.
4 The figures above may not sum to 100% due to rounding.

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. PG&E and Southern California Gas Company, a subsidiary of Sempra Energy, are the natural gas providers in Kern County; however, there is no known natural gas service to the project site.

Transportation

According to the California Energy Commission (CEC), transportation accounted for nearly 40% of California's total energy consumption in 2018 (CEC 2019a; 2020). In 2021, California consumed 13.8 billion gallons of gasoline and 3.1 billion gallons of diesel fuel (California

Department of Tax and Fee Administration 2022a, 2022b). Petroleum-based fuels currently account for about 90% of California's transportation fuel use (CEC 2019b; 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 (VMT) (CEC 2019b; 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 2019a; 2020). According to the California Air Resources Board (CARB) Emission Factors (EMFAC) 2017 Web Database, Kern County on-road transportation sources consumed approximately 454 million gallons of gasoline and 308 million gallons of diesel fuel in 2018 (CARB 2019b).

4.5.3 Regulatory Setting

Federal

Corporate Average Fuel Economy 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 U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards (NHTSA 2022). 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 6–23% 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 5–25% 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 [PRC] Sections 25300–25323) 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 (PRC Section 25301[a]). The 2019 Integrated Energy Policy Report (CEC 2020) 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% 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 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% by 2020 and 60% by 2030. 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% of retail sales by the end of 2024, 52% by the end of 2027, and 60% by the end of 2030, and required that the CARB should plan for 100% eligible renewable energy resources and zero-carbon resources by the end of 2045. The CPUC and the CEC jointly implement the RPS program (CPUC 2022). 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 4.7**, *Greenhouse Gas Emissions*, of this EIR for additional details regarding this regulation.

Assembly Bill 1493

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) 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 2017a). Refer to **Section 4.7**, *Greenhouse Gas Emissions*, of this EIR.

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32 (codified in the California Health and Safety Code [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% below 1990 levels by 2030 and include provisions to ensure that the benefits of State climate policies reach into disadvantaged communities. Refer to **Section 4.7**, *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% in 2011 and culminating in a 10% 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

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, with some exceptions, such as maintenance, queuing, and if required to perform work. 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, Nitrogen Oxides, 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 oxide (NO_x), particulate matter with a diameter of 10 microns or less (PM_{10}), and particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$) 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 the California Environmental Quality Act (CEQA) and Appendix F, Energy Conservation, of the 2018 State CEQA *Guidelines*, and to ensure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the State 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.

- 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 State CEQA *Guidelines*. Appendix G was amended to include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and for conflicts with State or local energy efficiency plans. 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, a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.5.4 Impacts and Mitigation Measures

Methodology

This analysis addresses the project's potential energy usage of transportation fuel (diesel and gasoline) during both construction and operation. As proposed, the project will not require connection to electrical or natural gas utilities. No natural gas-powered equipment/vehicles will be used. The water well pump and scale/office trailer would be powered by electricity, however, such electricity would be generated by two onsite generators as indicated in **Table 3-3,** *Project Operations Equipment and Usage,* in **Chapter 3**, *Project Description*. Specific analysis methodologies are discussed below. The assessment presented herein is based in part on the *Energy Utilization Study* prepared for the project (Lilburn 2022b). A full copy of the report is provided in Appendix F of this EIR.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to energy and energy resources. A project could have a significant adverse effect 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 4.5-1: The project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.

The project would mine volcanic tuff material in an open pit mining operation that would disturb approximately 82.2 acres within the 210.75-acre project site. Maximum annual production is anticipated to be 500,000 tons of material. It is anticipated that a total of 15,000,000 tons of material would be mined over a 30-year period. Typical hours of operation will be during daylight hours (generally 7:00 a.m. to 7:00 p.m. Monday through Saturday depending on the season), six days per week depending on market demand with the understanding that longer or alternative hours may be required due to operational constraints. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations.

Equipment utilized for the mining operation would include one each of the following: front-end loader, dozer, excavator, grader, drill rig, water truck, and tractor skid steer. Operations would also involve the use of ancillary equipment and two generators under 50 horsepower each to produce power for the water well pump and scale/office trailer. Additionally, operations would involve service vehicles, employee vehicles, and the use of 10 haul trucks as referenced above.

The project would not require electrical or natural gas service or new utility connections; however, the project is expected to require the use of non-renewable resources in the form of gasoline and diesel to power off-road construction equipment, on-road vehicles, water well pump, office trailer, and portable truck scale.

The sections below provide information on project energy utilization during the construction, operational, and reclamation phases of the project.

Construction Energy Utilization

Construction activities for the project primarily include construction of haul and access roads and installation of stormwater basins. No structures would be constructed in conjunction with the project. It is estimated that grading for the construction phase would require approximately 42 days of work. Equipment utilized for initial construction of access roads and stormwater basins would include one each of the following: backhoe, soil compactor, grader, dozer, water truck, haul truck, and excavator. **Table 4.5-2,** *Construction Phase Fuel Usage*, presents an estimate of diesel and gasoline fuel usage for the construction phase of the project. A detailed breakdown of the estimated equipment, usage, and load factors is provided in Appendix F of this EIR.

Table 4.5-2 Construction Phase Fuel Usage

	Construction Days	Usage Factor	Gallons of Fuel/Day	Total Gallons
Equipment (Diesel)	42	varies by type: 4 – 6 hours/day	191	8,038
Worker Trips (Gasoline)	42	10 roundtrips/52 miles per trip	21.7	911

Source: Lilburn 2022b

Based on the projections shown in the **Table 4.5-2,** *Construction Phase Fuel Usage*, the annual diesel and gasoline fuel utilization for the project during the construction phase is estimated to be approximately 8,949 gallons (8,038 gallons for on-site equipment and 911 gallons for worker trip fuel usage).

Operations Energy Utilization

During the operational phase of the project, approximately six pieces of heavy off-road construction-type equipment including up to 10 on-road haul trucks (22 to 26-ton) and a water truck are proposed for mining, hauling, and road maintenance activities on-site. Equipment utilized for the mining operation would include one each of the following: front-end loader, dozer, excavator, grader, drill rig, water truck, and tractor skid steer. Operations would also involve the use of ancillary equipment and two generators under 50 horsepower each to produce power for the water well pump and scale/office trailer. Additionally, operations would involve service vehicles, employee vehicles, and the use of 10 on-road haul trucks for overburden movement within the site and for transporting mined material to off-site destinations. Haul trucks and diesel equipment would be subject to requirements of the California Air Resources Board's (CARB) off-road diesel vehicles regulation to reduce diesel pollutants and be maintained to optimize fuel consumption.

The type of energy used for operations will primarily be diesel fuel for the equipment described above, and unleaded gasoline used for on-road vehicles and worker trips. The estimated diesel fuel usage for the operational phase of the project including both on-site and off-site diesel fuel usage is summarized in **Table 4.5-3,** *Operational Phase Diesel Fuel Usage*

Table 4.5-3 Operational Phase Diesel Fuel Usage

Equipment	Number of Equip.	Hours per Day	Horsepower	Load Factor	Fuel Used per Day (gallons)	Fuel Used per Year (gallons)
On-site Equipment (diesel)						
Loader	1	10	369	0.36	70.3	21,081.7
Excavator	1	2.5	172	0.38	8.6	2,593.2
Grader	1	2	268	0.41	11.6	3,487.6

Table 4.5-3 Operational Phase Diesel Fuel Usage

Equipment	Number of Equip.	Hours per Day	Horsepower	Load Factor	Fuel Used per Day (gallons)	Fuel Used per Year (gallons)
Dozer	1	5	347	0.40	36.7	11,013.8
Water Truck	1	10	260	0.38	52.3	15,679.6
Bore/Drill Rig	1	5	160	0.50	21.2	6,348.0
Skid Steer Loader	1	5	75	0.37	8.2	2,447.6
Portable Generator Sets	2	24	50	0.74	104.4	31,328.6
		Subtotal On-site Equipment Diesel Fuel Use			*313.3*	*93,980.0*
On-site Equipment (diesel)						
	Trips	**Miles per Trip**	**MPG**	--		
On-site Haul Trips	67	1.5	6	--	16.75	5,025
On-site Misc. Trips	2	1.5	7.4	--	0.4	122
		Subtotal On-site Vehicle Diesel Fuel Use			*17.15*	*5,147*
Off-site Vehicles (diesel)						
Off-site Haul Trips	67	52	6	--	469	140,700
Off-site Misc. Trips	2	42	7.4	--	11.35	3,405
		Subtotal Off-site Vehicle Diesel Fuel Use			*480.35*	*144,105*
			Total Diesel Fuel Use		**810.5**	**243,232**

Source: Lilburn 2022b

In addition to diesel fuel utilized for mining operations and material hauling, the project will result in the use of gasoline for employee trips to and from the site. **Table 4.5-4,** *Operational Phase Gasoline Fuel Usage (Employee Trips)*, presents the estimated gasoline fuel usage for the project's 10 on-site employees during the project's operational phase. The project is estimated to generate 20 employee average daily trips (ADT) each operational day, with an average of 26 miles per trip with an estimated average of 24 miles per gallon and 300 days per year of operation.

Table 4.5-4 Operational Phase Gasoline Fuel Usage (Employee Trips-One Way)

Vehicle	ADTs	Average Miles per ADT	Miles per Day	Estimated Daily Gallons Gasoline	Estimated Annual Gallons Gasoline
Employee Vehicles	20[1]	26	520	21.7	6,500

Source: Lilburn 2022b
Notes:
1. Of the 20 on-site workers, 10 would be associated with off-site hauling of materials and would arrive and depart the site in haul trucks, and are accounted for in haul truck trips presented in Table 4.5-3. Ten on-site employees are expected to arrive and department the site in personal vehicles, resulted in 20 average daily trips associated with employee vehicles.

Based on the projections shown in **Table 4.5-3,** *Operational Phase Diesel Fuel Usage*, and **Table 4.5-4,** *Operational Phase Gasoline Fuel Usage (Employee Trips)*, the annual diesel and gasoline fuel utilization for the project during the operational phase is estimated to be approximately 249,732 gallons (99,127 gallons of on-site diesel, 144,105 gallons of off-site diesel, and 6,500 gallons of employee trips gasoline fuel usage).

Reclamation Energy Utilization

Upon completion of mining, all disturbed slopes will be reclaimed and revegetated as outlined as described in **Chapter 3**, *Project Description*, and detailed in the proposed Reclamation Plan. Final grading, equipment removal, and other substantive site reclamation activities would occur within a one-year period after the completion of mining. An estimated 80 days of grading and earthmoving similar to mining operations, but without off-site material hauling, are expected. **Table 4.5-5,** *Reclamation Phase Fuel Usage*, presents the estimated fuel usage during the reclamation phase of the project.

Table 4.5-5 Reclamation Phase Fuel Usage

Equipment	Number of Equip.	Hours per Day	Horsepower	Load Factor	Fuel Used per Day (gallons)	Fuel Used for Reclamation (gallons)
On-site Equipment (diesel)						
Backhoe	*1*	*8*	*100*	*0.37*	*17*	*1,253*
Loader	*1*	*8*	*369*	*0.42*	*66*	*5,247*
Grader	*1*	*8*	*268*	*0.41*	*47*	*3,720*
Dozer	*1*	*8*	*347*	*0.40*	*59*	*4,699*
Water Truck	*1*	*8*	*260*	*0.38*	*42*	*3,345*
Haul Truck	*1*	*8*	*260*	*0.38*	*42*	*3,345*
				Diesel Fuel Use	272	21,609

Table 4.5-5 Reclamation Phase Fuel Usage

Equipment	Number of Equip.	Hours per Day	Horsepower	Load Factor	Fuel Used per Day (gallons)	Fuel Used for Reclamation (gallons)
Employee Trips (gasoline)						
	Trips	Miles per Trip	MPG	--		
Employee Vehicles	20	26	24	--	21.7	1,733
		Total Fuel Use (diesel and gasoline)			**293.7**	**23,342**

Source: Lilburn 2022b

Based on the projections shown in **Table 4.5-5,** *Reclamation Phase Fuel Usage*, the combined total diesel and gasoline fuel utilization for the project during the reclamation phase is estimated to be approximately 23,342 gallons.

Electricity and Natural Gas Energy Utilization

As proposed, the project will not require connection to electrical or natural gas utilities. All electrical equipment operating at the site will be powered by on-site generators (the fuel use for which is accounted for in the preceding discussion of operations fuel use) and no other electrical or natural-gas-powered equipment/vehicles will be used.

Impact Summary

The energy-related impact of the project would be the use of diesel and gasoline motor fuels during the construction, operational, and reclamation phases of the project, as quantified in the above sections. In accordance with the *Air Quality Impact Assessment* conducted for the project (Lilburn 2022a) both on- and off-road equipment and vehicles utilized by the project would meet Federal and California standards for efficiency and emissions. Other than the use of motor fuels, the project would have no effect on regional or local energy supplies and requirements for additional capacity because the project would not require connection to electrical or natural gas utilities and, with the exception of electrical equipment operating at the site and powered by on-site generators, no electrical or natural gas-powered equipment/vehicles will be used. The project would have no impact on peak and/or base-period demands for electricity or other forms of energy because it would not require connection to electrical or natural gas utilities.

Due to the remote location of the project, the use of alternative transportation (e.g., public transportation, bicycles, etc.) to the site by on-site employees is not feasible. Due to the low number of on-site workers at the site on a daily basis (up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations), energy utilization for workers commuting to the project site would be minimized. No potential energy efficiency impacts associated with the construction and maintenance of on-site structures would occur because the project would not involve the construction of any structures. Additionally, the project would not generate solid waste (with the exception of domestic refuse that is brought on-site, which

will be removed from the site the same day); consequently, no energy use due to solid waste diversion or disposal would occur.

Based on this analysis, the project as proposed is not expected to result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; therefore, the impacts would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.5-2: The project would conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

The project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. The project would not result in the construction of permanent buildings that would need to comply with green building codes, and electrical connections will not be utilized in conjunction with the project. As concluded in Impact 4.5-1, the project would not result in impacts associated with wasteful, inefficient, or unnecessary use of energy; additionally, with the implementation of the energy efficiency policies listed above, the project would keep energy usage to a minimum. Without utilizing electricity from the power grid, the project would not have to mitigate for GHG-emitting energy usage; therefore, any plan's requirements for utilizing clean, renewable energy would be satisfied. Therefore, the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency and impacts would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The project's contribution to an increased need for energy is considered in the context of other past, present, and reasonably foreseeable future projects within a 6-mile radius of the proposed project site. **Section 3.7**, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis).

Significant cumulative impacts would occur if the proposed or surrounding projects identified would overburden energy facilities and/or contribute to the inefficient and negative impacts of increased energy usage, thereby resulting in significant combined impacts related to the need

for development of new facilities and increased energy production. Public agencies and utilities are given an opportunity to respond to inquiries for information regarding the potential increase in demand for their services.

Impact 4.5-3: The project would contribute to cumulative energy impacts.

The project would not utilize electricity from the power grid or natural gas and therefore is not expected to contribute to energy impacts. Further, the project would not result in the construction of permanent buildings or conflict with or obstruct a State or local plan for renewable energy or energy efficiency; therefore, cumulative impacts related to energy are considered to be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.6
Geology and Soils

4.6.1 Introduction

This section of the Environmental Impact Report (EIR) describes the geologic and soil characteristics of the project sites, potential impacts to geology and soils associated with construction and operation of the proposed project, and mitigation measures that would reduce these impacts where applicable.

The analysis in this section is largely based on information from the following documents:

- *Slope Stability Evaluation Report, Proposed Gem Hill Pozzolan Quarry-North Pit,* (Terracon 2022) included as Appendix G.1;
- *Gem Hill Supplemental* (McKenna 2020b) and its attachment, *Paleontological resources for the proposed Gem Hill Portland Cement Project* (McLeod 2020), included as Appendix G.2; and
- *Technical Memorandum in Support of the Gem Hill Water Supply Assessment* (Sespe 2022), included as Appendix I.3.

A description of the environmental setting (affected environment) for geology and soils is presented below in **Section 4.6.2**, *Environmental Setting*, including discussion of the geologic setting (soils and geologic formations, faults and seismic history) and geologic and seismic hazards (slope stability, soil hazards, faults and seismicity, strong ground shaking, fault rupture, and liquefaction). The regulatory setting applicable to geology and soils is also presented in **Section 4.6.3**, *Regulatory Setting*, and project impacts and associated mitigation measures are discussed in **Section 4.6.4**, *Impacts and Mitigation Measures*. Additional descriptions of erosion and sediment impacts on surface water (e.g., turbidity) and mitigation, as appropriate, are presented in **Section 4.9**, *Hydrology and Water Quality*.

Concepts and Terminology

Definitions of concepts and terminology applicable to this section are provided below.

Expansive Soils: These soils generally result from specific clay minerals that expand in volume when saturated and shrink in volume when dry. The presence of this soil type can damage structures when expansion and contraction of soil cracks rigid building materials (e.g., concrete, wood, drywall, etc.).

Faults: Faults are fractures in the crust of the earth along which land on one side has moved relative to land on the other side. Most faults are the result of repeated displacements over a long period of time. A fault trace is the line on the earth's surface defining the fault. Faults are classified as active, potentially active, and inactive based on criteria developed by the

California Geological Survey (CGS), formerly known as the California Division of Mines and Geology [CDMG]. By definition, an active fault is one that has experienced surface displacement within the Holocene period (within the last 11,000 years), a potentially active fault is one that has experienced displacement within the Quaternary period (during the last 1.6 million years), and inactive faults are those that have not experienced movement in the last 1.6 million years.

Ground Shaking: The central and southern California regions are characterized by, and have a history of, faults and associated seismic activity. Earthquakes are classified by their magnitude, a measure of the amount of energy released during an event.

Landslides and Rockfalls: These events are large movements of land downhill. They can be induced by seismic events (earthquakes) or wet, saturated soil conditions and can cause significant damage to life and property. Landslides are defined as the movement of rock, debris, or earth masses down a slope. Landslides are a form of "mass wasting," which refers to any downslope movement of soil and rock under the direct influence of gravity. Landslide events include rock falls, topples, slides, spreads, and debris flows. Causes of landslides include rainfall, earthquakes, volcanic activity, groundwater changes, and alteration of a slope by manmade construction activities.

Liquefaction: This occurs when saturated, loose materials (e.g., sand, silty sand) are weakened and transformed from a solid to a near-liquid state due to increased pore water pressure. The increase in pressure is caused by strong ground motion from an earthquake.

Paleontological Resources: The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources contribute to the understanding of past environments, environmental change, and the evolution of life.

Quaternary Age: The most recent of the three periods of the Cenozoic Era in the geologic time scale of the International Commission on Stratigraphy (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.

Seismic Hazards: 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, expansive soils, and soils and soil erosion.

Subsidence: Land subsidence is the gradual, local setting or shrinking of the earth's surface with little or no horizontal motion. Subsidence is normally the result of gas, oil, or water extraction, hydro compaction, or peat oxidation and not the result of landslide or ground failure.

Surface Rupture: This occurs when movement on a fault deep within the earth breaks through to the surface. Fault ruptures almost always follow pre-existing 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 rupture of the earth's crust.

Unique Paleontological Resource: This term is defined as a fossil that meets one or more of the following criteria: (1) it provides information on the evolutionary relationships and developmental trends among organisms, living or extinct; or (2) it provides data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geology.

4.6.2 Environmental Setting

Regional Setting

The project site is located within the Mojave Desert Geomorphic Province. The province is a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage with many playas. There are two important fault trends that control topography a prominent NW-SE trend and a secondary east-west trend (apparent alignment with Transverse Ranges is significant). The Mojave province is wedged in a sharp angle between the Garlock Fault (southern boundary Sierra Nevada) and the San Andreas Fault, where it bends east from its northwest trend. The northern boundary of the Mojave Desert Geomorphic Province is separated from the prominent Basin and Range by the eastern extension of the Garlock Fault (CGS 2002). The project site lies between the Garlock and San Andreas faults.

Faults

The project site is situated between two active and potentially active faults. Active faults present a variety of potential risks, including strong ground shaking, dynamic densification, liquefaction, mass wasting, and surface rupture at the fault plane. Generally speaking, the following four factors are the principal determinants of seismic risk at a given location:

- Distance to seismogenically capable faults;
- The maximum or "characteristic" magnitude earthquake for a capable fault;
- Seismic recurrence interval, in turn related to tectonic slip rates; and
- Nature of earth materials underlying the site.

As shown on **Figure 4.6-1,** *Regional Fault Map*, the project site is located in the vicinity of two regionally significant active faults: Garlock Fault (west segment) and San Andreas Fault (Mojave section) in addition to the smaller Willow Springs fault located approximately 5.5 miles southwest of the project site, and unnamed faults and inferred faults in proximity to and within the project site (Terracon 2022; Van Buer 2019).

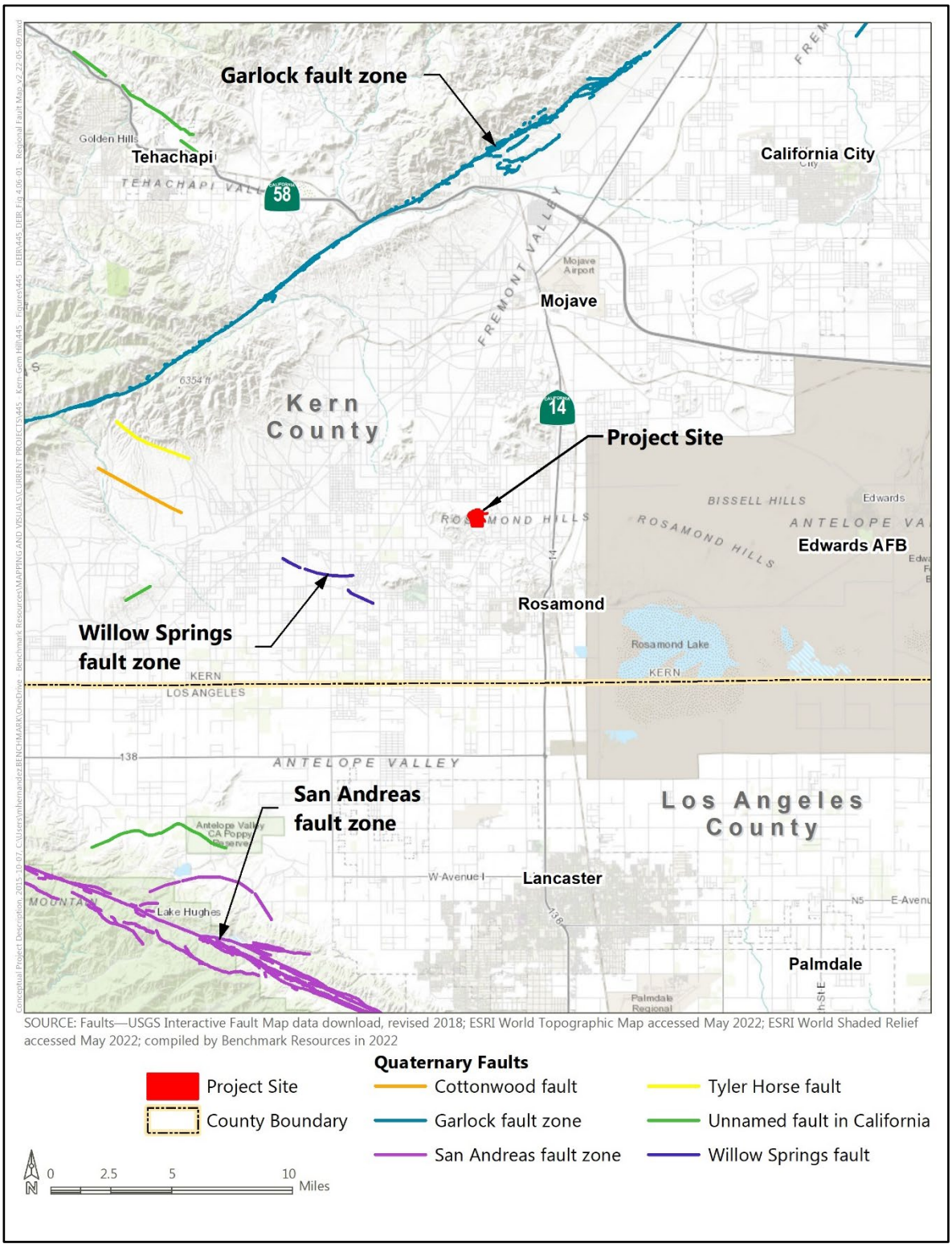


Figure 4.6-1
Fault Map

Garlock Fault

The Garlock fault is one of the principal Holocene active faults of California and is an east-northeast striking sinistral strike-slip fault that separates the Tehachapi-Sierra Nevada and Basin and Range provinces on the north against the Mojave Desert province on the south. The Garlock fault extends approximately 160 miles northeastward from its western end at its intersection with the San Andreas fault to near the south end of Death Valley. The fault is thought to possibly be an intracontinental transform fault accommodating extension in the Basin and Range province to the north relative to the more stable Mojave block to the south, but it is possible that the extension component parallel to the Garlock fault is driving sinistral slip on the fault and the component normal to the fault has rotated the central and eastern Garlock fault clockwise (Bryant 2000). 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 and the valleys of the westernmost Basin and Range province. At least one section of the fault has shown movement by creep in recent years (SCEDC 2022a). The closest segment of this fault is located approximately 12.1 miles north of the project site.

San Andreas Fault

San Andreas Fault is a right-lateral, strike-slip fault that extends approximately 746 miles from the Mendocino Escarpment in northern California to the Cajon Pass near San Bernardino in southern California. The segment of San Andreas Fault that is in Kern County is a small portion of the total extent; however, it is important because it is an active fault capable of damaging the project area. This portion of the fault breaks from the fault zone's predominantly 350-degree trending direction between the San Luis Obispo and Los Angeles County lines. Several earthquakes have occurred within the San Andreas Fault Zone in historic times that have produced significant seismic shaking in the vicinity of the project site. The most recent earthquake event on this segment of San Andreas Fault was the Fort Tejon Earthquake, which occurred on January 9, 1857, resulting in a rupture extending more than 200 miles (SCEDC 2022b). An earthquake along this fault is estimated to have a magnitude of 8.3, which is designated as the maximum credible earthquake. Areas along this fault have been designated as Alquist-Priolo Special Studies Zones. The closest segment of this fault (the Mojave section) is located 19.6 miles southwest of the project site.

Seismic Hazards

Characteristics of the two major active fault zones relevant for analysis of strong ground shaking are provided in **Table 4.6-1,** *Regional Faults in the Vicinity of the Project Site*.

As shown in **Table 4.6-1,** *Regional Faults in the Vicinity of the Project Site*, the two major faults located in the vicinity of the project site, the Garlock and San Andreas faults, are located over 12 and 19 miles, respectively from the site. These and smaller faults in the project area have the potential to generate earthshaking capable of resulting in damage at the project site and in the vicinity.

Table 4.6-1 Regional Faults in the Vicinity of the Project Site

Fault (Segment)	Distance from Project Site (miles)	Fault Segment Length (miles)	Slip Rate (mm[1]/year)	Reference Earthquake M(max)[2]	Fault Type
Garlock (West)	12.1	57±	4.3	7.72	A
San Andreas (Mojave section)	19.6	61±	24.1	8.2	A

Source: U.S. Geological Survey 2022 (USGS NSHM 2014 Rev.1); Terracon 2022.

Notes:

1. mm = millimeter
2. M(max) = maximum magnitude

Fault Rupture

Fault (surface) ruptures are generally considered to be more likely along active faults (faults with observed displacement in the last 11,000 years). Alquist-Priolo Fault Zones are buffers around historically active faults that have been determined to be especially prone to surface fault rupture. The project site is not located within an Alquist-Priolo Fault Zone (CDMG 2015). The closest known major faults to the project site are the regionally significant Garlock and San Andreas faults, described above.

Ground Shaking

During a seismic event, the project site may be subjected to high levels of ground shaking due to proximity to active faults in the region. All active faults in the vicinity of the project site are capable of generating significant ground shaking during a seismic event.

Liquefaction

The susceptibility to liquefaction is a function of depth, density, groundwater level, and magnitude of an earthquake. Liquefaction-related phenomena can include lateral spreading, ground oscillation, flow failure, loss of bearing strength, subsidence, and buoyancy effects. For liquefaction to occur, the soil must be saturated (i.e., shallow groundwater) and be relatively loose. Liquefaction more often occurs in areas underlain by young alluvium where the groundwater table is higher than 50 feet below ground surface (bgs). According to the *Kern County General Plan* Safety Element, the project site is not within a zone of shallow groundwater, and groundwater is reported at depths of 200 feet to 660 feet below ground surface underlying the site (Terracon 2022).

Seismically Induced Landslides and Rockfalls

According to the *Kern County General Plan*, the areas of Kern County with slopes subject to failure are predominantly found along the river terraces, bluffs, and foothills, located in all directions around the project site. The project site is located on gently to steeply sloping topography and is located adjacent to steep slopes, but is not classified as landslide hazard areas by the *Kern County General Plan*.

Subsidence

Subsidence is occurring within the San Joaquin Valley and has been identified in portions of northern and western Kern County, northwest of the intersection of State Route (SR-) 99 and SR-166, and in the vicinity of the City of Visalia. There are four types of subsidence occurring in the county: tectonic subsidence, subsidence from extraction of oil and gas, subsidence from groundwater withdrawal, and subsidence caused by hydro-compaction of moisture-deficient alluvial deposits. The *Kern County General Plan* has indicated that, although subsidence is not a significant hazard, damage to wells, foundations, and underground utilities may occur.

Due to the petroleum and groundwater withdrawal activities throughout Kern County, subsistence has the potential to occur; however, the limited amount of petroleum withdrawal occurring in Kern County is not expected to be sufficient to result in serious subsidence. The California Department of Conservation Geologic Energy Management Division (CalGEM) monitors subsidence in oil and gas fields and regulates oil and gas withdrawal and pressurizing activities on the field. If subsidence is noted, remediation is accomplished by raising the water table by injecting water or reducing the volume of groundwater being pumped. The remediation activities ensure that no significant impacts from subsidence would occur. The project site is not located in an area of significant petroleum extraction activities and no petroleum extraction occurs on the site.

Dam Failure

No substantial dams or surface water impoundments are located near the project site. The nearest impoundments are Big Piute Lake, which is composed of a series of ponds on the southwest side of the Rosamond Lake dry lake bed approximately 10 miles southeast of the project site; Brite Lake, located approximately 21 miles to the northwest of the site; Lake Palmdale, located approximately 25 miles south of the project site; Little Rock Reservoir, located approximately 30 miles south of the site; and Lake Isabella, located approximately 52 miles north of the site. Failure of any of the dams or berms creating these impoundments would not have the potential to inundate the project site.

Flooding

The project site is located within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Zone X, which indicates an area of minimal flood hazard (Map Number 06029C3675E; FEMA 2008).

Local Geologic and Soils Setting

Geology

The project site is located within a gently to steeply sloping terrain that ranges in elevation from 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The site is generally located in an area of moderate to steep relief formed within a series of resistant and recessive volcanic tuffs and welded tuffs locally mantled by young colluvial and alluvial sediments and cobble lag. The Mojave Desert is dominated by broad alluviated basins that receive sediments from adjacent uplands that bury the older topography. Hills and playa lakes are a common feature of the region, including Rosamond Lake, a playa lake located approximately 10 miles southeast of the project site. Bedrock units

in the project area include basalt, tuff, conglomerate and minor limestone. These units are exposed in natural outcrops formed by erosion and dissection of gently southwest dipping bedding (Terracon 2022).

Geologic units within the project site include alluvium, colluvium, welded tuff and tuff volcanic rocks, conglomerate and basalt. The units summarized below form the primary geologic materials in the quarry area and adjacent areas. Geologic units within the site are described below (Terracon 2022):

Qa – Alluvium on areas of low relief. Derived from local highland sources, includes silt, sand and gravel materials, commonly with areas of accumulated surface cobbles along shallow ephemeral drainages. The thickness of alluvium is relatively minor across the project site. At times, the alluvium may contain sufficient moisture to support surface water flows in ephemeral drainages.

Qc – Colluvium adjacent to areas of higher relief derived from adjacent bedrock outcrops, gravity deposited. A significant source includes clasts eroded from containing tuff and welded tuff units that accumulate as surface lag on modern land surfaces. Colluvium includes silt, sand and gravel size materials and locally accumulations of cobble to small boulders as surface lag deposits.

Tb – Basalt, fine-grained and vesicular, crops out locally west of quarry area forming dark brown, blocky outcrops of angular boulder size materials, locally with an associated celadonite (bluegreen) alteration zone in adjacent tuff beds with some whiteish perlite rinds. Interpreted as dikes fed from underlying basalts encountered in drill holes. Dibblee (1963) includes Tb as part of Gem Hill formation.

$Tt_{3,4,5}$ – Tuff units as designated by Van Buer (2019). Include lithic tuff beds with local lenses of angular rhyolite and andesite gravel clasts, beds vary from inch-scale to several feet thick, includes minor zones of laminated ash, gray as moderately indurated; brown to dark brown as strongly welded, clastic conglomerate. Strong erosion-resistant beds of welded tuff contain abundant granitic cobbles and small boulders with lesser andesite fragments (mapped by Van Buer as unit Tgc). Locally these granitic-clast-rich beds form undulatory or channeled scour contacts on underlying tuff units (photography log in Terracon 2022, Appendix G.1 of this EIR). Welded beds form resistant dip slopes. Weaker recessive and massive tuff beds dominate the sequence and are gray to light gray, composed of angular sand-size grains, and weather as small sheets spalling from exposed outcrop faces. These tuffs are the primary resource to be mined. Dibblee (1963) includes Tt as part of Gem Hill formation.

The mine reclamation area includes geologic units of Tertiary age and geologically young surface sediments. Structural elements within the rock units are dominated by well-defined and consistent bedding and include joints and inactive faults. At the mine bench scale, the primary influence on stability of rock material is anticipated to be jointing oriented parallel to future bench faces coupled locally with faults and/or joints oriented perpendicular to bench faces. At the mine wall scale, the larger-scale fault and thrust structures influenced locally by bedding provide the primary structure. Bench-scale features were examined in

the field at selected locations and compiled into a database for kinematic evaluation. Major elements of the wall-scale structure include (Terracon 2022):

- East-west oriented mapped faults in the quarry area;
- A northwest-trending, concealed and inferred fault separating the northeast and southwest pit areas. This fault is depicted as northeast-dipping (60 degrees) on structural sections constructed from bore-hole data.
- Southwest-dipping bedding that is relatively uniform throughout the mine footprint with measured dips varying between 14 and 19 degrees.
- North-dipping minor faults observed in outcrops located in the northeast and southwest areas of the quarry footprint.

Soils

According to the Natural Resource Conservation Service's Web Soil Survey (Natural Resources Conservation Service [NRCS] 2022), soils within the project site include Arizo gravelly loam sand (2 to 9 percent slopes), Cajon sand (5 to 15 percent slopes), Porterville cobbly clay (5 to 9 percent slopes), rock outcrop, and Torriorthents-Rock outcrop complex (very steep). The Arizo series consists of very deep, excessively drained soils that formed in mixed alluvium on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, floodplains of intermittent streams and channels. The Porterville series consists of deep, well drained soils that formed in fine textured alluvial material from basic and metabasic igneous rock on fans and foothills. Soil types located within the project site and surrounding areas are shown on **Figure 4.6-2,** *Soils Map*. The project site is within the Kern County General Plan 2.4 (Steep Slope) physical and environmental constraints overlay, requiring the project to adhere to standard grading practices to prevent soil instability and erosion.

Groundwater

The project site is underlain by an assemblage of predominantly volcanic rocks, which form the low-lying hills comprising Gem Hill. This volcanic assemblage includes a basalt unit that serves as the aquifer proposed for the project's water supply. Groundwater is anticipated to be at approximately 2,385 feet above mean sea level (amsl), based on exploratory drilling data produced by the project proponent. The basalt aquifer is not part of a recognized groundwater basin except for a small area within the southern portion of the site where the Antelope Valley Groundwater Basin extends into the site boundary. (Sespe 2022) Groundwater measurements were recorded for several drill holes within the proposed quarry area. Water was reported at depths ranging from approximately 250 feet below ground surface (bgs) to 660 feet bgs in basalt, and the shallowest water reported was approximately 200 feet bgs in tuff. All of the drill hole measurements indicated water at elevations below the planned pit bottom elevation at 2,450 feet amsl (Terracon 2022).

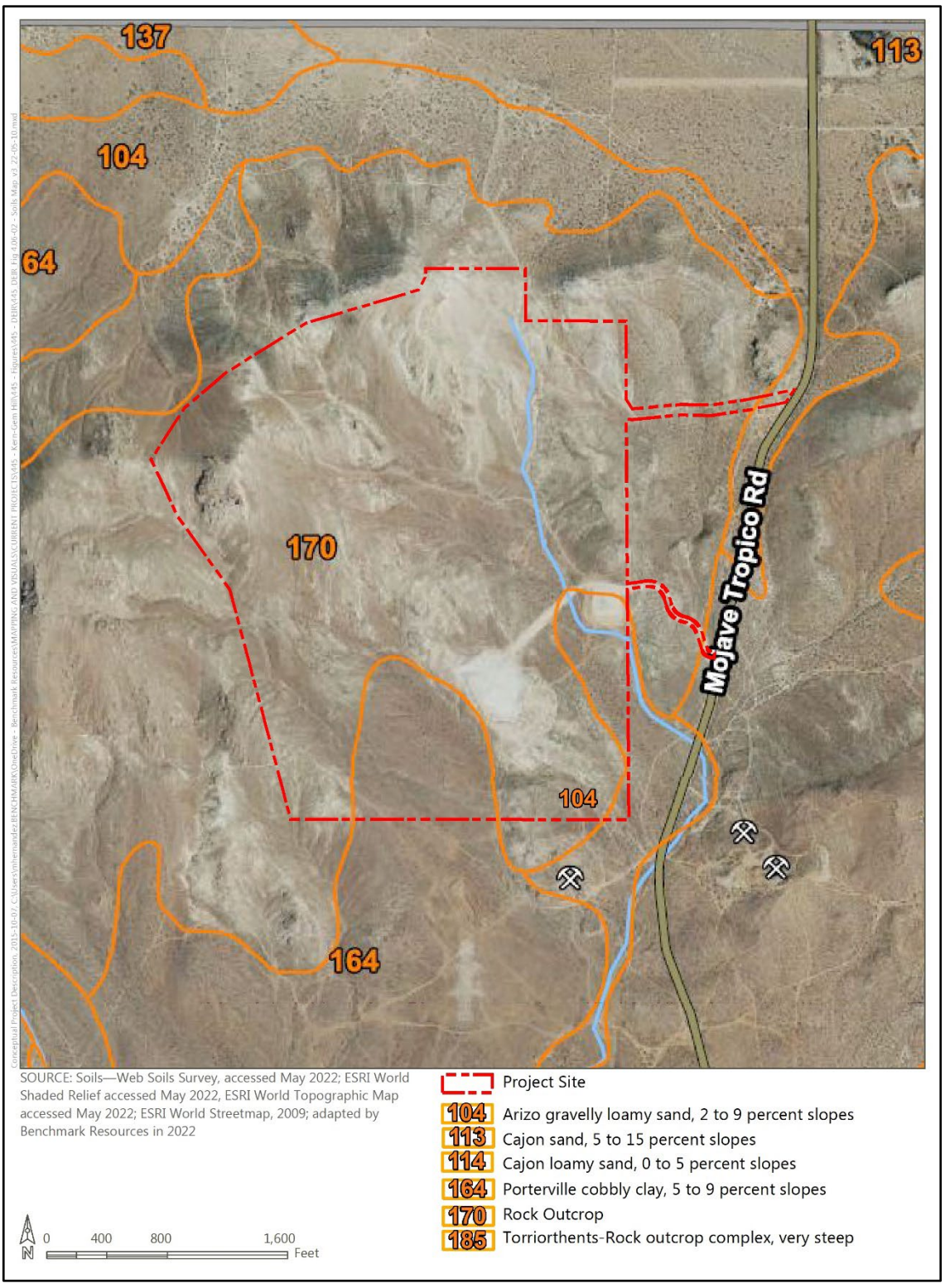


Figure 4.6-2
Soils Map

Paleontological Setting

A paleontological collection records search was performed for the project by the Natural History Museum of Los Angeles County (McLeod 2020), included in Appendix G.2 of this EIR. Almost all of the project site has bedrock composed of volcanic igneous rocks of the Gem Hill Formation, and these igneous rocks would not have the potential to contain recognizable fossils. Exposures of middle- to late-Miocene Fiss Fanglomerate (such as in the western portion of the project site) typically would not contain significant vertebrate fossils and none from this exposure have been identified. Surface deposits of younger Quaternary Alluvium in the slight drainages in the southeastern portion of the site derived from the igneous bedrock upslope typically do not contain significant vertebrate fossils in the uppermost layers. Finer-grained pockets within the Fiss Fanglomerate could contain significant fossil vertebrate remains (McLeod 2020).

4.6.3 Regulatory Setting

Federal

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 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 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. The NEHRP designates 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 proposed project would be required to adhere.

Clean Water Act

The Clean Water Act (CWA) (United States Code [USC] Title 33, Section 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 non-point source discharges to surface water. Those discharges regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). Projects that disturb 1 or more acres of land are required to obtain NPDES coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Order No. 99-08-DWQ. The general permit requires the development and implementation of a Stormwater Pollution

Prevention Plan (SWPPP), which includes best management practices (BMPs) to protect stormwater runoff, including measures to prevent soil erosion. Requirements of the Federal CWA and associated SWPPP requirements are described in further detail in Section 4.9, *Hydrology and Water Quality*.

Antiquities Act of 1906

The Antiquities Act of 1906 (16 USC 431–433) states, in part:

> That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

Although there is no specific mention of natural or paleontological resources in the act itself, or in the act's uniform rules and regulations (Code of Federal Regulations [CFR] Title 43, Part 3), the term "objects of antiquity" has been interpreted to include fossils by the National Park Service (NPS), the U.S. Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and other Federal agencies. Permits to collect fossils on lands administered by Federal agencies are authorized under this act. However, due to the large gray areas left open to interpretation due to the imprecision of the wording, agencies are hesitant to interpret this act as governing paleontological resources.

Federal Land Policy and Management Act of 1976

The Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC. 1712[c], 1732[b]; sec. 2, Federal Land Management and Policy Act of 1962 [30 USC 611]; Subpart 3631.0 et seq., *Federal Register* Vol. 47, No. 159, 1982) does not refer specifically to fossils. However, "significant fossils" are understood and recognized in policy as scientific resources. Permits, which authorize the collection of significant fossils for scientific purposes, are issued under the authority of FLPMA. Under FLPMA, Federal agencies are charged to:

- Manage public lands in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, archaeological, and water resources, and, where appropriate, preserve and protect certain public lands in their natural condition (Section 102[a][8][11]);
- Periodically inventory public lands so that the data can be used to make informed land-use decisions (Section 102[a][2]); and
- Regulate the use and development of public lands and resources through easements, licenses, and permits (Section 302[b]).

State

Alquist-Priolo Earthquake Fault Zoning Act of 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 hazards associated with surface fault rupture. In accordance with this law, the CGS maps active faults and designates Earthquake Fault Zones along mapped faults. This act groups faults into categories (i.e., active, potentially active, or inactive). Historic and Holocene faults are considered active, Late Quaternary and Quaternary faults are considered potentially active, and pre-Quaternary faults are considered inactive. These classifications are qualified by conditions. For example, a fault must be shown to be "sufficiently active" and "well defined" through detailed site-specific geologic explorations to determine whether building setbacks should be established. Any project that involves the construction of buildings or structures for human occupancy, such as an operations and maintenance building, is subject to review under the Alquist-Priolo Earthquake Fault Zoning Act, and any structures for human occupancy must be located at least 50 feet from any active fault. The project site is not located within or near an Alquist-Priolo Fault Zone.

Seismic Hazards Mapping Act of 1990

In accordance with Public Resources Code (PRC) Chapter 7.8, Division 2, the CGS is directed to delineate seismic hazard zones. The purpose of the Seismic Hazards Mapping Act of 1990 is to reduce the threat to public health and safety and 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. State agencies, Counties, and Cities are directed to use seismic hazard zone maps developed by the CGS in their land use planning and permitting processes. In accordance with the act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within seismic hazard zones. The project site is not located within a seismic hazard zone.

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. 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 purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2019 CBC is based on the 2012 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), American Institute of Steel Construction (AISC), and American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building

codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC in accordance with CBC Chapter 16. Chapter 16, Section 1613 provides earthquake loading specifications for every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, which shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-16. Chapter 18, Section 1804 provides requirements for excavation, grading, and fills, whereas Section 1806 provides specifications for load bearing soils. Chapter 18 also describes analysis of expansive soils (1803.5.3) and the determination of the depth to groundwater table. 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 mitigation 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 (Pga) magnitudes and source characteristics consistent with the design earthquake ground motions.

Local

Construction and operation of the proposed project would be subject to policies and regulations contained within the *Kern County General Plan*, the 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.

Kern County General Plan

The policies, goals, and implementation measures in the *Kern County General Plan* that pertain to geology and soils and 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, such as the proposed 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.

Chapter 1. Land Use, Open Space, and Conservation Element

1.3 Physical and Environmental Constraints

Goals

- **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 6.** Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby, minimizing the extent of topographic alteration required and reducing soil erosion while maintaining soil stability.
- **Policy 7.** Ensure effective slope stability, wastewater drainage, and sewage treatments in areas with steep slopes are adequate for development.

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 2.** Protect areas of important mineral, petroleum, and agricultural resource potential for future use.
- **Goal 3.** Ensure the development of resources areas minimize effects on neighboring resource lands.

Policies

- **Policy 2**. In areas with a resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with this General Plan.
- **Policy 14.** Emphasize conservation and development of identified mineral deposits.

Implementation Measures

- **Implementation Measure H**. Use the California Geological Survey's latest maps to locate mineral deposits until the regional and statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.
- **Implementation Measure K**. Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

Chapter 4. Safety Element

4.1 Introduction

Goals

- **Goal 1.** Minimize injuries and loss of life and reduce property damage.
- **Goal 2.** Reduce economic and social disruption resulting from earthquakes, fire, flooding, and other geologic hazards by assuring the continuity of vital emergency public services and functions.
- **Goal 3.** Assist in the allocation of public resources in Kern County to develop information regarding geologic, fire, and flood safety hazards and to develop a systematic approach toward the protection of public health, safety, and welfare from such hazards.
- **Goal 4.** Create an awareness of the residents in Kern County through the dissemination of information about geologic, fire, and flood safety hazards.

4.2 General Policies and Implementation Measure, Which Apply to More than One Safety Constraint

Policies

- **Policy 1.** That the County's program of identification, mapping, and evaluating the geologic, fire, flood safety hazard areas, and significant concentrations of hydrogen sulfide in oilfield areas, presently under way by various County departments, be continued.
- **Policy 2.** Those hazardous areas, identified as unsuitable for human occupancy, are guided toward open space uses, such as agriculture, wildlife habitat, and limited recreation.

Implementation Measures

- **Implementation Measure A.** All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisors action could involve the establishment of a land use activity susceptible to such hazards.
- **Implementation Measure C.** Require detailed site studies for ground shaking characteristics, liquefaction potential, dam failure inundation, flooding potential, and fault rupture potential as background to the design process for critical facilities under County discretionary approval.

- **Implementation Measure F.** The adopted Kern County, California Multi-Hazard Mitigation Plan is incorporated by reference. This multi-jurisdictional plan, approved in compliance with the Disaster Mitigation Act of 2000, provides long-term planning to reduce the impacts of future disasters.

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

- **Implementation Measure B.** Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.
- **Implementation 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.
- **Implementation Measure D.** Detailed geologic investigations shall be conducted in conformance with guidelines of the California Geological Survey for all discretionary permits and construction designed for human occupancy in an Alquist-Priolo Earthquake Fault Zone.

4.5 Landslides, Subsidence, Seiche, and Liquefaction

Policies

- **Policy 1.** Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) 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 2.** Route major lifeline installations around potential areas of liquefaction or otherwise protect them against significant 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

- **Implementation Measure B.** Require liquefaction investigations in all areas of high groundwater potential and appropriate foundation design to mitigate potential damage to buildings on sites with liquefaction potential.
- **Implementation Measure C.** Develop and maintain maps, at an appropriate scale, showing the location of all geologic hazards, including active faults, Alquist-Priolo Earthquake Fault Zones, 100-year flood hazard boundary, the extent of projected dam

failure inundation and time arcs, depth of inundation, land subsidence, slope failure and earthquake-induced landslides, high groundwater, and liquefaction potential.

- **Implementation 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 Ordinance

Title 17 – Buildings and Construction

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 CBC, 2010 Edition, with some modifications and amendments. The entire County is in Seismic Zone 4, a designation previously used in the Uniform Building Code (UBC) to denote the areas of highest risk to earthquake ground motion. California has established an Unreinforced Masonry program that details seismic safety requirements for Zone 4. Seismic provisions associated with Seismic Zone 4 have been adopted.

Title 19 – Zoning Ordinance

Chapter 19.100 – Surface Mining Operations

The purpose of Chapter 19.100 of the Kern County Zoning Ordinance is to regulate surface mining operations consistent with the requirements of the California Mining and Reclamation Act (PRC Sections 2710 et seq.) and the State Policy for Surface Mining and Reclamation Practice (California Administrative Code Title 14, Sections 3500 et seq.).

Section 19.100.040 – Development Standards and Conditions

Section 19.100.040 sets development standards and conditions for surface mining operations. These include the following:

B.1. The designed steepness and proposed treatment of the mined lands' final slope shall take into consideration the physical properties of the slope material, its probable maximum water content, landscaping requirements and other factors. In all cases, the reclamation plan shall specify the critical gradient needed to maintain slope stability and shall specify slope angles flatter than the critical gradient for the type of material involved. Whenever final slopes approach the critical gradient for the type of material involved, an engineering analysis of the slope stability shall be performed and submitted as part of the reclamation plan.

B.3. The removal of vegetation and overburden, if any, in advance of surface mining shall be kept to the minimum.

B.4. Stockpiles of overburden and minerals shall be managed to minimize water and wind erosion.

B.9. Grading and revegetation shall be designed to minimize erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage. Basins that will store water during periods of surface runoff shall be designed to prevent erosion of spillways when these basins have outlet to lower ground.

4.6.4 Impacts and Mitigation Measures

This section describes the methodology used in conducting the California Environmental Quality Act (CEQA) impact analysis for geology and soils, the thresholds of significance used in assessing impacts to geology and soils, and the assessment of impacts to geology and soils, including relevant mitigation measures.

Methodology

The analysis in this section considered potential impacts associated with geology and soils issues identified in the *Kern County Environmental Checklist* (updated May 2019). Methodologies for specific geotechnical evaluations, including slope stability, are summarized in the respective impact discussions below, and are presented in detail in referenced studies, including *Slope Stability Evaluation Report, Proposed Gem Hill Pozzolan Quarry-North Pit,* (Terracon 2022) included as Appendix G.1, *Technical Memorandum in Support of the Gem Hill Water Supply Assessment* (Sespe 2022), included as Appendix I.3, and *Gem Hill Supplemental* (McKenna 2020b) and its included *Paleontological resources for the proposed Gem Hill Portland Cement Project* (McLeod 2020) , included as Appendix G.2 to this EIR.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) 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 geology and soils. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to 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 (refer to Division of Mines and Geology Special Publication 42);
    ii. Strong seismic groundshaking;
    iii. Seismic-related ground failure, including liquefaction; or,
    iv. Landslides;
b. Result in substantial soil erosion or 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; or

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The Lead Agency determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue area would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding this issue area:

- 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.

Project Impacts

Impact 4.6-1: 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 site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone where site-specific studies addressing the potential for surface fault rupture are required. As described in **Section 4.6.2**, *Environmental Setting,* the project site is situated between the Garlock Fault approximately 12 miles north of the site and the San Andreas Fault over 19 miles south of the site, the smaller Willow Springs fault located approximately 5.5 miles southwest of the project site, as well as unnamed faults and inferred faults near and within the project site (Terracon 2022; Van Buer 2019).

Operations would include approximately 20 full time employees, including about 10 truck drivers that would operate haul trucks for overburden movement within the site and for transport of volcanic tuff to offsite locations. There would be no onsite residents. Thus, the potential to expose people to substantial adverse effects involving rupture of a known earthquake fault is considered low. Furthermore, the project does not propose the construction of any buildings within the project site. Therefore, given the absence of any known regionally significant active faults in the immediate project area, the project site is not in an Alquist-Priolo Fault Zone as described above, and lack of buildings proposed within the project site, impacts related to fault rupture would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.6-2: 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 between the Garlock Fault approximately 12 miles north of the site and the San Andreas Fault over 19 miles south of the site, in addition to the smaller Willow Springs fault located approximately 5.5 miles southwest of the project site, as well as unnamed faults and inferred faults near and within the project site. (Terracon 2022; Van Buer 2019) These fault systems that are capable of generating ground motions that could affect the project area. The project proponent is required to design the project as recommended by a California-licensed professional geotechnical engineer in the site-specific geotechnical review.

According to the reclamation plan, final reclaimed quarry slopes have planned bench faces 25 feet tall with an interbench slope of 70°, resulting in 16-foot-wide benches, yielding an overall slope angle of approximately 45 degrees (1:1 [h:v]) Benched slope heights in rock up to 275 feet are proposed. Reclaimed stockpile slope heights to approximately 120 feet tall at a slope ratio of 2:1 (h:v) are planned for overburden placement.

Slope stability analysis was performed for the project quarry and reclaimed overburden stockpiles slopes to determine whether sufficient factors of safety for static and seismic conditions would be achieved. The sufficient minimum factors of safety used for the analysis were 1.5 for static conditions and 1.1 for seismic conditions. **Table 4.6-2**, *Summary of Global Slope Stability Results*, presents the global stability analysis results.

Table 4.6-2 Summary of Global Slope Stability Results

Model	Material	Slope Configuration	Static Factor of Safety	Seismic Factor of Safety
Section A - North Quarry Wall	Tuff	375 feet @ 45 deg. (1:1 [h:v])	2.75	2.08
Section B - West Quarry Wall (cross-section B)	Tuff	315 feet @ 45 deg.(1:1 [h:v])	3.07	2.27
Section A – Fault Scenario	Tuff	Fault dipping @ 56 deg.(0.67:1 [h:v])	--	0.72[1]
Section B – Bedding Condition	Tuff	260 feet @ 45 deg.(1:1 [h:v])	--	1.63
Overburden Stockpile	Mixed Basalt Overburden	27 deg. fill slope (2:1 [h:v])	1.78	1.17

Source: Terracon 2022.

Notes:

1. Illustrates potential for localized bench back break along fault planes closely mimicking bench faces. Mitigatable by scaling and adjustment of wall location upon inspection.

As shown in **Table 4.6-2**, *Summary of Global Slope Stability Results*, sufficient static factors of safety in excess of 1.5 and seismic factors of safety at or greater than 1.1 were indicated for the modeled quarry slopes and reclaimed overburden stockpile configuration. The scenario model for Section B bedding condition indicated suitable bedding strength in quarry walls with daylighted bedding. The Section A fault section analysis indicated a possible bench back break along fault planes is identified for the south wall. Terracon anticipates this potential condition is mitigatable by inspection and bench adjustment during mining/reclamation, as discussed further below (Terracon 2022).

Terracon's assessment concluded that the reclaimed overburden stockpiles at the proposed 2:1 (h:v) angle are considered standard fill slopes for purposes of stockpile reclamation design and are considered stable by inspection. Terracon noted that site materials are expected to generate granular and angular soils with gravel and cobble size particles that add a component of effective cohesion, and that the materials are expected to be stable under static and seismic conditions at the proposed maximum 26.6-degree (2:1 [h:v]) slope angle (Terracon 2022).

Terracon concluded that slopes formed in the tuff (Tt) unit are stable by calculation at angles near 45 degrees (1:1 [h:v]) utilizing 375-foot-tall faces and that the proposed slope heights/angles for reclaimed conditions (rock materials including basalt and conglomerate interbeds at 45 degrees [1:1 (h:v)] up to 375 feet in height and reclaimed overburden stockpiles at 27 degrees [2:1 (h:v)] up to 120 feet in height) are considered feasible for reclamation under static and seismic conditions, with the possible exception associated with the potential for localized bench back break along fault planes closely mimicking bench faces which Terracon notes as mitigatable by scaling and adjustment of wall location upon inspection (Terracon 2022).

Terracon's evaluation recognized the need for periodic consideration of conditions during mining and in final slope preparation for reclamation, and noted/recommended the following (Terracon 2022):

- localized structures at the bench scale may form zones that require scaling and/or excavation to flatten or steepen face angles to achieve suitable reclamation conditions;
- adjustment of near-surface slope angles OR removal of unconsolidated surface materials may be necessary to mitigate long-term raveling and erosion of unconsolidated surface material;
- at such time and locations as reclamation slopes are excavated, a qualified professional should examine the slope conditions to determine conformance with the reclamation plan;
- conduct periodic observation of mine benches for indications of potential instability above working areas during mine operations to assess the potential need for steel netting or other structural installations to mitigate toppling rock or rockfall and/or berm placement at the toe of the final quarry slopes;
- perform visual inspection of rock excavations and reclamation slopes/benches to address the potential for unknown or newly exposed discontinuities/geologic conditions (if raveling or instability is evident due to features in the geologic structure,

the bench width may be increased to provide a suitable buffer to daylighted or unstable features and a sufficient area to mitigate rockfall);

- during annual inspections, assess kinematic conditions associated with the interaction of localized faults and the south wall, if exposed in reclamation slopes;
- plan and provide for control of blasting when reclaimed slope faces are reached, so that final catch benches are constructed in accordance with the approved reclamation plan and to avoid excess disturbance to finished surfaces and to avoid degradation or clogging of catch benches that could allow rockfall to reach lower mine levels; and
- consider provisions for terraces and/or berms to convey surface drainage away from slope faces in overburden stockpile slopes for reclamation stockpile slopes.

All excavation 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 by the California-licensed professional geotechnical engineer. A copy of the approved design would be submitted to the Kern County Planning and Natural Resources Department. Adherence to the final design plans, Mitigation Measure MM 4.6-1 would ensure that seismic hazards would be minimized. Thus, with implementation of the above-described measures, project structures and personnel present during the life of the project 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 4.6-1 Maximum slopes and depths for the project shall be as follows:

a) Maximum final reclaimed slopes for the quarry shall be 1:1 (h:v).

b) Maximum and overall final reclaimed slopes for the overburden stockpiles shall be 2:1 (h:v).

c) Maximum depth of excavation of the quarry shall be 300 feet below original grade. Maximum height of the north overburden stockpile shall be 100 feet above original grade. Maximum height of the south overburden stockpile shall be 75 feet.

Increased slopes and/or depths may be approved in accordance with the provisions of the Surface Mining and Reclamation Act (SMARA) of 1975 and Section 19.100 of the Kern County Zoning Ordinance.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.6-1, impacts would be less than significant.

Impact 4.6-3: 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. Liquefaction generally occurs when the depth to groundwater is less than 50 feet. Groundwater measurements at the site indicate depth to groundwater beneath the site ranging from about 200 feet bgs to 660 feet bgs and all occurring within basal or volcanic tuff. All of the borehole measurements indicated water at elevations below the planned pit bottom elevation at 2,450 feet amsl (Terracon 2022). Based on the depth to groundwater and the geologic conditions within which groundwater is present, the potential for liquefaction at the surface is low. Furthermore, the project is not located within a current, mapped California Liquefaction Hazard Zone. The project would be required by State law to be constructed in accordance with all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. 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

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.6-4: 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 located on gently to steeply sloping topography and is located adjacent to steep slopes, but these areas are not classified as landslide hazard areas by the *Kern County General Plan*. Terracon evaluated the slope stability for the proposed reclamation condition of the proposed quarry (Terracon 2022). The analysis considered the slope stability under static and seismic conditions. Terracon concluded that slopes formed in the tuff (Tt) unit are stable by calculation at angles near 45 degrees (1:1 [h:v]) utilizing 375-foot-tall faces and that the proposed slope heights/angles for reclaimed conditions (rock materials including basalt and conglomerate interbeds at 45 degrees [1:1 (h:v)] up to 375 feet in height and overburden stockpiles at 27 degrees [2:1 (h:v)] up to 120 feet in height) are considered feasible for reclamation under static and seismic conditions, with the possible exception associated with the potential for localized bench back break along fault planes closely mimicking bench faces which Terracon notes as mitigatable by scaling and adjustment of wall location upon inspection (Terracon 2022). Thus, the slopes under reclaimed conditions are considered stable under seismic loading parameters. Reclaimed mine slopes are expected to be sufficiently stable to achieve an acceptable factor of safety.

Mitigation has been included to ensure the maximum depth and slopes of mine pits are not exceeded and slope stability is not compromised; therefore, this impact is considered less than significant with mitigation.

Mitigation Measures

Implement Mitigation Measure MM 4.6-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.6-1, impacts would be less than significant.

Impact 4.6-5: The project would result in substantial soil erosion or the loss of topsoil.

The project proponent proposes to employ open pit mining techniques to mine volcanic tuff (a natural pozzolan suitable for use in the production of cement). Overburden material would be permanently placed in two on-site stockpiles and topsoil (surface alluvium) would be temporarily placed in an on-site stockpile to be used for reclamation. Overburden and topsoil stockpiles made within the mining areas would be a maximum of 120 feet in height and would have maximum final reclaimed slopes of 2:1 (h:v).

Surface disturbance and material placement activities associated with the proposed project have the potential to cause increased runoff, erosion, and sedimentation that would not otherwise occur at the project site. Proposed surface disturbance activities would remove, relocate, or cover existing topsoil (surface alluvium) and may expose underlying soils to wind and water erosion during mining activities on the project site; however, mitigation has been included to minimize potential impacts related to erosion. The *Drainage Report for Gem Hill Quarry* (Chang 2022) documents that the natural surface (slopes, haul roads, and pads) will resist erosion and berms to be installed for the project prevent storm runoff from overtopping the top of slopes. Chang (2022) notes that storm runoff will be conveyed along the natural terrain, proposed haul roads, or proposed drainage ditches to one of five retention basins, and that haul roads would have a cross slope that causes the overflow to be conveyed to the quarry along the inward side of the haul roads. Chang (2022) also notes that cobble, gravel, or other lining can be installed along road edges in areas requiring additional erosion protection.

The proposed project would implement Mitigation Measure MM 4.9-1, which requires submittal of a SWPPP, if required, which includes erosion control measures in order to comply with the NPDES requirements of the Federal CWA. In addition to its NPDES and CWA obligations, the proposed project would also be subject to Kern County ordinances and standards related to soils, geology, and mining activities. The erosion of engineered slopes on the project site resulting from the proposed project would be less than significant with mitigation.

Mitigation Measures

Implement Mitigation Measures MM 4.6-1 and MM 4.9-1.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.6-1 and MM 4.9-1, impacts would be less than significant.

Impact 4.6-6: 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.

As discussed under Impact 4.6-2, slope stability analysis for the project (Terracon 2022) concludes that the project's proposed final reclaimed slopes would achieve a suitable factor of safety, with the possible exception associated with the potential for localized bench back break along fault planes closely mimicking bench faces which Terracon notes as mitigatable by scaling and adjustment of wall location upon inspection. To reduce the potential of exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving unstable soil, the Lead Agency is recommending Mitigation Measure MM 4.6-1 to ensure that slopes and mining depths are consistent with the proposed reclamation plan, SMARA, and the Kern County Zoning Ordinance. Therefore, potential impacts would be less than significant with mitigation.

Mitigation Measures

Implement Mitigation Measure MM 4.6-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.6-1, impacts would be less than significant.

Impact 4.6-7: The project would be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (1994), creating substantial 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 project site does not contain expansive soils that would preclude the construction of the proposed improvements. Furthermore, the implementation of Kern County Building Code requirements, as applicable, would further minimize the potential impact of expansive soils. Therefore, impacts related to expansive soils would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.6-8: The project would 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.

The project does not include adding septic tanks or alternative wastewater disposal systems. Portable toilets would be used during site preparation, mining, and reclamation activities; therefore, no impact would occur.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

No impact would occur.

Impact 4.6-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The *Gem Hill Supplemental* (McKenna 2020b) and its included *Paleontological resources for the proposed Gem Hill Portland Cement Project* (McLeod 2020) included as Appendix G.2 to this EIR indicate that the project site is predominantly composed of geologic units with no or very low fossil-bearing potential but that finer-grained pockets within the uppermost portions of the Fiss Fanglomerate units could contain significant fossil vertebrate remains. Due to the potential occurrence of significant vertebrate fossils in the uppermost layers of Fiss Fanglomerate, the proposed ground-disturbing and excavation activities within these areas of the site are considered to have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; therefore, this impact is considered potentially significant. Implementation of Mitigation Measure MM 4.6-2 would ensure potential impacts would be less than significant.

Mitigation Measures

MM 4.6-2 If a paleontological resource is found, the project proponent/operator shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resource(s) 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 presented for donation to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.6-2, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Section 3.7, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project. (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis.) The geographic scope for considering cumulative impacts with regard to geology and soils includes the extent of the project site, because impacts to geology and soils are generally site-specific. 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.

Impact 4.6-10: The project would contribute to cumulative geology and soil resource impacts.

As discussed above, all areas of Kern County are considered seismically active, to a less or greater extent depending on their proximity to active regional faults. Cumulative projects shown in **Table 3-9,** *Cumulative Projects List*, would also be subject to similar seismic hazards since they are 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.

Impacts related to erosion and sediment deposition can be cumulative in nature if affecting a watershed. Cumulative impacts to water quality are addressed in **Section 4.9**, *Hydrology and Water Quality*, of this EIR. Buildout of approved and planned uses in Kern County has the potential to result in erosion and the loss of topsoil; however, individual projects are required to comply with applicable codes, standards, and permitting requirements (i.e., preparation of a SWPPP or approval of a Notice of Non-Applicability [NONA]) to mitigate erosion impacts. Impacts associated with erosion are mitigated on a project-by-project basis, which would reduce the overall cumulative impact to a less-than-significant level. Implementation of mitigation measures outlined in this section would reduce the potential impacts associated with geology and soils resulting from the proposed project; therefore, cumulative geological and soil-related impacts are not considered cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.6-1, MM 4.6-2, and MM 4.9-1.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.6-1, MM 4.6-2, and MM 4.9-1, cumulative impacts would be less than significant.

Section 4.7
Greenhouse Gas Emissions

4.7.1 Introduction

This section of the Environmental Impact Report (EIR) describes the affected environment and regulatory setting for greenhouse gas (GHG) emissions. It also describes the GHG emission impacts that would result from implementation of the project along with mitigation measures that would reduce these impacts.

This section uses information from the *Air Quality and Greenhouse Gas Assessment for Gem Hill Quarry, Kern County, California* (Lilburn 2022a), included as Appendix C.1 of this EIR.

4.7.2 Environmental Setting

GHGs and climate change are a cumulative global issue. The California Air Resources Board (CARB) and U.S. Environmental Protection Agency (USEPA) regulate GHG and require reporting on emissions within the State of California and the United States, respectively. While the CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. CARB has divided California into regional air basins. The project is in the portion of unincorporated Kern County within the Mojave Desert Air Basin (MDAB), and under the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD).

Climate Change

In the early 1960s, scientists recognized that carbon dioxide (CO_2) levels in the atmosphere were rising every year. It was also noted that several other gases, including methane (CH_4) and nitrous oxides (N_2O) were also increasing. Levels of these gases have increased by about 40% since large-scale industrialization began around 150 years ago, according to the USEPA. After numerous computer-simulated model runs on the effects of these increases in the atmosphere, it was concluded that the rising concentrations almost always resulted in an increase in average global temperature. Rising temperatures may, in turn, produce changes in weather, sea levels and land use patterns, commonly referred to as "climate change." There is general scientific consensus that climate change is occurring, and that human activity contributes in some measure (perhaps substantially) to that change. Manmade emissions of GHGs, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Increases in global temperatures will cause a reduction in the polar ice caps and an increase in sea level, which will result in flooding in low-lying areas of the world. Additionally, climate change will shift rainfall patterns, which will cause significant impacts to agriculture and freshwater availability worldwide.

Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities such

as electricity production and the use of motor vehicles have elevated the concentration of GHGs in the atmosphere. This accumulation of GHGs has contributed to an increase in the average temperature of the earth's atmosphere and has contributed to global climate change. Of the principal GHGs (i.e., CO_2, CH_4, N_2O, sulfur hexafluoride [SF_6], perfluorocarbons [PFCs], and hydrofluorocarbons [HFCs]), CO_2 is the most common reference gas for climate change. Using the Global Warming Potential (GWP) measurement, GHG emissions are often quantified and reported as CO_2 equivalent (CO_2e). Large emission sources are reported in million metric tons of CO_2e ($MMTCO_2e$).

As the concentrations of GHGs continue to increase in the atmosphere, the Earth's surface temperature is also increasing, exceeding past levels. The Earth's average surface temperature has increased by about 0.17 degrees Fahrenheit (°F) per decade since 1901. Worldwide, 2016 was the warmest year on record, 2020 was the second warmest, and 2012–2021 was the warmest decade on record since thermometer-based observations began. (USEPA 2022a). Climate models predict that the average surface temperature of the Earth could increase by 0.5 to 8.6°F by the end of this century if GHGs continue to increase (USEPA 2017).

Climate change affects people, plants, and animals. Scientists are certain that increasing the concentration of GHGs will change the planet's climate; however, they are not sure by how much it will change, at what rate it will change, or what the exact effects will be. They are working to better understand future climate change and how the effects will vary by region and over time.

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 (Intergovernmental Panel on Climate Change [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; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

Some of the potential resulting effects in California of global warming may include loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large

forest fires, and more drought years. A summary of some of these potential effects that could be experienced in California as a result of climate change is provided below:

Sea Level Rise. Since 1870 the global sea level has risen about 8 inches. The rising sea level increases the likelihood and risk of flooding. Future sea level rise will vary for different reasons but is expected to rise at a greater rate than during the past 50 years. Regional factors, such as land elevation changes that occur due to subsidence or uplifting, will influence the relative sea level rise for the coastlines around the world. However, global sea level rise of 1 to 4 feet could occur by 2100 (USEPA 2017).

Air Quality. Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State.

Water Supply. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10% during the last century. During the same period, sea level rose 8 inches along the California coast. California's temperature has risen 1°F, mostly at night and during the winter, with higher elevations experiencing the highest increase. Many southern California cities have experienced their lowest recorded annual precipitation twice within the past decade in a span of only 2 years.

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra Nevada snowpack provides the majority of California's water supply by accumulating snow during our wet winters and releasing it slowly when we need it during our dry springs and summers. The snowpack is expected to experience a 25% to 40% reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (California Department of Water Resources [DWR] 2008).

Hydrology. As discussed previously, climate change could potentially affect the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for saltwater intrusion. Sea level rise may be a product of climate change through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to saltwater intrusion. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture. California has a $30 billion agricultural industry and has the highest crop value in the Nation serving as an important source of the Nation's food supply. Changes in temperature and water availability, compounded by annual and seasonal shifts and extremes, will affect both crop yield and quality. Indirect impacts such as decreases of pollinators and increases in pests and diseases will also have a negative effect on agricultural yield.

Ecosystems and Wildlife. Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increases in drought, wildfire, invasive species, and pests as well as geographic ranges will threaten native ecosystems in the southwest. Over 3,000 native California species of plants are expected to face reductions in geographic ranges in which they can survive. Climate change and other stressors will hinder the species' ability to migrate or adapt. These stressors include human expansion, air and water pollution, invasive species, streamflow reductions, and the region's mountainous terrain (DWR 2008).

Greenhouse Gas Emissions

GHGs refer to gases that absorb and re-emit infrared radiation in the atmosphere. Many chemical compounds found in Earth's atmosphere act as GHGs, which allow sunlight to enter the atmosphere freely. When sunlight strikes Earth's surface, some of it is reflected back toward space as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to Earth's surface should be about the same as the amount of energy radiated back into space, leaving the temperature of Earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (e.g., water vapor, CO_2, CH_4, N_2O), while others are exclusively manmade (e.g., gases used for aerosols). The principal GHGs—CO_2, CH_4, N_2O, SF_6, PFCs, and HFCs—are listed below (USEPA 2022b).

- **Carbon dioxide:** 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 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 is emitted during agricultural and industrial activities and during combustion of fossil fuels and solid waste.
- **Sulfur hexafluoride:** SF_6 is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity, including equipment such as electrical circuit breakers, which may be used for the project. SF_6 is a potential source of fugitive emissions from electrical transmission and distribution equipment. Fugitive emissions are unintentional leaks of GHGs from equipment such as joints, seals, and gaskets.

- **Fluorinated gases:** SF_6, HFCs, and PFCs are synthetic, powerful climate-change gases emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons [CFCs], hydrochlorofluorocarbons, and halons). These gases are typically emitted in minute quantities, but because they are potent climate-change gases, they are sometimes referred to as high GWP gases.

In most cases, GHGs have both natural and anthropogenic (human-caused) sources. Natural mechanisms already exist as part of the "carbon cycle" for removing GHGs from the atmosphere (often called land or ocean sinks). Because of the increase in anthropogenic sources, levels of GHGs have exceeded the normal rates of natural absorption. This has resulted in increased atmospheric concentrations of GHGs and potentially human-induced climate change.

GHG emissions in the United States come mostly from energy use. These are driven largely by economic growth, fuel used for electricity generation, and weather patterns affecting heating and cooling needs.

Energy-related CO_2 emissions resulting from fossil fuel exploration and use account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of CO_2 emissions from burning fossil fuels. More than half the energy-related emissions come from large stationary sources, such as power plants; approximately one-third come from transportation; and industrial processes, agriculture, forestry, other land uses, and waste management make up most of the other sources.

As previously stated, the generation of electricity can produce GHGs with criteria air pollutants that have been traditionally regulated under the Federal Clean Air Act (CAA) and California Clean Air Act (CCAA). For fossil fuel–fired power plants, the GHG emissions include primarily CO_2, with much smaller amounts of N_2O (not nitric oxide [NO] or nitrogen dioxide [NO_2], which are commonly known as nitrogen oxides [NOx]) and CH_4 (often from unburned natural gas). For photovoltaic solar power energy generation projects, stationary-source GHG emissions are much smaller than fossil fuel-fired power plants, but the associated maintenance vehicle emissions are higher due to the different and far-afield maintenance requirements that necessitate more vehicles and more travel within the project site. Other sources of GHG emissions include SF_6 from high-voltage equipment and HFCs and PFCs from refrigeration/chiller equipment. GHG emissions from the electricity sector are dominated by CO_2 emissions from carbon-based fuels; other sources of GHG emissions are small and are more likely to be easily controlled or reused/recycled.

Scientists at the California Office of Environmental Health Hazard Assessment (COEHHA) believe that most areas in the United States will continue to warm, although some will most likely warm more than others. Predicting which parts of the country will become wetter or drier is extremely difficult, but scientists generally expect increased precipitation and evaporation as well as drier soil in the middle parts of the country. The northern regions, such as Alaska, are expected to experience the most warming.

Emissions Inventory

CO_2 is the most common reference gas for climate change of the principal GHGs (i.e., CO_2, CH_4, N_2O, SF_6, PFCs, and HFCs). Using the GWP measurement, GHG emissions are often quantified and reported as CO_2e. Large emission sources are reported in $MMTCO_2e$. Worldwide, anthropogenic emissions of GHGs were approximately 49,500 $MMTCO_2e$ in the year 2010 (IPCC 2014). CO_2 emissions from fossil fuel use accounts for 65% of the total emissions of 49,500 $MMTCO_2e$ (includes land use changes) and CO_2 emissions from all sources account for 77% of the total. CH_4 emissions account for 16% of GHGs and N2O emissions account for 6% (USEPA 2016).

Based on data from the EPA, the total GHG emissions in the United States were 5,981 $MMTCO_2e$ in 2020, a decrease of about 8% from 1990 levels. From year to year, emissions can rise and fall due to changes in the economy, the price of fuel, and other factors. Changes in CO_2 emissions from fossil fuel combustion are influenced by many long-term and short-term factors, including population growth, economic growth, changing energy prices, new technologies, changing behavior, and seasonal temperatures. In 2020, the decrease in CO_2 emissions from fossil fuel combustion corresponded with a decrease in energy use as a result of decreases in economic, manufacturing, and travel activity in response to the coronavirus pandemic, in addition to a continued shift from coal to less carbon-intensive natural gas and renewables in the electric power sector. (USEPA 2022b) In 2020 the electric power, transportation, and industry sectors accounted for 76% of the total U.S. GHG emissions, with electric power, transportation, and industry sources emitting 25%, 27%, and 24% of GHG emissions, respectively. The residential and commercial sectors accounted for 13% and agriculture accounted for the remaining 11% of GHG emissions (USEPA 2022c).

Statewide emissions of GHG from relevant source categories for 2010 through 2017 are summarized in **Table 4.7-1,** *California Greenhouse Gas Emissions Inventory by Economic Sector*. In 2017, California produced 424.1 $MMTCO_2e$ emissions. Transportation was the source of 40% of the State's GHG emissions, followed by industrial at 21%, electricity generation at 15%, commercial and residential sources at 10%, agriculture and forestry comprised at 8%, High GWP at 5%, and Recycling and Waste with the remaining 2% (CARB 2017b). CARB has projected that, unregulated, Statewide GHG emissions for the year 2020 will be 509 $MMTCO_2e$ (CARB 2014). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions. California GHG emissions and the change in emissions of CO_2, CH_4, and N_2O from 2010 to 2017 are summarized in **Table 4.7-1,** *California Greenhouse Gas Emissions Inventory by Economic Sector*.

Table 4.7-1 California Greenhouse Gas Emissions Inventory by Economic Sector

	GHG Emissions (MMTCO2e)*							
Economic Sector	2010	2011	2012	2013	2014	2015	2016	2017
Transportation	165.1	161.8	161.3	160.9	162.5	166.2	168.8	169.9
Electric Power	90.3	88.0	95.5	89.4	83.8	83.8	68.6	62.4
Industrial	91.5	90.2	91.1	93.7	91.5	91.5	89.5	89.4

Table 4.7-1 California Greenhouse Gas Emissions Inventory by Economic Sector

	GHG Emissions (MMTCO2e)*							
Economic Sector	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Commercial and Residential	45.9	46.4	43.8	44.4	38.8	38.8	40.6	41.1
Agriculture	33.7	34.3	35.5	34.0	38.8	33.8	33.5	32.4
High GWP	13.5	14.5	15.5	16.8	18.6	18.6	19.3	19.9
Recycling and Waste	8.4	8.5	8.5	8.5	8.7	8.7	8.8	8.9
Total GHG Emissions	**448.5**	**443.6**	**451.2**	**447.7**	**444.7**	**441.4**	**429.0**	**424.1**

Source: CARB 2017b
Notes:
* GHG emissions are weighted using the IPCC AR4.

Kern County Greenhouse Gas Inventory

In 2012, SJVAPCD prepared a communitywide GHG inventory for all of Kern County (SJVAPCD 2012). Year 2005 was used as the base year; GHG emissions were estimated to be 27 $MMTCO_2e$. The fossil fuel industry sector represented 40% of the 2005 total, followed by the electricity consumption sector at 22%. GHG emissions from electricity generation in Kern County were included in the Countywide GHG emissions, but not added in the totals. Kern County's 2005 GHG emissions, not including subtraction of sequestration sectors, are presented in **Table 4.7-2,** *2005 Kern County Baseline Greenhouse Gas Emissions*.

Table 4.7-2 2005 Kern County Baseline Greenhouse Gas Emissions

Category	GHG Emissions ($MMTCO_2e$)	Percent of Total
Electricity Production	13,002,127	(*)
Electricity Consumption	6,039,114	22%
Residential/Commercial/Industrial Combustion	1,281,498	5%
Transportation	4,569,913	17%
Fossil Fuels Industry	10,928,153	40%
Industrial Processes	1,852,124	7%
Waste Management	120,494	< 1%
Agriculture Fugitives	2,024,470	7%
Forestry and Land Use	11,028	<1%
Other Sources	218,823	1%
Total	**27,045,617**	

Source: SJVAPCD 2012
Notes: (*) = The Kern County Communitywide GHG emissions inventory included emissions from electricity production for completeness purposes only, this sector was not included in further descriptions of Kern County's emissions.

4.7.3 Regulatory Setting

In 1988 the United Nations and the World Metrological Organization established the IPCC to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including CH4. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The Plan consists of more than 50 voluntary programs. In October 1993, President Clinton announced his Climate Change Action Plan, which had a goal to return GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions (California Air Pollution Control Officers Association [CAPCOA 2008]).

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

A particularly notable result of the UNFCCC efforts was a treaty known as the Kyoto Protocol, which was negotiated in December 1997. The agreement came into force on February 16, 2005, following ratification by Russia on November 18, 2004. When countries sign the treaty, they demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. As of December 2006, a total of 169 countries and other governmental entities have ratified the agreement. Notable exceptions include the United States and Australia. Although U.S. Vice President Gore symbolically signed the Kyoto Protocol in 1998, for the treaty to be formally ratified, it must be ratified by the U.S. Congress, and this has not occurred to date. Other countries, like India and China, which have ratified the protocol, are not required to reduce carbon emissions under the present agreement despite their relatively large populations.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere (CFCs, halons, carbon tetrachloride, and methyl chloroform) were to be phased out by 2000 (methyl chloroform was to be phased out by 2005).

Global warming and climate change have received substantial public attention for more than 15 years. For example, the U.S. Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system; to monitor, understand, and predict global change; and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even farther in the future.

Federal

U.S. Environmental Protection Agency

The Federal CAA requires the USEPA to define National Ambient Air Quality Standards (NAAQS) to protect public health and welfare in the United States. The USEPA has not established any ambient air quality standards for GHGs as the CAA does not specifically regulate GHG emissions; however, on April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency* (549 U.S. 497 [2007]), the U.S. Supreme Court found that GHGs are pollutants covered by the CAA. The Supreme Court held that the USEPA must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that could reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA is required to follow the language of Section 202(a) of the CAA. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations. Currently, there are no Federal regulations that establish ambient air quality standards for GHGs.

On April 17, 2009, the Administrator signed Proposed Endangerment and Cause or Contribute findings for GHGs under Section 202(a) of the CAA. The USEPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia and Seattle, Washington. The USEPA carefully reviewed, considered, and incorporated public comments and issued the final Findings.

The USEPA found that six GHGs taken in combination endanger both the public health and public welfare of current and future generations. The USEPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that endangers public health and welfare under Section 202(a) of the CAA. These findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. These findings became effective on January 14, 2010. Specific GHG Regulations that the USEPA has adopted to date are discussed below.

40 Code of Federal Regulations Part 98 Mandatory Reporting of Greenhouse Gases Rule

On September 22, 2009, the USEPA issued a final rule to require reporting of GHG emissions from all sectors of the U.S. economy (74 *Federal Register* [FR] 56260–56519). Fossil fuel and industrial GHG suppliers, motor vehicle and engine manufacturers, and facilities that emit 25,000 $MTCO_2e$ or more per year are required to report GHG emissions data to USEPA annually. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to the USEPA in 2011. Additionally, reporting of emissions is required for owners of SF_6- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds. This new program covers approximately 85% of the nation's GHG emissions and applies to roughly 10,000 facilities. The USEPA's new reporting system was intended to provide a better understanding of GHG sources and guide development of the policies and programs to reduce emissions. The data also allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective

methods to reduce emissions in the future. The reporting rule has been amended numerous times. This project would not be expected to trigger Federal GHG reporting according to the rule.

U.S. Environmental Protection Agency and National Highway Traffic Safety Administration Joint Final Rules for Vehicle Standards

On April 1, 2010, the USEPA and National Highway Traffic Safety Administration (NHTSA) announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. The USEPA approved the first-ever national GHG emissions standards under the CAA, and NHTSA approved Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (75 FR 25324–25728). The final rule became effective on July 6, 2010 (75 FR 25324–25728).

Federal Vehicle Standards

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 2018–2027 for certain trailers, and model years 2021–2027 for semi-trucks, large pickup trucks, vans, and all types and 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). In December 2021, EPA finalized revised national greenhouse gas (GHG) emissions standards for passenger cars and light trucks for Model Years 2023- 2026. The final standards would achieve significant GHG emissions reductions along with reductions in other criteria pollutants (USEPA 2021b).

State

California Environmental Quality Act

A variety of Statewide rules and regulations have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Under the California Environmental Quality Act (CEQA), an analysis and mitigation of emissions of GHGs and climate change in relation to a project is required where it has been determined that a project will result in a significant addition of GHGs. Certain Air Pollution Control Districts (APCDs) have proposed their own levels of significance. The EKAPCD, which has regulatory authority over the air pollutant emissions from this project, has adopted a significance threshold for projects where the EKAPCD acts as CEQA Lead Agency (EKAPCD 2012); however, Kern County has not adopted a significance threshold for these emissions.

California Supreme Court Ruling in Center for Biological Diversity v. Department of Fish and Wildlife (2015) 62 Cal.4th 2014 (Newhall)

In *Center for Biological Diversity v. Department of Fish and Wildlife* (*Newhall*), the Supreme Court evaluated the California Department of Fish and Wildlife (CDFW) analysis of potential impacts caused by GHG emissions contained in the EIR for the proposed land development called Newhall Ranch. In the EIR, the CDFW analyzed GHG emissions under Assembly Bill (AB) 32, using the business-as-usual (BAU) comparison as its sole criterion of significance.

In *Newhall*, the Supreme Court concluded that a finding of consistency with meeting Statewide emission reduction goals is a legally permissible criterion of significance when analyzing potential impacts of GHG emissions under CEQA. However, the Court found that the EIR's conclusion that the project's emissions would be less than significant under that criterion was not supported by substantial evidence, and remanded back to the appellate court the narrow issue of whether substantial evidence supported the application of AB 32 Statewide GHG reduction goal of 29% to new land use projects.

The Court then identified "potential options" for lead agencies evaluating cumulative significance of a proposed land use development's GHG emissions in future CEQA documents, but the Court was careful to note that there was no "guarantee" that any of these would be sufficient, stating: "We do not, of course, guarantee that any of these approaches will be found to satisfy CEQA's demands as to any particular project; what follows is merely a description of potential pathways to compliance, depending on the circumstances of a given project."

The "potential pathways to compliance" suggested by the Supreme Court are as follows:

Business-As-Usual (BAU) Model: While the Court cautioned that the Scoping Plan may not be appropriate at the project-level, the BAU model might be used to determine what level of reduction from business as usual a new land use development at the proposed location must contribute in order to comply with statewide goals pursuant to AB 32. The Court specifically directed that reliance on this type of quantitative threshold must be supported by substantial evidence in the record that links the statewide GHG reduction standard to the appropriate GHG reduction standard for the specific type of project under consideration.

1. **Compliance With Regulatory Programs Designed to Reduce Greenhouse Gas Emissions:** The Court suggests that a lead agency could rely on a showing of compliance with regulatory programs designed to reduce GHG emissions in order to demonstrate consistency with AB 32's goals. The Court clarifies that a significance analysis based on compliance with such statewide regulations only goes to impacts within the area governed by the regulations.
2. **Local Climate Action Plan or Other "Geographically Specific Greenhouse Gas Emission Reduction Plans":** The Court points out that these plans may provide a basis for the tiering or streamlining of project-level CEQA analysis, so long as the plan is "sufficiently detailed and adequately supported."
3. **Regional Sustainable Community Strategy (SCS):** The Court also articulates that a Lead Agency need not additionally analyze GHG emissions from cars and light trucks in CEQA documents for certain residential, mixed-use, and transit priority projects that are consistent with an applicable SCS adopted pursuant to Senate Bill (SB) 375.
4. **Numerical GHG Significance Thresholds:** Although noting that use of such thresholds is not required, the Court favorably cited to the Bay Area Air Quality Management District GHG significance thresholds, based on compliance with AB 32, which use a "service population" GHG ratio threshold for land use projects and

a 10,000-ton annual GHG emission threshold for industrial projects. The Court remanded for further consideration the application of the 29% overall Scoping Plan metric, which is used by several Air Districts and, like the favorably cited Bay Area Air Quality Management District metric, is based on AB 32.

5. **Executive Orders S-3-05 and B-30-15:** Citing to EOs S-3-05 and B-30-15, the Court cautioned that those EIRs taking a goal-consistency approach to CEQA significance may "in the near future" need to consider the project's effects on meeting emissions reduction targets beyond 2020.

Following the Supreme Court's decision in *Newhall*, the EIR at issue in that case was set aside on remand by the lower court. On November 2016, the CDFW released a draft Additional Environmental Analysis (AEA) intended to address the agency's CEQA compliance obligations (CDFW 2016). The AEA does not respond to the Supreme Court's direction to provide substantial evidence supporting the 29% BAU statutory GHG reduction threshold relied upon by the Newhall EIR. The AEA also does not include an assessment of the Newhall project's consistency with any of the Court's suggested GHG CEQA compliance pathways, although referenced documentation in the Newhall administrative record do include and confirm compliance with each pathway. Instead, as described in the AEA, the Newhall project applicant (Five Point LLC) voluntarily modified its project and proposed to achieve "net zero" GHG emissions for the project with the implementation of the project applicant's "zero net emission" proposal, which was made enforceable by the addition of 13 mitigation measures that correspond to the applicant's proposal, as further described in the AEA. The AEA states that the adoption and implementation of the 13 mitigation measures would reduce mobile source, electricity, natural gas, vegetation removal, and construction-related emissions by the amount of emissions estimated for the project and result in no net contributions of GHG emissions from the project, or "zero net emissions." The AEA further concludes that because the project would result in no net increase of GHG emissions after implementation of the mitigation measures, there would be no contribution of GHG emissions to cumulative GHG emissions influencing global climate change and the Newhall project would not conflict with any plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs. Consequently, the AEA concludes that project GHG and climate change impacts would be less than significant (CDFW 2016, pp. 1–18).

Since *Newhall*¸ the County has used the EKAPCD's numerical significance thresholds for projects located within the EKAPCD.

California Code of Regulations Title 24

Title 24 of the California Code of Regulations (CCR) was established in 1978 and serves to enhance and regulate California's building standards. Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (Public Resources Code [PRC] Section 25402[b][1]). The regulations have the overall goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). These regulations are analyzed for technological and economic feasibility

(PRC Section 25402[d]) and cost effectiveness (PRC Sections 25402b][2] and [b][3]). These building code standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and reduce air pollutant emissions either by reducing the quantity of energy required by the building (e.g., with water conservation measures that reduce water use and thus the quantity of water requiring emission-causing transportation and treatment, or with energy efficiency standards such as enhanced insulation that reduce the need for heating, ventilation, and air conditioning (HVAC) and likewise result in less energy consumption and air pollutant emissions from these HVAC uses.

The current Title 24 standards are the 2016 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2017, following certification of the 2016 EIR. The 2019 Title 24 Building Energy Efficiency Standards, which will be effective January 1, 2020, will further reduce energy used and associated GHG emissions compared to current standards. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; further, as newly mandated state standards requiring rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those built under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018). The 2016 EIR did not include the reduced energy consumption or corresponding reduced air pollutant emissions from compliance with the 2019 Building Code, which became effective on January 1, 2020, or the newly mandated state standards requiring rooftop solar electricity generation.

Assembly Bill 1493

On July 22, 2002, former Governor Gray Davis signed AB 1493, also known as the Pavley Regulations or the Clean Car Standards. AB 1493 required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions emitted by passenger vehicles and light-duty trucks. Subsequent regulations were adopted by the CARB in September 2004.

The regulations were threatened by automaker lawsuits and were stalled by the USEPA's initial denial to allow California to implement GHG standards for passenger vehicles. The USEPA later granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On September 24, 2009, the CARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016.

Executive Order S-1-07

Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. The CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels,

including those from alternative sources, such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to lead to the replacement of 20% of the fuel used in motor vehicles with alternative fuels by 2020.

Assembly Bill 32: California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. The legislature stated, "global warming poses a serious threat to the economic wellbeing, public health, natural resources, and the environment of California." AB 32 caps California's GHG emissions at 1990 levels by 2020 and requires CARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to Statewide levels in 1990 by 2020. This law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually; AB 32 also reserves the ability to reduce emissions targets for certain sectors that contribute the most to emissions of GHGs, including the transportation sector.

This agreement represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

The list of impacts included in AB 32 may be considered substantial evidence of environmental impacts requiring analysis in CEQA documents. AB 32 charges CARB with responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. CARB has adopted a list of discrete early action measures that can be implemented to reduce GHG emissions. CARB has defined the 1990 baseline emissions for California, and has adopted that baseline as the 2020 statewide emissions cap. CARB is conducting rulemaking for reducing GHG emissions to achieve the emissions cap by 2020. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the state's efforts to improve air quality.

The AB 32 Scoping Plan contains the main strategies California will use to reduce the GHG emissions that cause climate change. The scoping plan has a range of GHG emission reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. The proposed scoping plan was released on October 15, 2008, and approved at the Board hearing on December 12, 2008.

On October 20, 2011, CARB approved a cap-and-trade program as part of AB 32, with compliance obligations that became effective in 2013. An initial cap will be implemented for the electrical sector and any large industrial source that emits more than 25,000 $MTCO_2e$

emissions per year. Over time, the cap will be reduced so that the program will apply to a broader range of facilities.

In May 2014, CARB adopted a Scoping Plan Update that revised the 2020 emissions target to 431 $MMTCO_2e$ (based on updated GWPs for GHGs) and also builds upon the initial Scoping Plan with new strategies and recommendations. The 2014 Scoping Plan Update identified opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The 2014 Scoping Plan Update also defined the CARB's climate change priorities for the following 5 years and set the groundwork to reach California's long-term climate goals set forth in EO S-3-05 and B-16-2012. EO B-16-2012 directed State entities under the governor's direction and control to support and facilitate development and distribution of zero-emission vehicles (ZEVs). Former Governor Jerry Brown's executive order set a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a Statewide basis, the executive order also established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

Assembly Bill 32 Scoping Plan Update

In December 2017, the CARB adopted California's 2017 *Climate Change Scoping Plan* (CARB 2017b). The 2030 target of 40% emissions reductions below 1990 levels guides the Scoping Plan, as the economy evolves to reduce GHG emissions in every sector. The 2017 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update, while identifying new technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target as established by SB 32 and define the state's climate change priorities to 2030 and beyond. The strategies' known commitments include implementing renewable energy and energy efficiency (including the mandates of SB 350), increasing stringency of the, implementing measures identified in the Mobile Source and Freight Strategies, implementing measures identified in the proposed Short-Lived Climate Pollutant Plan, and increasing stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the Cap-and-Trade Program; continuing Low Carbon Fuel Standard activities, with increasing stringency of at least 18% reduction in carbon intensity; and a measure to reduce GHGs from refineries by 20%.

The Supreme Court has determined that a Scoping Plan is not self-implementing (i.e., is not a regulation), and in the Newhall case described above, the Supreme Court further concluded that consistency with Scoping Plan overall targets is not an appropriate threshold of significance for determining CEQA impacts, notwithstanding arguments presented to the Court in that case that CEQA requires either a "net zero" GHG emissions significance threshold or the unlegislated EO 2050 target significance threshold.

Senate Bill 97

SB 97, enacted in August 2007, required the California Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions or effects related to releases of GHG emissions. On April 13, 2009, OPR submitted proposed amendments to the California Natural Resources Agency (CNRA), in accordance with SB 97, regarding analysis and mitigation of GHG emissions. Formal rulemaking was conducted in 2009 prior to adopting the amendments.

As discussed below, the CEQA significance analysis for the project was conducted in accordance with the OPR guidance developed under this statute.

As part of the guidelines, OPR recommends that CARB set Statewide thresholds of significance and emphasized the need to have a consistent threshold available to analyze projects. The draft guidelines also noted that the analyses should be based on the best available information. As directed by SB 97, the CNRA adopted amendments to the State CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments and filed them with the Secretary of State for inclusion in the CCR. The amendments became effective on March 18, 2010.

Senate Bill 375

In August 2008, the legislature passed, and on September 30, 2008, former Governor Schwarzenegger signed, SB 375 (Steinberg), which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by the CARB, are required to consider the emission reductions associated with vehicle emission standards (see AB 1493), the composition of fuels (see EO S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing an SCS within their Regional Transportation Plan (RTP).

Senate Bill 1078

Approved by former Governor Gray Davis in September 2002, SB 1078 (Sher) established the Renewable Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107).

Senate Bill 107

Approved by former Governor Arnold Schwarzenegger on September 26, 2006, SB 107 (Simitian) requires investor-owned utilities such as the Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E), to generate 20% of their electricity from renewable sources by 2010.

Advanced Clean Cars Program

In January 2012, the CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines 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. To improve air quality, the CARB will propose new emission standards to reduce smog-forming emissions beginning with 2015 model-year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, the CARB, in conjunction with the USEPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The ZEV

program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

Senate Bill 605

On September 21, 2014, former Governor Jerry Brown signed SB 605, which requires the CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state.

Senate Bill 350

Former Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the California Public Utilities Commission (CPUC), in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator (CAISO) into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process.

California Air Pollution Control Officers Association

The CAPCOA is the association of air pollution control officers representing all 35 air quality agencies throughout California. The CAPCOA is not a regulatory body, but it has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues.

California Air Resources Board Cap-and-Trade for Stationary Sources and Fuels

The SJVAPCD approved Policy APR-2025 (CEQA Determinations of Significance for Projects Subject to CARB's GHG Cap-and-Trade Regulation) to evaluate whether projects subject to the cap-and-trade regulation would comply with plans for reducing GHG emissions supported by an environmental review compliant with CEQA requirements, and that compliance with this plan would adequately mitigate GHG emissions for CEQA purposes under the SJVAPCD thresholds. EKAPCD subsequently determined that EKAPCD should follow an approach compatible with SJVAPCD's when EKAPCD is serving as the CEQA Lead Agency for projects within its jurisdiction. EKAPCD determined that by following a CEQA GHG review process similar to SJVAPCD's, EKAPCD will maintain substantial consistency throughout Kern County in how GHG analysis under CEQA is performed. (EKAPCD 2012) Although Kern County is the Lead Agency for the proposed project and the proposed project is located within the jurisdiction of EKAPCD, consideration of the SJVAPCD cap-and-trade regulation is relevant here.

SJVAPCD concluded that the cap-and-trade regulation is such a plan, and that compliance would result in a project having a less-than-significant impact for GHG emissions that are subject to the cap-and-trade regulations. The cap-and-trade regulation applies to providers of electricity generated or imported into California, large industrial facilities emitting more than 25,000 $MTCO_2e$ per year, and other specific facilities, as well as to distributors of transportation fuels, natural gas, and other fuels. The regulation requires that emissions generated by these facilities and combustion of fuels be reduced over time. Accordingly, the SJVAPCD found that "GHG emission increases caused by fuel use (other than jet fuels [which are not regulated under the cap-and-trade regulation]) are determined to have a less-than-significance impact on global climate change under CEQA." SJVAPCD Policy APR-2015 is consistent with the recent case *Association of Irritated Residents v. Kern County Board of Supervisors, et al.* (2017) 17 Cal.App.5th 708 ("*AIR*"), wherein the Court of Appeal held that CEQA does in fact authorize a Lead Agency "to determine a project's greenhouse gas emissions will have a less than significant effect on the environment based on the project's compliance with the cap-and-trade program."

Executive Orders

The current and prior Governors also issued several executive orders regarding climate change and GHG reductions. These orders include, but are not limited to, the following discussed below.

Executive Order S-3-05

EO S-3-05 was established by former Governor Arnold Schwarzenegger in June 2005. EO S-3-05 establishes Statewide emission reduction targets through the year 2050:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80% below 1990 levels.

This executive order does not include any specific requirements that pertain to the project. However, actions taken by the State to implement these goals could affect the proposed project, depending on the specific implementation measures that are developed.

Executive Order S-13-08

Former Governor Arnold Schwarzenegger issued EO S-13-08 on November 14, 2008. The executive order is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. It directs State agencies to take specified actions to assess and plan for such impacts. It directs the CNRA, in cooperation with the DWR, CEC, California's coastal management agencies, and the Ocean Protection Council, to request that the National Academy of Sciences prepare a Sea Level Rise Assessment Report to assess the State's vulnerability. The report summarizes key climate change impacts to the State for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Executive Order B-16-12

Former Governor Jerry Brown issued EO S-16-12 on March 23, 2012. The executive order requires that State entities under the governor's direction and control support and facilitate the rapid commercialization of ZEVs.

Executive Order B-18-12

Former Governor Jerry Brown issued EO S-18-12 on April 25, 2012. The executive order directs State agencies, departments, and other entities under the governor's executive authority take actions to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline.

Executive Order B-30-15

On April 29, 2015, former Governor Jerry Brown issued EO B-30-15, which identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32.

California Code of Regulations Title 23, Article 22.5

California extended emergency water conservation regulations based on ongoing and projected future drought conditions caused or exacerbated by climate change.

California Code of Regulations Title 14, Chapter 3

The CNRA and OPR adopted the updated State CEQA Guidelines in December 2018; however, the updated guidelines did not change the guidelines or Appendix G (often used as default CEQA significance standards) relating to GHG. The guidelines did adopt new CEQA provisions regarding VMT as CEQA impacts as of July 1, 2020, based on the relationship between VMT and health benefits of encouraging drivers to walk or bike instead of drive, the wear and rainwater runoff that occurs on roads and highways, and air pollutant emissions (including GHG) from avoided vehicle travel when VMT is reduced. The OPR also issued non-binding guidance documents relating to VMT and GHG.

Executive Order B-55-18

EO B-55-18 (September 2018) establishes a Statewide policy for the State to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. The goal is an addition to the existing Statewide targets of reducing the State's GHG emissions. The CARB will work with relevant State agencies to ensure that future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

Local

2022 Regional Transportation Plan/Sustainable Communities Strategy

The Kern Council of Governments (Kern COG) is the Regional Transportation Planning Agency (RTPA) for the Kern County region. Kern COG adopted the 2022 RTP/SCS in July 2022, updating the previous 2018 RTP/SCS. The 2022 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 has been developed through a continuing, comprehensive, and cooperative planning process, and

provides for effective coordination between Federal, State, regional, and local agencies. Included in the 2022 RTP is the SCS required by California's Sustainable Communities and Climate Protection Act, of SB 375. SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low-income housing need and transportation planning. SB 375 includes the following three primary findings related to the RTP/SCS development process:

- CARB was required to develop regional GHG emission reduction targets for cars and light trucks for each of the 18 Metropolitan Planning Organizations (MPOs) in California, including Kern COG. CARB approved targets for the San Joaquin Valley in January 2013. Although focused on the San Joaquin Valley, the RTP/SCS applies to all of Kern County. The target for Kern County beginning October 1, 2018, is a per capita reduction in GHG emissions from passenger vehicle travel of 9% by 2020 and 15% by 2035 relative to 2005 levels.
- Kern COG was required to prepare an SCS that specifies how the GHG emission reduction target set by the CARB will be achieved. If the target cannot be met through the SCS, then an Alternative Planning Strategy (APS) shall be prepared by Kern COG. Chapter 4 of the 2022 RTP/SCS includes the SCS for Kern COG. The RTP/SCS for Kern County anticipates per capita CO2e reductions of 10.8% for 2020 and 15.1% for 2035, exceeding the respective 9% and 15% targets established by CARB in 2018.
- Streamlines CEQA requirements for specific residential and mixed-use developments that are consistent with the Kern COG SCS or APS (as determined by the CARB) to achieve regional GHG emissions reduction target (Kern COG 2022).

Eastern Kern Air Pollution Control District

Eastern Kern Air Pollution Control District Policy Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency (EKAPCD 2012) provides EKAPCD recommendations for thresholds of significance when performing CEQA review of projects for which the EKAPCD is the CEQA Lead Agency. In relevant part, under the EKAPCD threshold a project that emits less than 25,000 metric tons per year (tpy) of GHGs would be determined to have a less than significant individual or cumulatively considerable impact on GHG emissions and would not require further CEQA review. EKAPCD believes a 25,000 tpy threshold is appropriate for determining that a project will have no significant or cumulatively considerable impact because:

- 25,000 tpy is the EKAPCD GHG reporting requirement as stated in Section VI.B of EKAPCD Rule 201.3, Federally Enforceable Limits on Potential to Emit, noting that CARB and EPA have determined that a 25,000 metric ton per year threshold is appropriate for GHG reporting because it would encompass facilities whose GHG emissions may be subject to regulation; and
- 25,000 tpy is less than the threshold of 25,000 $MTCO_2e$ per year CARB uses for industrial source applicability as the first phase of the AB 32 Cap-and Trade Program and is therefore slightly more stringent than the Cap-and-Trade Program.

Kern County

Kern County has not adopted a GHG reduction plan or climate action plan as of this publication of this EIR.

Kern County General Plan

The project site is located within the *Kern County General Plan*. The policies, goals, and implementation measures in the *Kern County General Plan* applicable to GHGs as related to the project are provided in **Section 4.3**, *Air Quality*. Some of the listed policies, goals, and implementation measures would indirectly impact GHG emissions through the reduction of fossil fuel use.

Chapter 1. Land Use, Open Space, and Conservation Element

1.10 General Provisions

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 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 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.
- **Policy 23.** The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District.

Implementation Measures

- **Implementation Measure F:** All discretionary permits shall be referred to the appropriate air district for review and comment.
- **Implementation 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.

- **Implementation 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.

4.7.4 Impacts and Mitigation Measures

This section describes the methodology used in conducting the CEQA impact analysis for GHG emissions, the thresholds of significance used in assessing impacts to GHG emissions, and the assessment of impacts to GHG emissions and global climate change, including relevant mitigation measures.

Methodology

This section discusses the methodologies used to conduct the evaluation of GHG emission impacts for the project, including guidelines for preparing environmental documents under CEQA and technical methods employed in the evaluation. The proposed project's potential impacts to GHGs have been evaluated using a variety of resources, including Emissions modeling and impact analysis is based on the *Air Quality and Greenhouse Gas Assessment for Gem Hill Quarry, Kern County, California* (Lilburn 2022a), provided in Appendix C.1 of this EIR and incorporated by reference herein.

In order to ensure a conservative analysis, this section of the EIR does not consider the net approximately 300,000 tons of CO_2/year reduction that will be achieved by replacing current reliance on fly ash in the production of cement with pozzolan from the project.

The project is a surface mining operation (proposing to mine volcanic tuff) and reclamation plan in rural southeastern Kern County. The project-specific GHG emissions include emissions from area sources and mobile sources (off-road equipment, employee trips, and haul trucks). The analysis quantifies the predicted GHG emissions from project operations and compares the annual emissions to the EKAPCD-recommended threshold of 25,000 metric tons of CO_2e per year, as discussed above.

Thresholds of Significance

The *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. The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant environmental impact from the emissions of GHGs. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact on GHG emissions if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,

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

Kern County has not developed a quantitative threshold of significance for GHG emissions, but for this analysis uses the quantified threshold of 25,000 metric tons of CO_2e per year as recommended by the EKAPCD.

In March 2012, the EKAPCD adopted the Addendum to its CEQA Implementation Document to address GHG impacts, including establishing quantitative thresholds for determining significance of GHG emissions when the 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 criteria:

- Generate 25,000 MTCO2e or more 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 the 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 as set forth in Section VI of the Addendum to the EKAPCD CEQA Implementation Document;

b. Compliance with GHG Offset as detailed in Section VI of the Addendum to the EKAPCD CEQA Implementation Document; and/or

c. Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of the Addendum to the EKAPCD CEQA Implementation Document.

As such, project-generated emissions were compared to the applicable EKAPCD adopted GHG threshold of 25,000 metric tons per year.

Project Impacts

Impact 4.7-1: 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 from on-site operation of the following vehicles/equipment: front-end loader, dozer, excavator, grader, drill rig, haul trucks to transport overburden to stockpiles (the same haul trucks as referenced below which would transport mined material to off-site destinations), water truck, and tractor skid steer, ancillary equipment (maintenance vehicles, small loader, backhoe, light trucks, etc.), and two generators of up to 50 horsepower each to produce power for the water well pump and scale/office trailer. Additionally, operations would involve service vehicles, employee vehicles, and the use of 10 on-road haul trucks for transporting mined material off-site destinations. The proposed project would also generate GHG emissions from operation of the following vehicles, which would generate average daily trips (ADT) as follows: 10 on-road haul trucks (134 ADT), 10 employee vehicles (20 ADT), various service/maintenance/miscellaneous vehicles (generating a total of 3.41 ADT). Not all GHGs exhibit the same ability to induce climate change; therefore, GHG contributions are commonly quantified in CO_2e.

The *Air Quality and Greenhouse Gas Assessment for Gem Hill Quarry, Kern County, California* (Lilburn 2022a) used CARB Carl Moyer Program Guidelines (2017 Revisions) and EMFAC2017 On-Road Heavy Duty Diesel Truck and On-Road Passenger Vehicles emissions factors for on-site and off-site, respectively, to estimate GHG emissions associated with operation of the proposed project. **Table 4.7-3**, *Daily and Annual Project GHG Emissions*, presents anticipated daily (pounds per day) and annual (metric tons per year) emissions of GHGs (carbon dioxide [CO_2] and methane [CH_4]) from project operations. As shown in the table, annual operational GHG emissions are approximately 2,673 $MTCO_2e$ during the first operational year including initial site preparation and a full year of operations, then approximately 2,550 $MTCO_2e$ per year during the remainder of the 30-year life of operations. Remaining reclamation activities (those not undertaken within the 30-year life of operations) are anticipated to occur within a one-year period after the completion of mining, requiring an estimated 80 days of grading and earthmoving similar to mining operations except no off-site material hauling is proposed, resulting in an estimated 320 $MTCO_2e$ associated with reclamation activities. During each scenario, annual GHG emissions would be well below the EKAPCD significance threshold of 25,000 metric tons of MTCO2e per year.

As demonstrated, project activities would not exceed the aforementioned EKAPCD GHG threshold. Therefore, the proposed project would not generate GHG emissions, either directly

or indirectly, that may have a significant impact on global warming/climate change, therefore, the impact is considered less than significant.

Additionally, although not factored into the quantified analysis above to ensure a conservative analysis, the natural pozzolan produced by the proposed project will serve as a carbon reduction operation, an important element to reduce GHG emissions. Pozzolanic materials can be utilized to replace a portion of clinker used in the manufacturing of portland cement as well as a portion of portland cement in ready-mix concrete. Pozzolan is defined as a cementitious material that increases the long-term strength and other material properties of portland cement concrete and its use reduces emissions of carbon dioxide (CO_2) in the production of cement. The utilization of the project as a source of natural pozzolan will reduce the carbon footprint (GHG) in concrete production by approximately 300,000 tons of CO2e per year for the life of the project (Lilburn 2022a).

Table 4.7-3 Daily and Annual Project GHG Emissions

Equipment/Activity	CO_2	CH_4[1]
Pounds per Day		
Loader	*1,910*	*0.09*
Excavator	*350*	*0.02*
Grader	*350*	*0.02*
Dozer	*1,015*	*0.06*
Water Truck	*1,700*	*0.08*
Skip Steer	*160*	*0.01*
Drill Rig	*650*	*0.02*
Generator Sets	*1,469*	*0.14*
Haul Trucks	*10,215*	*0.02*
Employee Trips	*577*	*0.02*
Maintenance Vehicles	*292*	*0.01*
Total Pounds per Day	*18,688*	*0.60*
Metric Tons CO_2e per Day	8.5	0.0003
Site preparation CO_2e (year 1)[2]	123	
Year 1 Metric Tons CO_2e[3]	**2,673**	
Years 2-30 Annual Metric Tons CO2e	**2,550**	
Year 31 (Reclamation) Metric Tons CO2e[4]	**320**	
Significance Threshold	25,000	
Significant?	**No**	

Table 4.7-3 Daily and Annual Project GHG Emissions

Equipment/Activity	CO_2	CH_4[1]

Source: Lilburn 2022a
Notes:
1. CH4 assumes a Global Warming Potential of 28 (IPCC's 2013 Working Group).
2. Site preparation GHG emissions would occur during an approximately 42-day period for access roads, haul roads, and stormwater basin installation.
3. GHG emissions for year 1 assume construction emissions and one full year of maximum operations, conservatively (i.e., likely overestimating) GHG emission potential in year 1.
4. Year 31 estimates reclamation based on anticipated emissions similar to operations for approximately 80 days with no off-site material hauling.

Mitigation Measures

Mitigation is not required

Level of Significance After Mitigation

Impacts would be less than significant.

Impact 4.7-2: The project would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

In accordance with EKAPCD CEQA thresholds for the evaluation of GHG impacts, a project would not have a significant GHG impact if it emits less than 25,000 $MTCO_2e$ per year. As discussed above, *Eastern Kern Air Pollution Control District Policy Addendum to CEQA Guidelines Addressing GHG Emission Impacts For Stationary Source Projects When Serving As Lead CEQA Agency* (EKAPCD 2012) provides EKAPCD recommendations for thresholds of significance when performing CEQA review of projects for which the EKAPCD is the CEQA Lead Agency. Although EKAPCD is not the CEQA lead agency for the proposed project, the County has determined that the EKAPCD GHG CEQA impact significance threshold is appropriate to apply for evaluation of the proposed project. Pursuant to the EKAPCD threshold, a project that emits less than 25,000 $MTCO_2e$ per year would be determined to have a less than significant individual or cumulatively considerable impact on GHG emissions and would not require further CEQA review. EKAPCD believes the MTCO2e per year threshold is appropriate for determining that a project will have no significant or cumulatively considerable impact because:

- 25,000 tpy is the EKAPCD GHG reporting requirement as stated in Section VI.B of EKAPCD Rule 201.3, Federally Enforceable Limits on Potential to Emit, noting that CARB and EPA have determined that a 25,000 metric ton per year threshold is appropriate for GHG reporting because it would encompass facilities whose GHG emissions may be subject to regulation; and
- 25,000 tpy is less than the threshold CARB uses for industrial source applicability as the first phase of the AB 32 Cap-and Trade Program and is therefore slightly more stringent than the Cap-and-Trade Program.

As discussed at Impact 4.7-1, above, GHG emissions associated with the proposed project would be below the 25,000 $MTCO_2e$ per year threshold. Thus, the proposed project would have a less than significant project-specific and cumulative impact associated with GHG emissions.

Applicable GHG-reduction plans include Kern COG's *2022 RTP/SCS*, which was approved by the CARB in July 2022, and the CARB's *2017 Climate Change Scoping Plan*. Consistency with these plans is discussed in greater detail as follows:

2022 Regional Transportation Plan/Sustainable Communities Strategy

The *2022 RTP/SCS* identifies Transit Priority Centers to be developed for urbanized uses around which future transit, vanpooling services, and other smart growth and transportation practices could be implemented to accommodate future population and economic growth. The intent of these measures is to reduce future GHG emissions associated with mobile sources. The proposed project is consistent with the projected land use development patterns and transit priority employment place types identified in the *2022 RTP/SCS*.

Climate Change Scoping Plan

The *2017 Climate Change Scoping Plan* describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 40% below 1990 levels by 2030. The Scoping Plan was first approved by the CARB in 2008 and is updated every 5 years. The *First Update to the Climate Change Scoping Plan* was approved by the CARB on May 22, 2014. In December 2017, CARB adopted the *2017 Climate Change Scoping Plan*. (As of July 2022, during preparation of this EIR, CARB has prepared a draft 2022 Scoping Plan update, but has not yet adopted the Scoping Plan update.)

The 2017 *Climate Change Scoping Plan* identifies strategies to reduce California's GHG emissions in support of AB 32. Many of the strategies identified in the scoping plan are more programmatic and are not applicable to individual development projects. These strategies are grouped into 14 categories, as follows in **Table 4.7-4,** *2017 Climate Change Scoping Plan: Climate Change Policies and Measures*.

Table 4.7-4 2017 Climate Change Scoping Plan: Climate Change Policies and Measures

Policy	Recommended Action
Implement SB 350 by 2030	• Increase the Renewables Portfolio Standard to 50% of retail sales by 2030 and ensure grid reliability. • Establish annual targets for Statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of Statewide energy efficiency savings in electricity and natural gas end uses by 2030. • Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in Integrated Resource Plans (IRPs) to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly owned utilities meet GHG emissions reductions planning targets through a combination of measures as described in IRPs.

Table 4.7-4 2017 Climate Change Scoping Plan: Climate Change Policies and Measures

Policy	Recommended Action
	• At least 1.5 million ZEVs and plug-in hybrid light-duty electric vehicles by 2025. • At least 4.2 million ZEVs and plug-in hybrid light-duty electric vehicles by 2030. • Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Cars regulations. • Medium- and heavy-duty GHG Phase 2. • Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20% of new urban buses purchased beginning in 2018 will be zero-emission buses with the penetration of zero-emission technology ramped up to 100% of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NOx standard. • Last Mile Delivery: New regulation that would result in the use of low NOx or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for Class 3–7 last-mile delivery trucks in California. This measure assumes ZEVs comprise 2.5% of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10% in 2025 and remaining flat through 2030. • Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming Statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."
SB 375 Sustainable Communities Strategy	• Increase stringency of SB 375 Sustainable Communities Strategy (2035 targets).
Transportation facility design	• By 2019, adjust performance measures used to select and design transportation facilities. • Harmonize project performance with emissions reductions and increase competitiveness of transit and active transportation modes (e.g., via guideline documents, funding programs, project selection, etc.).
Transportation Pricing Policies	• By 2019, develop pricing policies to support low-GHG transportation (e.g., low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts).
California Sustainable Freight Action Plan	• Implement California Sustainable Freight Action Plan: – Improve freight system efficiency. – Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
Low Carbon Fuel Standard	Adopt a Low Carbon Fuel Standard with a CI reduction of 18%.
Short-Lived Climate Pollution Strategy	• Implement the Short-Lived Climate Pollutant Strategy by 2030: – 40% reduction in methane and hydrofluorocarbon emissions below 2013 levels.

Table 4.7-4 2017 Climate Change Scoping Plan: Climate Change Policies and Measures

Policy	Recommended Action
	– 50% reduction in black carbon emissions below 2013 levels.
Organic Waste Landfill Reduction	• By 2019, develop regulations and programs to support organic waste landfill reduction goals in the short-lived climate pollutants (SLCPs) and SB 1383.
Cap-and-Trade Program	• Implement the post-2020 Cap-and-Trade Program with declining annual caps.
Integrated Natural and Working Lands Implementation Plan	• By 2018, develop Integrated Natural and Working Lands Implementation Plan to secure California's land base as a net carbon sink: – Protect land from conversion through conservation easements and other incentives. – Increase the long-term resilience of carbon storage in the land base and enhance sequestration capacity – Utilize wood and agricultural products to increase the amount of carbon stored in the natural and built environments – Establish scenario projections to serve as the foundation for the Implementation Plan
Carbon Accounting Framework (SB 859)	• Establish a carbon accounting framework for natural and working lands as described in SB 859 by 2018.
Forest Carbon Plan	• Implement Forest Carbon Plan.
Funding and Financing Mechanisms	• Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.

The proposed project would not conflict with any of the provisions of the *Climate Change Scoping Plan*, summarized in **Table 4.7-4,** *2017 Climate Change Scoping Plan: Climate Change Policies and Measures*, above. As discussed previously, the project-specific GHG emissions include emissions from area sources and mobile sources (e.g., off-road equipment, employee trips, and haul trucks). The proposed project would comply with Kern County requirements for the recycling of solid waste.

As the proposed project would not conflict with either the *2022 RTP/SCS* or the *2017 Climate Change Scoping Plan*, there would be a less-than-significant impact related to a conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Additionally, as specified in the Project Objectives in **Section 3.5** of this EIR, the proposed project is intended to provide a source of natural pozzolan as a replacement for cement clinker and fly ash, reducing the project proponent's GHG emissions associated with cement production by up to 20% and contributing to statewide GHG emission reduction initiatives.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

As discussed previously, impacts associated with GHG emissions are cumulative in nature, rather than project-specific. Refer to **Section 4.7.1**, *Introduction*, for a discussion of the cumulative setting for GHG emissions.

Under AB 32, CARB, which is the agency in charge of regulating sources of emissions of GHGs in California, has been tasked with adopting regulations for the reduction of GHG emissions. The effects of this project are evaluated based not upon the quantity of emissions, but rather on whether the project is consistent with reduction strategies identified in AB 32, EOs S-3-05 and B-30-15, or other strategies to help toward reducing GHGs to the proposed levels. If so, it could reasonably follow that the project would not result in a significant contribution to the cumulative impact of global climate change.

The geographic scope for cumulative impacts for GHGs includes other projects planned within a 6-mile radius of the project site. This is discussed further in **Section 3.7**, *Cumulative Effects Overview*. While projects in the region and the larger area affect the volume of GHG in the atmosphere, by focusing on plans scheduled to be implemented within the project site and in the vicinity of the project site, the analysis of cumulative impacts can be given a regional context.

Impact 4.7-3: The project would contribute to cumulative greenhouse gas emissions impacts.

The Kern County 2005 base year GHG emissions inventory was estimated to be 27 $MMTCO_2e$ per year, of which the Fossil Fuel Industry sector represents 40%, followed by the Electricity Consumption sector at 22% (see **Table 4.7-2,** *2005 Kern County Baseline Greenhouse Gas Emissions*). The 2020 forecasted GHG emissions inventory was estimated to be 27 $MMTCO_2e$ per year, of which the Electricity Consumption sector represents 31% followed by the Fossil Fuel Industry sector at 26% (SJVAPCD 2012).

As discussed under Impact 4.7-1, GHG emissions generated for the proposed project's maximum year (Year 1) would be 2,673 $MTCO_2e$ per year, and the project's annual average emissions (Years 2 – 30) would be 2,550 $MTCO_2e$ per year. Plans considered in this analysis include the Kern COG RTP/SCS (see **Section 4.7.3**, *Regulatory Setting*, for description), which provides regional-scale measures to regulate, monitor, and control GHG emissions in Kern County. The RTP/SCS is based on an analysis that considers the entire County, and includes all projects involving changes in regional growth and land use in the County, as well as the Countywide vehicle traffic projections. Cumulative GHG emissions analyzed in the RTP/SCS were compared to regional GHG thresholds and analyzed under Statewide plans and regulations. This analysis concluded that the projected increase in GHG emissions from existing conditions to 2040 would primarily be due to changes in regional growth/land use; however, the RTP/SCS achieves GHG emissions reduction targets from mobile sources from

2005 levels by implementing a mix of land use strategies, transportation management, economic factors, and road projects.

As discussed previously, impacts associated with GHG emissions are cumulative in nature, rather than project-specific. These impacts are addressed above under Impacts 4.7-1 and 4.7-2. As discussed under Impact 4.7-1, the project GHG emissions would be below the EKAPCD 25,000 tpy threshold and would be less than significant. As discuss under Impact 4.7-2, the project would be consistent with the adopted RTP/SCS and *Climate Change Scoping Plan* and other applicable adopted standards and regulations. Thus, the project would not have a significant project-specific or cumulative impact associated with GHG emissions. Additionally, as specified in the Project Objectives in **Section 3.5 of** this EIR, the proposed project is intended to provide a source of natural pozzolan as a replacement for cement clinker and fly ash, reducing the project proponent's GHG emissions associated with cement production by up to 20% and contributing to statewide GHG emission reduction initiatives.

Mitigation Measures

Mitigation is not required.

Level of Significance After Mitigation

Impacts would be less than significant.

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Section 4.8
Hazards and Hazardous Materials

4.8.1 Introduction

This section of the Environmental Impact Report (EIR) describes the potential hazards (other than geologic hazards) associated with the project site, infrastructure, activities, and materials that could affect human health and the environment. Analysis in this section is based on information from the U.S. Department of Health and Human Services, California Department of Public Health, Kern County Planning and Natural Resources Department, the *Kern County Multi-Hazard Mitigation Plan* (Kern County 2020), and *Phase I Environmental Site Assessment 6459 Mojave-Tropico Rd* (Brown and Caldwell 2021) (Phase I ESA), included as Appendix H to this EIR. Air pollutant emissions and associated health effects, including public exposure to Valley Fever spores are discussed in **Section 4.2**, *Air Quality*; impacts associated with geologic and seismic hazards are evaluated in **Section 4.6**, *Geology and Soils*; and impacts associated with flood hazards are discussed in **Section 4.9**, *Hydrology and Water Quality*, of this EIR.

4.8.2 Environmental Setting

The project area is in the southeastern portion of unincorporated Kern County, situated in the Rosamond Hills on the west side of Mojave-Tropico Road approximately four miles northwest of the unincorporated community of Rosamond (**Figure 3-1**, *Site Vicinity*). The project site is accessible from Mojave-Tropico Road via an existing primary access road with a length of 845 feet.

The site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation with more level areas at slope bottoms supporting moderately denser vegetation cover. Creosote bush scrub represents the predominant vegetation cover throughout the site. No known groundwater, gas, oil, or other wells are present on the site.

Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Residences nearest to the site are to the northeast, with the nearest approximately 858 feet from the northeast corner of the project boundary, and approximately 1,800 feet from proposed mineral resource recovery activities. Additional residences are located 1 mile and further to the south, southeast, and southwest, and in the unincorporated community of

Rosamond about 4 miles southeast of the site. A solar photovoltaic power generating facility is located about 1 mile southwest of the project site.

Regional Public Health and Hazardous Materials and Waste Sites

A database search of Federal, State, and local databases for the project area was performed to identify areas of current and historical release of hazardous materials, as well as locations that use, store, and/or dispose of these materials. The following sources were reviewed for public health and hazardous materials sites in the vicinity of the project site (Brown and Caldwell 2021):

- Federal National Priority List (NPL) Site;
- Delisted NPL Site List;
- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List;
- Federal CERCLIS No Further Remedial Actions Planned (NFRAP) Site List;
- Federal RCRA CORRACTS Facility List;
- Federal RCRA non-CORRACTS TSDF List;
- Federal RCRA Generator List;
- Federal institutional control registries;
- Federal engineering control registries;
- Federal ERNS List;
- State and tribal lists of hazardous waste sited identified for Investigation or remediation:
    - State- and Tribal-equivalent NPL,
    - State- and Tribal-equivalent CERCLIS,
    - State and Tribal Landfill and/or Solid Waste Disposal Sites List, and
    - State and Tribal Registered storage tank Lists;
- State Reported Leaking Storage Tank Lists;
- State and Tribal Engineering Control Registries;
- State and Tribal Institutional Control Registries;
- State and Tribal Voluntary Cleanup Sites;
- State and Tribal Brownfield Sites.

No National Priority List sites, Corrective Action Report sites, or State Hazardous Waste sites were identified on the project site or within a 0.5-mile radius of the project site; no Comprehensive Environmental Response, Compensation and Liability Information System sites, Resource Conservation and Recovery Information System Treatment, Storage, and

Disposal Facility sites or Solid Waste Facility/Landfill sites were identified on the project site or within a 1-mile radius of the project site; and no Resource Conservation and Recovery Information System Large Quantity Generator sites or Underground Storage Tank (UST) sites were identified within a 1-mile radius of the project site. The Phase I ESA identified no evidence of RECs in connection with the site, no evidence of CRECs in connection with the site, no evidence of HRECs in connection with the site, no de minimis conditions connection with the site, and no environmental concerns in connection with the Site (Brown and Caldwell 2021).

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 California Code of Regulations (CCR) Title 22, 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 Chapter 11 and Article 3). A hazardous material is defined in 22 CCR Section 66260.10 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.

Hazardous materials in various forms 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.

Available aerial imagery dating back to 1956 was reviewed and does not indicate evidence of environmental concerns, RECs, or HRECs at the project site. During preparation of the Phase I Site Assessment, the property owner, was interviewed January 18, 2021, and indicated at the time of the interview that the site:

- is vacant land and first developed following a grading plan approval in 2019,
- has been vacant, unused land in the past,
- has no utilities present, and
- has an approved grading plan.

The Cortese List of hazardous materials sites, compiled pursuant to California Government Code (CGC) Section 65962.5, does not identify any hazardous materials sites needing cleanup within the project site or immediate vicinity (DTSC 2022). According to the EDR Report, no underground storage tanks have been located on the project site or on surrounding properties. No other areas of environmental concern were identified by the EDR Report on the project site or surrounding properties (Brown and Caldwell 2021).

Disease Vectors

A disease vector is an insect or animal that carries a disease-producing micro-organism from one host to another. The Federal Insecticide, Fungicide and Rodenticide Act defines the term vector as "…any organism capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including mosquitoes, flies, fleas, cockroaches, or other insects and ticks, mites or rats." The accumulation of organic wastes would act as attractors for various vectors. In addition, any depressed areas, ponds, or drainage channels would provide areas for the breeding of mosquitoes.

Mosquitoes

Mosquitoes are of particular concern because of their abundance and distribution. In Kern County, mosquitoes are most abundant and active between May and October. Mosquitoes require standing water to breed and can be prolific in areas with standing water, such as wetlands.

Adult female mosquitoes can deposit eggs in a variety of aquatic habitats and other sources that contain water. The immature stages of each mosquito species develop in particular habitats. In general, there are four mosquito habitat groups: agricultural, industrial, domestic, and natural sources. Typical sites within these habitat groups include:

- **Agricultural Sources:** irrigated pastures, dairies, and orchards.
- **Industrial Sources:** sewage treatment ponds, flood plains, and drain ditches.
- **Domestic Sources:** containers, debris in and around ponds, bird baths, pet watering dishes, animal troughs, septic tanks, catch basins, roadside ditches, leaky sprinkler systems, and stagnant swimming pools.
- **Natural Sources:** wetlands and rain pools.

All species of mosquitoes require standing water to complete their growth cycle. Therefore, any standing body of water represents a potential mosquito breeding habitat. Although mosquitoes will typically stay close to suitable breeding habitat and blood-meal hosts, they are known to travel up to 10 miles under breezy conditions. The breeding period for mosquitoes depends on temperature but generally occurs in March through October.

Water quality also affects mosquito reproduction. Generally, poor-quality water (e.g., water with limited circulation, high temperature, high organic content) produces greater numbers of mosquitoes than high-quality water (e.g., water with high circulation, low temperature, low organic content). Typically, water bodies with water levels that slowly increase or recede produce greater numbers of mosquitoes than waterbodies with water levels that are stable or that rapidly fluctuate.

The project site is not located within a mosquito or vector control district.

Rodents

The accumulation of organic waste presents the potential for significant populations of mice and rats. Rodents can spread or accelerate the spread of disease from contaminated areas to

uncontaminated areas via their droppings, feet, fur, urine, saliva, or blood. In addition, mice provide a food source that could attract wild predatory animals (e.g., skunks, foxes, coyotes, stray dogs), which could pose other disease problems. The site and surrounding areas do not contain land uses that accumulate organic waste.

Valley Fever

Coccidioidomycosis, commonly known as Valley Fever, is primarily a disease of the lungs that is common in the southwestern United States and northwestern Mexico. The disease is of critical concern to Kern County. Valley Fever is caused by the fungus *Coccidioides immitis*, which grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. These fungal spores become airborne when the soil is disturbed by winds, construction, farming, and other activities. In susceptible people and animals, infection occurs when a spore is inhaled. Valley Fever symptoms generally occur within 3 weeks of exposure. Valley Fever is not a contagious disease, and secondary infections are rare.

It is estimated that more than 4 million people live in areas where Valley Fever fungus is prevalent in the soils. Residents of Bakersfield, California, and Phoenix, Arizona, have shown positive skin-test reaction rates of 30–40%, meaning that about one-third of residents tested have had Valley Fever sometime in the past. Among those who have never had Valley Fever, the chance of infection is about 3% per year, but the longer one resides in an endemic area, the greater the risk. In the southwestern United States, there are 100,000 new infections each year.

People working in certain occupations such as construction, agriculture, and archaeology have an increased risk of exposure and disease because these jobs result in the disturbance of soils where fungal spores are found. Valley Fever infection is highest in California from June to November. In addition, many domestic and native animals are susceptible to the disease, including dogs, horses, cattle, coyotes, rodents, bats, and snakes. Most Valley Fever cases are very mild. It is estimated that 60% or more of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention.

Wildfire

The behavior and characteristics of wildfires depend on several biophysical and anthropogenic (human-caused) factors. The biophysical variables are fuels (including composition, cover, and moisture content), weather conditions (particularly wind velocity and humidity), topography (slope and aspect), and ignitions (e.g., lightning). The anthropogenic variables are ignitions (e.g., arson, smoking, power lines) and management (wildfire prevention and suppression efforts).

Vegetation with low-moisture content is more susceptible to ignitions and burns more readily than vegetation with higher moisture content. Grasses tend to ignite more easily, burn faster, and burn for a shorter duration than woody vegetation, such as shrubs and trees. Continuity of fuels helps sustain wildland fires. High winds provide oxygen to wildfires and can also blow glowing embers of vegetation far ahead of the front of a fire, allowing fires to jump fuel breaks in some cases. Conditions of low relative humidity dry out fuels, increasing the likelihood of ignition and rate of fire spreading.

The steeper slopes of the project site are barren or support minimal vegetation with more level areas at slope bottoms supporting moderately denser vegetation cover. Creosote bush scrub represents the predominant vegetation cover throughout the site . Therefore, the fuel load at the project site is considerably less than it would be in heavily forested areas or areas with dense brush that would be expected to pose a significant fire hazard. Based on existing conditions, the primary fire risk at the project site would be a brushfire ignited from a natural or human source. The most likely period for a brushfire would be during the drier months of the year, typically from late March through late October. The project site is comprised of land that ranges from gently sloping to steeply sloping hillsides and the majority of the project site (i.e., those areas not adjacent to the proposed access roads) would be accessible only by off-road fire fighting vehicles and equipment.

The Kern County Wildland Fire Management Plan documents the assessment of the wildland fire risk throughout the Local Responsibility Area (LRA) within the County. The project site is located within a Local Responsibility Area with a LRA Fire Hazard Severity Zone designation of "Moderate" (CAL FIRE 2007). Fire protection and prevention services are further discussed in **Section 4.13**, *Public Services*, of this EIR.

4.8.3 Regulatory Setting

Federal

U.S. Environmental Protection Agency

The USEPA 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 USEPA'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 issuing 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/Resource Conservation and Recovery

The Federal Toxic Substances Control Act of 1976 and Resource Conservation and Recovery Act (RCRA) of 1976 established a USEPA-administered program to regulate the generation, transport, treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The State Hazardous Waste Management Program, a more stringent version of the Federal RCRA program, is described in detail below.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (United States Code [USC] Title 42, Chapter 103) provides broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The 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. The CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Code of Federal Regulation [CFR] Title 40, 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 (NPL). The CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Clean Water Act Spill, Prevention, Control, and Countermeasure Rule

The 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 waters of the United States. As part of the CWA, the USEPA 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 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 the "Navigable Waters" of the United States.

Other Regulations

Other federal regulations overseen by the USEPA relevant to hazardous materials and environmental contamination include 40 CFR Parts 100 to 149, Water Programs; 40 CFR Parts 239–259, Solid Wastes; and 40 CFR Parts 260–279, Hazardous Waste. These regulations designate hazardous substances under the Federal Water Pollution Control Act, 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 mission of the Occupational Safety and Health Administration (OSHA) is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. 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 Part 1910, which include preparation of Health and

Safety Plans (HASPs). HASPs identify potential hazards associated with a proposed land use and may provide appropriate mitigation measures as required.

Per 29 CFR Section 1910.120(e), all employees working on-site exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site are required 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. These employees shall receive any necessary review training.

Mine Safety and Health Administration

The Mine Safety and Health Administration (MSHA) is an agency of the U.S. Department of Labor that administers the Federal Mine Safety and Health Act of 1977 to enforce compliance with mandatory safety and health standards as a means to promote improved safety and health conditions at mining and mineral processing operations in the United States.

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 is location in the Los Angeles/Oxnard NWS region. Red Flag Warning criteria for the Los Angeles/Oxnard region consists of, for all zones except the Antelope Valley, dry fuels plus any one of the following: (1) relative humidity 15% or less with either sustained winds of 25 miles per hour (mph) or greater, or frequent gusts of 35 mph or greater (for a duration of 6 hours or more); (2) relative humidity 10% or less for an extended period of time (for a duration of 10 hours or more); or (3) widespread and/or significant dry lightning. For the Antelope Valley, criteria consist of dry fuels plus relative humidity 15% or less with sustained winds of 25 mph (for a duration of 8 hours or more).

State

California Department of Conservation Geologic Energy Management Division

CalGEM is a State agency that is responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. CalGEM's regulatory program promotes the sensitive development of oil, natural gas, and geothermal resources in California through sound engineering practices, pollution prevention, and the implementation of public safety programs. CalGEM requires any construction above or near plugged or abandoned oil and gas wells to be avoided, and remediation of wells to meet current CalGEM standards, including wells discovered during excavation or grading.

PRC Section 3208.1 authorizes the State Oil and Gas Supervisor of CalGEM to order the re-abandonment of a previously abandoned well when construction of any structure over or near a well could result in a hazard. The cost of re-abandonment operations is the responsibility of the owner or developer of a project upon which the structure would be located.

California Environmental Protection Agency

The CalEPA has primary oversight of the State's hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human and environmental health. Applicable State and local laws include the:

- Public Safety/Fire Regulations/Building Codes;
- Hazardous Waste Control Law;
- Hazardous Substances Information and Training Act;
- Air Toxics Hot Spots and Emissions Inventory Law;
- Underground Storage of Hazardous Substances Act; and
- Porter-Cologne Water Quality Control Act.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act of 1985, 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.

Hazardous Waste Control Act

The Hazardous Waste Control Act (HWCA) 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 CCR Title 26, 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 HWCA and CCR 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 DTSC.

Department of Toxic Substances Control

Within CalEPA, the DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the State agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the HWCA.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Senate Bill (SB) 1082, introduced by Senator Charles Calderon (D-Whittier) and passed in 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:

- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a., Tiered Permitting);
- Aboveground Petroleum Storage Tank Spill Prevention Control and Countermeasure Plan;
- Hazardous Materials Release Response Plans and Inventory Program (also known as Hazardous Materials Disclosure or "Community-Right-To-Know");
- California Accidental Release Prevention Program;
- Underground Storage Tank Program; and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses 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 Office of the State Fire Marshal participates in all levels of the CUPA program, including regulatory oversight, CUPA certifications, evaluations of the approved CUPAs, training, and education.

California Office of Emergency Services

To protect the public health and safety and the environment, the California Office of Emergency Services (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. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies, and needs to be included in business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and 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 25500–25520), and Article 2, Hazardous Materials Management (Sections 25531–25543.3).

Minimum Statewide standards for Hazardous Materials Business Plans (HMBPs) are established in 19 CCR, Public Safety, Division 2, OES, Chapter 4, Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans). These plans shall include the following:

1. a hazardous material inventory in accordance with Sections 2729.2–2729.7;
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 shall prepare a HMBP 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

California Occupational Safety and Health Administration (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 Sections 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 California Highway Patrol (CHP), is required by the laws and regulations 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.

California Emergency Response Plan

California has developed an Emergency Response Plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is managed by the OES, which coordinates the responses of other agencies including the CalEPA, CHP, California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), Kern County Sheriff's Department, and Kern County Fire Department (KCFD).

Local

Kern County General Plan

The project site is located within the *Kern County General Plan*. The policies, goals, and implementation measures in the *Kern County General Plan* relevant to hazards and hazardous materials that are applicable to the project are provided below.

Chapter 4. Safety Element

4.1 Introduction

Goals

- **Goal 1.** Minimize injuries and loss of life and reduce property damage.
- **Goal 2.** Reduce economic and social disruption resulting from earthquakes, fire, flooding, and other geologic hazards by assuring the continuity of vital emergency public services and functions.
- **Goal 4.** Create an awareness of the residents in Kern County through the dissemination of information about geologic, fire, and flood safety hazards.
- **Goal 5.** Ensure the availability and effective response of emergency services following a catastrophic event.
- **Goal 7.** Ensure that adequate emergency services and facilities are available to the residents of Kern County through the coordination of planning and development of emergency facilities and services.

4.2 General Policies and Implementation Measure, Which Apply to More than One Safety Constraint

Policies

- **Policy 1**. That the County's program of identification, mapping, and evaluating the geologic, fire, flood safety hazard areas, and significant concentrations of hydrogen sulfide in oilfield areas, presently under way by various County departments, be continued.
- **Policy 2**. Those hazardous areas, identified as unsuitable for human occupancy, are guided toward open space uses, such as agriculture, wildlife habitat, and limited recreation.
- **Policy 3**. That the County government encourage public support of local, State, and Federal research programs on geologic, fire, flood hazards, valley fever, plague, and other studies so that acceptable risk may be continually reevaluated and kept current with contemporary values.

Implementation Measures

- **Implementation 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.

- **Implementation Measure C**. Require detailed site studies for ground shaking characteristics, liquefaction potential, dam failure inundation, flooding potential, and fault rupture potential as background to the design process for critical facilities under County discretionary approval.

4.6 Wildland and Urban Fire

Hazard Identification

- **Access and Evacuation Routes.** Good planning principles, as well as existing policies and laws, dictate that all developments must be planned with circulation routes that will assure safe access for fire and other emergency equipment. The circulation routes must include secondary means of ingress and egress, consistent with topography, to meet emergency needs.

  The general circulation routes are provided throughout the County by Federal, State, and County-maintained road systems which are adequate for access and evacuation. State and County laws regulate the standards for new public circulation routes.

  Private circulation routes that are not maintained by the State or County are subject to the standards set forth in Kern County Ordinance No. G-1832.

- **Clearance of Vegetative Cover for Fire Control**. In 1963 the State of California enacted the Public Resources Code clearance law. This is a minimum Statewide clearance law of flammable vegetative growth around structures, especially in brush- and tree-covered watershed areas. The enactment of a local ordinance is necessary where more restrictive fire safety clearance measures are desirable to meet local conditions.

- **Fuel Breaks and Firebreaks**. Fuel breaks and/or firebreaks separating communities or clusters of structures from the native vegetation may be required. Such fuel breaks may be "greenbelts," as all vegetation need not be removed but thinned or landscaped to reduce the volume of fuel.

  All fuel and firebreaks are required to meet the minimum design standards of the Kern County Fire Chief.

  The Fire Department's Chief may require a fire plan for a development during the critical fire season. This plan should reflect the proposed course of action for fire prevention and suppression.

  The parcel size and setback distances of buildings placed thereon should be such that adequate clearance of flammable vegetation cover may be performed within the limits of the owner's parcel of land.

  Should the owner of a property fail to apply the required firebreak clearance, following proper notice, the County may elect to clear the firebreak vegetation and make the expense of the clearing a lien against the property upon which the work was accomplished.

- **Hazardous Fire Area.** The Hazardous Fire Areas consists mainly of wildlands, which are mountain and hill land in an uncultivated, more or less natural state, covered with timber, wood, brush, and grasslands. This area includes some urban influence and

agricultural use, such as exists around Isabella Lake and the Kern River, Woody/Glennville, Tehachapi/Cummings Valley, and Lebec/Frazier Park/Lake of the Woods.

The wildlands provide prime habitats for deer, mountain lions, bears, kit foxes, quail, chucker, wild turkeys, and condors. They also harbor fifteen identified and important rare botanic communities and vegetation associations.

The Kern County Hazardous Fire Area was established by an amendment to the Uniform Fire Code, Section 1.49H under Section 4016 of the Kern County Ordinance Code.

The boundaries of the Hazardous Fire Area are determined and publicly announced before the start of each annual "fire season" and is normally the period from April 15 to December 1 of each year, except when the Fire Chief extends this period.

The wildlands include valuable watersheds that must be preserved for receiving and passing water into surface streams and underground storage. Protection of the watersheds will prevent erosion and flood damages.

For the protection of our wildlands we must consider all factors which will aid in fulfilling the policy stated in the California Environmental Quality Act, Public Resources Code Section 21000 et seq., to "create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations."

In implementing their Fire Prevention Program, Fire Department personnel periodically inspect the areas around all buildings for accumulations of flammable material and closure of openings of vacant buildings.

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 work place.
- **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.

Implementation Measures

- **Implementation 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 Wildland Fire Management Plan

The *Kern County Wildland Fire Management Plan* documents the assessment of wildland fire situations throughout the State Responsibility Areas (SRAs) within Kern County. The *Kern County 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 Multi-Hazard Mitigation Plan

The purpose of hazard mitigation and *Kern County Multi-Hazard Mitigation Plan* is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in Kern County. This plan has been prepared to meet the requirements of the Disaster Mitigation Act of 2000. The plan and planning process lay out the strategy that will enable Kern County to become less vulnerable to future disaster losses. The plan underwent a comprehensive update in 2011–2012 and was subsequently updated in 2020 (Kern County 2020).

Kern County and Incorporated Cities Hazardous Waste Management Plan

In response to the growing public concern regarding hazardous waste management, Assembly Bill (AB) 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 (Kern County 1991). The Hazardous Waste Plan was updated and incorporated by reference into the *Kern County General Plan* in 2004 as permitted by California 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 Federal, State, County, and City 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 small quantity hazardous waste 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. The siting criteria and any subsequent environmental documentation required pursuant to the California Environmental Quality Act (CEQA) would also ensure the mitigation of adverse impacts associated with the siting of any new hazardous waste facility.

Kern County Ordinance

Ordinance No. G-1832

Kern County Ordinance No. G-1832 dictates ingress and egress standards that allow access for fire apparatus. These design standards are enforced within the Hazardous Fire Area during the fire season.

Fuel breaks and/or fire breaks separating communities or clusters of structures from the native vegetation may be required. Such fuel breaks may be "greenbelts," as all vegetation need not be removed but rather thinned or landscaped to reduce the volume of fuel. All fuel and firebreaks shall meet the minimum design standards of the fire chief including the Maintenance of Defensible Space requirements of the Wildland-Urban Interface (WUI) Code, as follows:

- A firebreak shall consist of a strip, a minimum of 10 feet wide, cleared to mineral soil on each side of a road, or a width determined by the fire chief to be adequate for the general terrain and type of groundcover.
- Firebreaks are not to be used as roads, parking areas, or storage areas.
- All easements for fuel breaks for fire safety of built-up areas shall encompass access for firefighting personnel and equipment, which may mean motorized travel in some cases; such easements shall be dedicated for this specific purpose to an entity composed of the property owners. The property owners shall be charged with the maintenance of such easements.

4.8.4 Impacts and Mitigation Measures

This section analyzes the impacts associated with implementation of the project related to the risk of upset due to potential hazardous substances, including hazardous materials and/or hazardous waste within the project site and the vicinity, as well as other hazards to public safety. The impact analysis describes the methods used to determine the project's impacts and lists the thresholds used to conclude the significance of an impact. Measures to mitigate (avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, as appropriate.

Methodology

This assessment is based on an evaluation of on-site and adjacent land conditions, including consideration of information in the *Phase I Environmental Site Assessment 6459 Mojave-Tropico Rd* (Brown and Caldwell 2021), included as Appendix H to this EIR, and the likelihood

or ability of these conditions to affect components of the proposed project. This assessment included:

- A visual survey;
- A visual reconnaissance of the immediately adjacent sites;
- Property owner interview;
- Review of readily available literature and historic documentation for the project site;
- Review of regulatory agency databases; and
- A search for environmental cleanup liens.

The project site is not on the list of projects related to hazardous wastes pursuant to Government Code Section 65962.5 of the California Government Code (Cortese List).

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to hazards and hazardous materials. The Kern County Environmental Checklist states that a project would normally be considered to 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 1/4 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; and

h. Generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, if it would 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) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding the following impacts:

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area; and
- Impair implementation of or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

Project Impacts

Impact 4.8-1: The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

The project would include the transport and use of flammable and other hazardous materials, such as diesel fuels and blasting agents. The transportation of hazardous materials is heavily regulated by both Federal and State agencies (see **Section 4.8.3**, *Regulatory Setting*). Enforcement of hazardous materials transport regulations is primarily the responsibility of the CHP when transport occurs on the State highway system; however, this analysis reasonably assumes that such materials would be transported in accordance with applicable regulations. Before any such materials are transported, the carrier must obtain a Hazardous Materials Transportation License (either temporary or otherwise) from the CHP. As part of that licensing process, the carrier's equipment and methods would be inspected by the CHP, and the carrier

would be informed of the proper routes to and from the project site. In addition to the CHP license, transportation of hazardous materials would be required to follow all applicable Federal and State laws regarding such transport. All hazardous materials at the project would be handled and stored in compliance with the requirements set forth in applicable codes and regulations. The project proponent would store all fuels, oils, solvents, and any other hazardous materials in the manner specified by the manufacturer and in accordance with all applicable Federal, State, and local regulations.

Blasting would be utilized to loosen material allowing for excavation. Blasting operations would involve drilling along the mining face, placement, and detonation of charges by a blaster licensed through the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) for handling explosive materials. The transporting, handling, storage, and use of explosive materials, blasting agents, and blasting equipment would be supervised by a qualified and licensed blasting contractor. The blasting contractor and the explosive delivery company would be properly trained and licensed in accordance with all Federal, State, and local regulations and would provide evidence of compliance with the California blasting license program, U.S. Department of Transportation hazardous materials (HAZMAT) Certificate of Registration, California HAZMAT Transportation License, and general liability insurance for explosives transportation. All blasting materials would be brought on-site by a licensed blasting contractor for each blast, and there would be no storage of blasting agents at the project site. Blasting is planned approximately once per week. Typical blasting activities would take place between the hours of 10:00 a.m. and 4:00 p.m. on weekdays (Monday through Friday); however, hours may shift due to safety driven operational constraints.

Mitigation Measure MM 4.8-1 requires that an Emergency Response Plan be prepared for the project. With implementation of Mitigation Measures MM 4.8-1, MM 4.8-2, and MM 4.8-3, the project's potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials is considered less than significant.

Mitigation Measures

MM 4.8-1 Prior to commencement of operations as authorized by this approval, the project proponent/operator shall prepare and submit an Emergency Response Plan to the appropriate regulatory agency.

MM 4.8-2 During the life of the project, the project proponent/operator shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/. The HMBP shall:

A. Delineate hazardous material and hazardous waste storage areas

B. Describe proper handling, storage, transport, and disposal techniques

C. Describe methods to be used to avoid spills and minimize impacts in the event of a spill

D. Describe procedures for handling and disposing of unanticipated hazardous materials encountered

E. Establish public and agency notification procedures for spills and other emergencies including fires

F. Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site.

The project proponent/operator shall ensure that all personnel working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times.

MM 4.8-3 All transport, handling, storage, and use of explosive materials, blasting agents, and blasting equipment shall be directed and supervised by a qualified blasting personnel. Use of blasting agents shall be performed by a blaster licensed through the Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATF&E) for handling explosive materials. The blasting personnel and the explosives delivery company shall be properly trained and licensed in accordance with all Federal, State, and local agencies and regulations. All vehicles and explosive transport magazines shall conform to all federal, state, and local regulations associated with the transportation and handling of explosives.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.8-1 through MM 4.8-3, impacts would be less than significant.

Impact 4.8-2: 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.

As described under Impact 4.8-1, operation of the project would require the use, storage, and handling of hazardous materials during the life of the project. Fire, accidental explosions of materials such as gasoline, and spills are some of the potential loss incidents associated with project implementation. In addition, the potential disruption of recorded or potentially unrecorded abandoned or active oil wells on the project site could result in the release of liquid hydrocarbon either at the ground surface or below ground and would be considered a significant impact.

Per comments received from the CalGEM, in response to the NOP/IS, there are no known oil or gas wells located within the project boundary. The comments also state that if, during development activities, any wells are encountered, the property owner is expected to immediately notify CalGEM's construction site well review engineer in the Inland district office, and file for CalGEM review of an amended site plan with well casing diagrams.

The project would be required to comply with all Federal, State, and local regulations regarding the storage and use of any hazardous materials on-site, including OSHA, MSHA, and

Cal/OSHA standards. With implementation of Mitigation Measures MM 4.8-1 through 4.8-3 discussed above, the project's potential to 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 is considered low. Mitigation Measures MM 4.8-4 through MM 4.8-5 would further reduce the potential for impacts associated with hazardous materials by requiring reporting, identifying, plugging, and avoiding any discovered wells in accordance with applicable CalGEM requirements (MM 4.8-4) and by requiring the placement of signage warning of mining and reclamation activities (MM 4.8-5). As a result of regulatory compliance and implementation of mitigation measures, this impact is considered less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.8-1 through MM 4.8-3 and the following additional mitigation measures.

MM 4.8-4 The project proponent/operator shall continuously comply with the following:

A. In the event any abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, all work shall cease in the vicinity of the well, and the California Department of Conservation Division of Geologic Energy Management Division (CalGEM) shall be contacted for requirements and approval. The CalGEM may determine that remedial plugging operations may be required and shall be contacted and brought to the project site to make a proper assessment of the suspect materials.

MM 4.8-5 If during development activities, any wells are encountered that were not part of this review, the property owner shall immediately notify the Department of Conservation/Geologic Energy Management Division (CalGEM) construction site well review engineer in the Inland district office, and file for CalGEM review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency.

MM 4.8-6 Prior to commencement of ground-disturbing activities, the project proponent/operator shall install signs, per Kern County signage requirements, warning of mining and reclamation operations. One sign shall be installed at the project's Secondary Access Road and Mojave Tropico Road. The other sign shall be installed at either: (a) the intersection of the project's Primary Access Road and Mojave Tropico Road, or (b) the intersection of the project's Primary Access Road and property owned by the project proponent.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.8-1 through 4.8-6, impacts would be less than significant.

Impact 4.8-3: The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

As described in **Section 4.8.2**, *Environmental Setting*, the project site is in an area identified as having "Moderate" FHSZ within the LRA (CAL FIRE 2007). Wildland fires can be ignited on or spread to the project site from natural or human sources. Vegetation on the project site is present in the form of a sparse cover of non-native grassland. Ignition of grasslands would be most likely to occur during periods of initial surface clearing and excavation. Once vegetation is removed and excavation recesses into each mining area, vegetation fuel sources become limited or nonexistent within the mining areas. A risk of wildland fire ignition always exists when vehicles operate in or near potential fuel sources; however, with proper maintenance of equipment and standard avoidance and management measures, the risk would be reduced.

The site is not adjacent to urbanized areas; however, there are isolated residences, residential accessory structures, and structures utilized in conjunction with agriculture, in proximity to the project site. While the project is not anticipated to significantly increase the risk of wildfire, Mitigation Measure MM 4.8-1 would be implemented, which includes the development and approval of an Emergency Response Plan from the KCFD. Although impacts would be less than significant without implementation of mitigation, Mitigation Measure MM 4.8-1 would further reduce the potential impacts from wildfire. Therefore, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.8-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.8-1, impacts would be less than significant.

Impact 4.8-4: The project would generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, the proposed project would exceed the following qualitative thresholds: 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 project does not include the generation, handling, or disposal of agricultural waste; thus, the project would not create a potential impact associated with that issue. The project would involve activities that could result in the potential to create temporary areas of standing water that could provide breeding areas for mosquitoes, flies, or rodents. These potential disease vectors could pose a potential hazard to personnel or the public. However, the limited disturbance areas and proposed contours as shown on **Figure 3-4**, *Proposed Mine Plan*, and **Figure 3-7**, *Proposed Reclamation Plan*, combined with standard construction techniques to avoid creating areas of standing water and to manage waste and containers, are expected to result in a minimal, if any, increase in the potential for vector generation.

Although there would be limited, if any, increased potential for vector generation associated with the proposed project, this impact is considered potentially significant. Mitigation Measure MM 4.8-7 requires that food and garbage be properly disposed of in closed containers and regularly removed from the site. Implementation of this measure would reduce potential impacts associated with vectors and agricultural waste disposal to less than significant.

Mitigation Measures

MM 4.8-7 All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting animals to the site where they may be harmed.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.8-7, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Section 3.7, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific

projects considered in the cumulative impact analysis). Impacts associated with hazards and hazardous materials are generally site-specific and have limited potential to substantially contribute to other hazards associated with other projects and activities on a regional or local basis. Projects and activities within the County are subject to various regulatory requirements, similar to those discussed here, and would minimize the hazard potential of those activities. Kern County recognizes that hazards exist throughout the County and everyday life.

Impact 4.8-5: The project would contribute to cumulative hazards and hazardous materials impacts.

The project site is not included on a list of hazardous materials sites or immediately upstream of environmentally sensitive areas that could result in a release of hazardous materials into the environment, not directly related to the proposed project. Implementation of the proposed project is not anticipated to contribute to a cumulative hazardous materials impact due to generation of a substantial amount of waste. Furthermore, the proposed project would not significantly interfere with an adopted emergency response plan or emergency evacuation plan. The proposed project is not anticipated to contribute to a cumulative hazardous materials impact due to interference with an emergency route.

Uses proposed on the project site would include the permitted use of hazardous materials associated with operation of mining and reclamation activities. The project would also contribute to the number of trucks hauling potentially hazardous materials on public roadways. Any hazardous mine waste generated by the proposed project would be disposed of in accordance with all Federal, State, and local regulations. This requires in part that an SPCC Plan be developed and implemented for the proposed project, which would address the storage and treatment of any spilled contaminants at the project site. Secondary containments would be used around fuel, oil, gas, and any other hazardous materials storage areas. All hazardous waste materials would be removed from the project site by a certified contractor, and catchment berms would be constructed in vital areas to provide a tertiary level of hazardous material containment. Therefore, the potential for impacts associated with the routine transport, storage, and disposal of hazardous materials is considered less than significant.

The proposed project would be required to comply with all applicable Federal, State, and local regulations regarding the handling of hazardous materials. With implementation of these control measures and implementation of Mitigation Measures MM 4.8-1 through MM 4.8-7 included below, the proposed project would not result in significant impacts related to reasonably foreseeable upset or accidental conditions involving the release of hazardous materials into the environment. The proposed project would not contribute significantly to cumulative impacts associated with hazardous materials/risk of upset with implementation of the mitigation measures included below. Therefore, cumulative impacts would be less than significant with mitigation.

Mitigation Measures

Implement Mitigation Measures MM 4.8-1 through MM 4.8-7.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.8-1 through MM 4.8-7, cumulative impacts would be less than significant.

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Section 4.9
Hydrology and Water Quality

4.9.1 Introduction

This section of the Environmental Impact Report (EIR) addresses potential impacts of the project on hydrology and water quality, describes the environmental and regulatory setting, and discusses mitigation measures to reduce impacts where applicable. Information and data to prepare this section includes that obtained from studies prepared by the project proponent and from publicly available sources, including the following:

- *Drainage Report for Gem Hill Quarry*, prepared by Chang Consultants, February 22, 2022; included as Appendix I.1;
- *Water Supply Assessment Gem Hill Project*, prepared by Sespe Consulting November 5, 2020; included as Appendix I.2;
- *Technical Memorandum in Support of the Gem Hill Water Supply Assessment*, prepared by Sespe Consulting, Inc., February 25, 2022; included as Appendix I.3;
- *Slope Stability Evaluation Report, Proposed Gem Hill Pozzolan Quarry-North Pit*, (Terracon 2022) included as Appendix G.1; and
- *Gem Hill Project Habitat Assessment and Desert Tortoise Presence/Absence Survey Report,* prepared by ELMT Consulting, Inc. Updated January 2022 (ELMT 2022a), included as Appendix D.1.

4.9.2 Environmental Setting

Regional Setting

The project area is in the southeastern portion of unincorporated Kern County, situated in the Rosamond Hills on the west side of Mojave-Tropico Road approximately four miles northwest of the unincorporated community of Rosamond (**Figure 3-1**, *Site Vicinity*). The project site is in the northwestern portion of the Mojave Desert Air Basin (MDAB), which encompasses the desert portion of San Bernardino County and Los Angeles County, the Palo Verde Valley in eastern Riverside County, and the southeastern portion of Kern County. The desert climate is characterized by hot, dry summers and cold, dry winters. The inland position of the MDAB lacks the cooling effects of the Pacific Ocean, while the presence of the mountains that separate the MDAB from the ocean remove much of the atmospheric moisture before reaching the MDAB. Therefore, the region is relatively dry with little precipitation in the summer or winter. Summer high temperatures reach over 100 degrees Fahrenheit (ºF) and averages in the mid to upper 90s with lows in the upper 60s to low 70s. Extreme highs reach over 110º F. Winter highs average in the 60s with lows in the 30s. About 65 percent of the precipitation in the MDAB occurs as rainfall during the winter. Average monthly precipitation in the region ranges from 0.03 inches in June to 1.3 inches in February. The total annual average rainfall is 5.9 inches,

with 70 percent of precipitation occurring between December and March and little to no rainfall in the summer months. The Fremont Valley area has experienced wet-dry cycles with a prolonged drought period from 1945 to 1964, a prolonged wet period from 1976 to 1984, and a drought period from 2006 to the present (DWR 2019).

The project site is located within the Antelope-Fremont Valley Watershed (HUC 18090206). The Fremont Valley Watershed receives surface water runoff from Lone Tree Canyon, Cache Creek, and other ridges adjacent to the area. Throughout most of this watershed surface water drains toward Koehn Lake, which is a generally dry lake about 20 miles northeast of the community of Mojave. The Antelope Valley Watershed receives surface water runoff from the San Gabriel Mountains and the Tehachapi Mountains, including Big Rock Creek, Littlerock Creek, Oak Creek, and Cottonwood Creek. There are multiple intermittent or ephemeral waterways in the area which convey surface water runoff to Rosamond Lake during extreme rain events. Rosamond Lake, which is located on Edwards Air Force Base northeast of Lancaster, remains dry most of the year. The project site is located on the northern boundary of the Antelope Valley Watershed and surface water runoff flows southeast towards Rosamond. The Antelope Valley Watershed is a large, closed basin in the western Mojave Desert. This watershed straddles the Los Angeles-Kern County line and drains a total of 3,387 square miles. Approximately 80 percent of the watershed is characterized by a low to moderate slope (0-7 percent). The remaining 20 percent consists of foothills and rugged mountains, some of which reach up to 3,600 feet in elevation. The floor of the Antelope Valley Watershed generally lacks defined natural channels outside of the foothills and is subsequently subject to unpredictable sheet flow patterns. All water that enters the watershed either infiltrates into the underlying groundwater basin, or flows toward three playa lakes located near the center of the watershed (ELMT 2022a).

Local Setting

The project site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. No groundwater, gas, oil, or other wells are present on the site. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation cover (less than 5 percent) while the flatland areas at the bottom of the slopes support denser vegetation cover (less than 30 percent). Creosote bush scrub is the dominant plant community. It is an open scrub plant community characterized by sparse, evenly spaced plants and dominated by creosote bush (*Larrea tridentata*).

Surface Water

Nine (9) unnamed ephemeral drainage features are identified in the boundaries of the project site. All of the onsite drainage features generally flow in a northwest to southeast direction across the project site. The onsite drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site. These features only convey surface flow in direct response to precipitation, and do not support riparian vegetation.

All of the onsite drainage features, after flowing offsite, eventually converge into one drainage and terminate approximately 4 miles southeast of the project site at the Rosamond Skypark (airport). The onsite drainage features do not have a surface hydrologic connection to downstream waters (ELMT 2022a).

Chang (2022) delineated seven drainage areas for the site under existing conditions. The delineation drainage basins cover a total of 136.60 acres. The drainage areas and 25-year flow rates are presented in **Table 4.9-1**, *Gem Hill Quarry Site Modeled Drainage Areas – Existing Conditions*. **Figure 4.9-1**, *Gem Hill Quarry Modeled Drainage Areas – Existing Conditions*, illustrates the locations of the modeled existing conditions drainage areas.

Table 4.9-1 Gem Hill Quarry Site Modeled Drainage Areas – Existing Conditions

Drainage Area	Modeling Node Number[1]	Tributary Area[1]	25-Year Flow Rate (cfs)
West and East Quarry Basin + Quarry	104	94.15	137
North Overburden Basin	402	8.67	12
South Overburden Basin	502	3.49	502
Equipment Basin	602	2.67	4.4
Secondary Access Road	704	26.55	42
Primary Access Road	714	1.07	1.2
Primary Access Road at Gate	724	6.77	10

Source: Chang 2022.
Notes:
1. The 94.15 acres tributary to Node 104 include 2.83 acres at Node 102 and 91.32 acres at Node 104. Nodes 402, 502, and 602 have a single drainage subarea. The 26.55 acres tributary to Node 704 include 2.01 acres at Node 702 and 24.54 acres at Node 704. The 1.07 acres tributary to Node 714 include 0.23 acres at Node 712 and 0.84 acres at Node 714. The 6.77 acres tributary to Node 724 include 2.54 acres at Node 722 and 4.23 acres at Node 724.

Groundwater

The project site is within the jurisdictional boundaries of the *Water Quality Control Plan for the Lahontan Region North and South Basins* (RWQCB 2021) (Lahontan Basin Plan), which establishes surface and groundwater standards for the region according to designated beneficial uses. The Lahontan Basin Plan summarizes applicable provisions of separate State Board and Regional Board planning and policy documents, and of water quality management plans adopted by other federal, state, and regional agencies. The project site is outside of an adopted groundwater management plan, except for an approximately 1.4-acre triangular section of the Antelope Valley Groundwater Basin that extends onto the project site's southern edge. The Fremont Valley Groundwater Basin (FVGB) is to the north of the site.

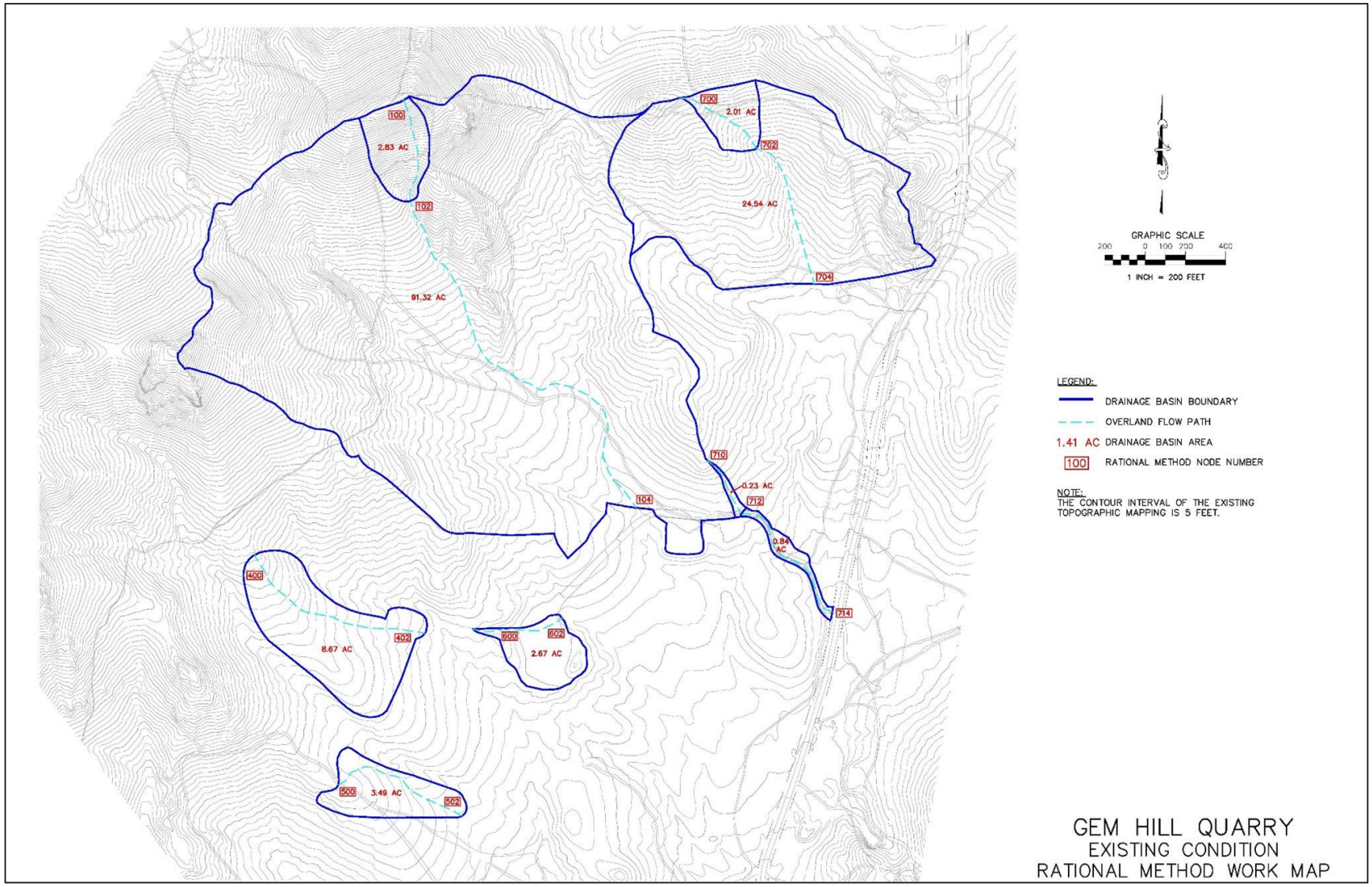


Figure 4.9-1
Gem Hill Quarry Modeled Drainage Areas – Existing Conditions

The project site is underlain by an assemblage of predominantly volcanic rocks, which form the low-lying hills comprising Gem Hill. This volcanic assemblage includes a basalt unit that serves as the aquifer proposed as the source of water for the project. Groundwater measurements were recorded for several drill holes within the proposed quarry area. Water was reported at depths ranging from approximately 250 feet below ground surface (bgs) to 660 feet bgs in basalt, and the shallowest water reported was approximately 200 feet bgs in tuff. All of the drill hole measurements indicated water at elevations below the planned pit bottom elevation at 2,450 feet amsl. (Terracon 2022) Groundwater is anticipated to be at approximately 2,385 feet above mean sea level (amsl), based on exploratory drilling data produced by the project proponent (Sespe 2022).

While the basalt aquifer is distinct from the alluvial aquifer FVGB immediately to the north, some inflow from the FVGB to the basalt aquifer is expected to occur. The hydraulic gradient immediately north of the project site is estimated to range from 0.001 to 0.17 feet/mile depending on the variability in flow direction. Thus, replenishment of the basalt aquifer via inflow is interpreted to be controlled by groundwater movement in the adjoining FVGB alluvial aquifer (Sespe 2022).

Groundwater Quantity

Sespe (2020) used a conceptual hydrogeologic model to estimate the volume and yield of groundwater within the proposed source aquifer and to assess the available supply of water for the project. The model was based on site-specific geologic mapping information, project proponent lithologic logs, and published geologic reports for the area. The *Water Supply Assessment Gem Hill Project* (Sespe 2020), included as Appendix I.2 of this EIR, provides a detailed discussion of the model parameters. The analysis conservatively determined that the total estimated storage capacity of the local basalt aquifer is 1,315 acre-feet. As discussed above, replenishment of the local basalt aquifer is believed to occur by infiltration and inflow from the FVGB (Sespe 2020).

Groundwater Quality

Water quality characteristics in the local basalt aquifer proposed as the water supply source are anticipated by Sespe (2022) to be generally similar to the FVGB alluvial aquifer due to the infiltration and inflow from the FVGB that is believed to occur (Sespe 2022). Additionally, California Department of Water Resources (DWR) Groundwater Bulletin 118 (2004) discusses background water quality characteristics for the basalt aquifer underlying the site are expected to be generally similar to groundwater in the southern part of the FVGB, given the hydrogeologic setting. The DWR Groundwater Bulletin 118 characterizes the basin as sodium bicarbonate in the southeast, and sodium bicarbonate or calcium-sodium sulfate in the southwest. These areas are hydraulically most closely aligned with the basalt aquifer, and therefore, the groundwater in the basalt aquifer beneath the project site is considered to be consistent with a sodium bicarbonate to calcium-sodium sulfate water. DWR Groundwater Bulletin 118 also notes that total dissolved solids in the basin have an average content of 596 mg/L and a range of 398 to 1,400 mg/L, based on water quality data collected from public supply (Sespe 2022).

Flooding

The project site is located within an area categorized as being within FEMA Flood Hazard Zone X (FEMA Map Number 06029C3675E), as shown in **Figure 4.9-2,** *Flood Zone Map*. The Zone X FEMA flood zone designation defines areas with a minimal flood hazard, and is usually depicted on Flood Insurance Rate Maps as above the 500-year flood level. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood (FEMA 2008).

4.9.3 Regulatory Setting

The project would be subject to County, State, and Federal water quality regulations, as discussed below.

Federal

Clean Water Act

The CWA (33 United States Code [USC] Section 1251 et seq.), formally 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 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and has given the USEPA the authority to implement pollution control programs. 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 surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The project is within the jurisdiction of the Lahontan RWQCB.

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, that may result in discharges into waters of the United States must be certified by the State, as administered by the RWQCB. This certification ensures that the proposed activity does not violate Federal and/or State water quality standards.

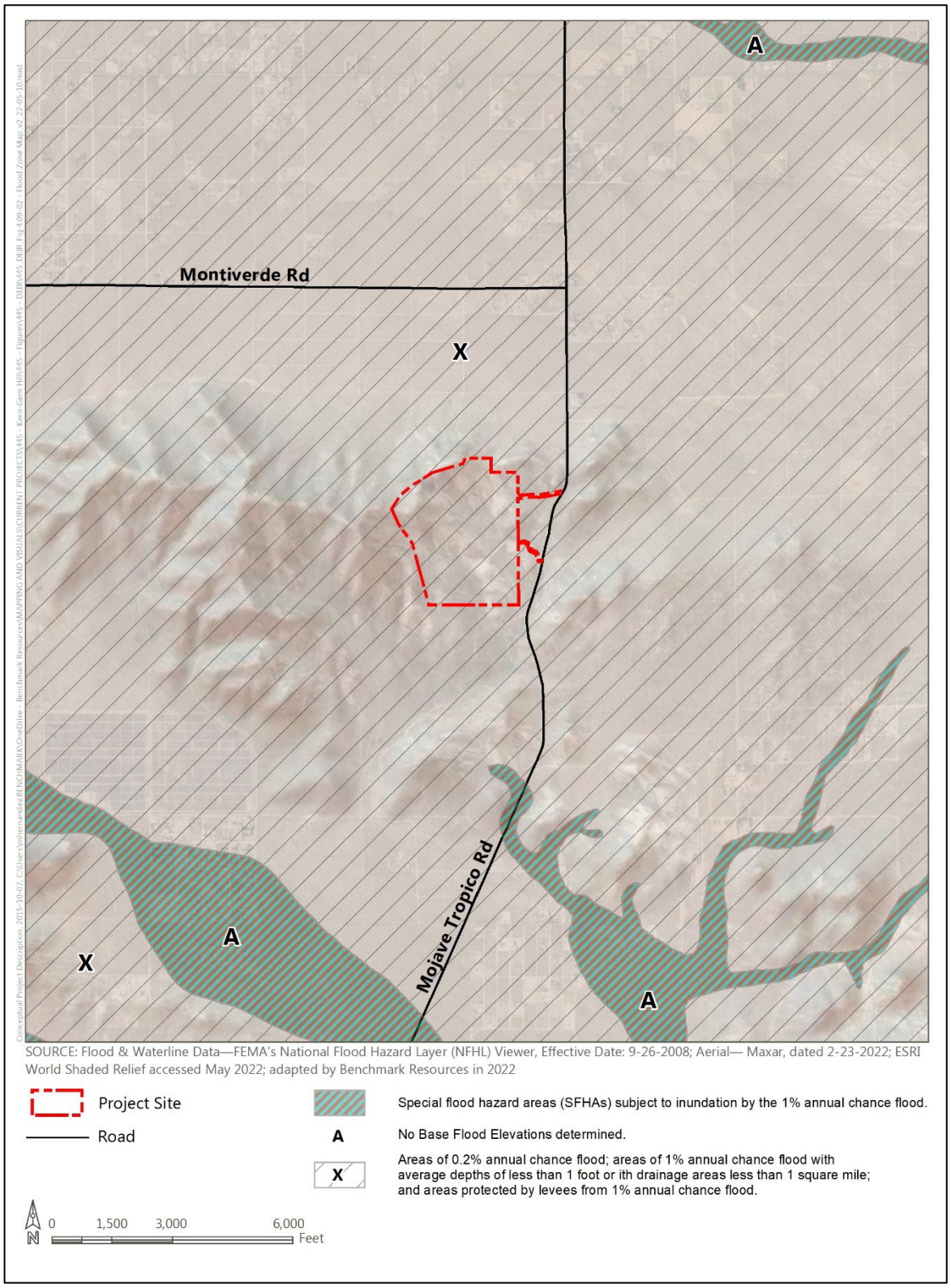


Figure 4.9-2
Flood Zone Map

Section 402, National Pollutant Discharge Elimination System

Section 402 of the CWA authorizes the State Water Resource Control Board (SWRCB) to issue an NPDES Industrial Storm Water General Permit (Water Quality Order 97-03-DWQ), referred to as the "Industrial General Permit."

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 United States, including wetlands. For purposes of CWA Section 404, the limits of non-tidal waters extend to the Ordinary High Water (OHW) 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 United States where practicable;
- Minimized unavoidable impacts on waters of the United States 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 United States or wetlands. A Water Quality Certification pursuant to CWA Section 401 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 Federal and State water quality standards and would be in compliance with CWA Sections 401 and 404. According to the Delineation of State and Federal Jurisdictional Waters no waters of the United States or wetlands are located on the project site (ELMT 2022.)

Section 403, Water Quality Standards and Implementation Plans

Section 303(d) of the CWA (33 USC 1250, et seq., at 1313[d]) requires states to identify "impaired" water bodies as those that do not meet water quality standards. States are required to compile this information in a list and submit the list to the USEPA 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 Load (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, prepare the Section 303(d) list, and develop TMDL requirements. No "impaired" water bodies are located on the project site.

National Flood Insurance Program

FEMA is responsible for conducting floodplain studies and publishing Flood Insurance Rate Maps (FIRM) that delineate flood hazard areas. FEMA manages the National Flood Insurance Program (NFIP). This program makes Federally backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. Kern County is a participating jurisdiction in the NFIP and therefore all new development must comply with the minimum requirements of the NFIP.

State

California Department of Water Resources

DWR's major responsibilities 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.

Sustainable Groundwater Management Act

A series of three bills passed by the California legislature were signed by Governor Brown on September 16, 2014. These three bills, Assembly Bill (AB) 1739, Senate Bill (SB) 1168, and SB 1319, together comprise the Sustainable Groundwater Management Act (SGMA) of 2014. The SGMA provides a structure under which local agencies are to develop sustainable groundwater management programs. The SGMA applies directly to basins or subbasins designated by DWR as high- or medium-priority basins. A small portion of the Antelope Valley Groundwater Basin underlies the project site. The Fremont Valley Groundwater Basin (FVGB) is to the north of the site and is believed to be a source of infiltration and inflow to the basalt aquifer underlying the site. The FVGB is designated as a low priority basin under SGMA.

The SGMA requires the establishment of a Groundwater Sustainability Agency (GSA), development of a Groundwater Sustainability Plan (GSP), and achievement of groundwater sustainability within 20 years. The GSAs allow for locally controlled groundwater management and provide tools and authorities for these local agencies to achieve sustainability goals. For medium- and high-priority basins, the GSAs must have been established by June 30, 2017. Any local water or land use agency or combination of local agencies overlying a groundwater basin may elect to be a GSA. Once established, the GSA must prepare a GSP, which must be reviewed and approved by DWR. The GSP must be adopted by January 31, 2022. The purpose of the GSP is to define the measures that will be implemented to achieve the sustainability goals developed by the GSA. In addition, subsequent General Plan updates must take into consideration the groundwater sustainability objectives and the components of the GSP.

Senate Bill 610

SB 610 was passed on January 1, 2002, amending California state law to require detailed analysis of water supply availability for large development projects. An SB 610 Water Supply Assessment (WSA) must be prepared if the following three conditions are met:

1. the project is subject to California Environmental Quality Act (CEQA) under California Water Code Section 10910;
2. the project meets criteria to be defined as a "Project" under California Water Code Section 10912; and

3. the applicable water agency's current Urban Water Management Plan does not account for the water supply demand associated with the project.

A project would meet the definition of "Project" per California Water Code Section 10912(a) if it is:

- a proposed residential development of more than 500 dwelling units;
- a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- a proposed hotel or motel, or both, having more than 500 rooms;
- a proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- a mixed-use project that includes one or more of the projects specified in this subdivision; or
- a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

Porter-Cologne Water Quality Control Act

The SWRCB regulates water quality through the Porter-Cologne Water Quality Act (Porter-Cologne Act) of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. On the regional level, the project falls under the jurisdiction of the Central Valley RWQCB, which is responsible for the implementation of Federal and State water quality protection statutes, regulations, and guidelines. The project site is situated within the jurisdictional boundaries of the Lahontan RWQCB and within the South Basin area of the Lahontan Region. The *Water Quality Control Plan for the Lahontan Region North and South Basins* (Lahontan RWQCB 2021) (Lahontan Region Basin Plan) establishes surface and groundwater standards for the region according to designated beneficial uses. The Lahontan Region Basin Plan summarizes applicable provisions of separate State Water Resources Control Board (SWRCB) and Lahontan RWQCB planning and policy documents, and of water quality management plans adopted by other federal, state, and regional agencies. Any person discharging or proposing to discharge waste, other than into a community sewer system, must file a Report of Waste Discharge (RWD) with the Lahontan RWQCB. Waste discharge requirements are prescribed for each discharger on a case-by-case basis.

State Water Rights Permit

The State of California has required parties to obtain a permit to divert surface water for beneficial uses since 1914 under provisions of the State Constitution and the California Water Code. A water rights permit specifies the place of diversion and the beneficial uses for which the water may be diverted. The permit will also typically specify the maximum annual

diversion quantity and may specify the maximum diversion rate. Permit holders must file reports with the SWRCB documenting annual diversions.

California Fish and Game Code Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the 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.

If it is determined that any project-related actions would have the potential to necessitate a Streambed Alteration Agreement, then such an agreement would be prepared and implemented prior to ground disturbance activities associated with 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 Streambed Alteration Agreement; therefore, the CDFW must wait for the Lead Agency to fully comply with CEQA before it may sign a draft Streambed Alteration Agreement, thereby making it final.

California Water Code Section 13260

Under the Porter-Cologne Act, California Water Code Section 13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. “Waste” is defined in the Basin Plan to include any waste or deleterious material including, but not limited to, waste earthen materials (such as soil, silt, clay, rock, or other organic or mineral material) and any other waste as defined in California Water Code Section 13050(d). Any actions related to the project that would be applicable to California Water Code Section 13260 would be reported to the Lahontan RWQCB.

Industrial Storm Water General Permit

The State Industrial Storm Water General Permit Order 97-03-DWQ (Industrial General Permit) is an NPDES permit that regulates discharges associated with 10 broad categories of industrial activities. A new Industrial General Permit was adopted by the State on April 1, 2014 and became effective on July 1, 2015. Facilities that discharge stormwater associated with industrial activity requiring a General Permit are listed by category in 40 Code of Federal

Regulations (CFR) Section 122.26(b)(14.) The facilities can be publicly or privately owned. Mining is one of the industries regulated under this permit.

Project subject to the Industrial General Permit must implement control measures that are consistent with the Industrial General Permit. A SWPPP must be developed and implemented for each site covered by the Industrial General Permit. A SWPPP should include BMPs designed to reduce potential impacts to surface water quality, unless the project activities are subject to a Notice of Non-Applicability (NONA).

The Industrial General Permit requires implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The Industrial General Permit also requires the development of an Industrial SWPPP and a monitoring plan. Through the Industrial SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce stormwater pollution are described. The Industrial SWPPP must identify, and discharges must implement, a set of minimum BMPs. Implementation of the minimum BMPs, in combination with any advanced BMPs necessary to reduce or prevent pollutants in industrial stormwater discharges, serve as the basis for compliance with technology-based effluent limitations and water quality based receiving water limitations.

The project would be required to comply with the Industrial General Permit. If the project is determined to not discharge to surface waters at any time; or discharges do not have any hydrologic connection to waters of the United States, then the mine operator could seek an exemption from stormwater permitting requirements from the Lahontan RWQCB (i.e., a NONA).

Groundwater Management Act of 1992

The Groundwater Management Act of 1992, commonly referred to as AB 3030, is designed to provide local public agencies with increased management authority over groundwater resources. Groundwater is a valuable natural resource within California, and AB 3030 ensures safe production and quality by encouraging local agencies to work cooperatively to manage groundwater resources within their jurisdictions (California Water Code Section 10750).

Local

Kern County General Plan

The policies, goals, and implementation measures in the *Kern County General Plan* for hydrology and water quality 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. Therefore, they 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.

Chapter 1. Land Use, Open Space, and Conservation Element

1.3 Physical and Environmental Constraints

Goals

- **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. 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 6.** Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required and reducing soil erosion while maintaining soil stability.
- **Policy 7.** Ensure effective slope stability, wastewater drainage, and sewage treatments in areas with steep slopes are adequate for development.
- **Policy 8.** Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.
- **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

- **Implementation Measure F.** The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

- **Implementation Measure H.** Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.
- **Implementation Measure I.** Designated flood channels and water courses, such as creeks, gullies, and riverbeds, will be preserved as resource management areas or in the case of urban areas, as linear parks whenever practical.
- **Implementation 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.
- **Implementation 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 Resource

Goals

- **Goal 3.** Ensure the development of resource areas minimize effects on neighboring resource lands.

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 General Provisions

1.10.6 Surface Water and Groundwater

Policies

- **Policy 34.** Ensure that water quality standards are met for existing users and future development.
- **Policy 39.** Encourage the development of the County's ground water supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.
- **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 (CEQA), to prevent the degradation of the watershed to the extent practicable.
- **Policy 46.** In accordance with the Kern County Development Standards, tank truck hauling of domestic water for land developments or lots within new land developments is not permitted.

Implementation Measures

- **Implementation Measure U.** The Kern County Public Health Services Department/Environmental Health Division will develop guidelines for the protection of groundwater quality which will include comprehensive well construction standards and the promotion of ground water protection for identified degraded watersheds.
- **Implementation Measure W.** Applications for General or Specific Plan Amendments will include sufficient data for review to facilitate desirable new development proposals consistent with General Plan policies, using the following criteria and guidelines:
    i. The provision of adequate water, sewer, and other public services to be used.
    ii. The provision of adequate on-site nonpublic water supply and sewage disposal if no public systems are available or used.
- **Implementation Measure X.** Encourage effective ground water resource management for the long-term economic benefit of the County through the following:
    i. Promote ground water recharge activities in various zone districts.
    ii. Support for the development of Urban Water Management Plans and promote Department of Water Resources grant funding for all water providers.
    iii. Support the development of Ground Water Management Plans.
    iv. Support the development of future sources of additional surface water and ground water, including conjunctive use, recycled water, conservation, additional storage of surface water and ground water and desalination.
- **Implementation Measure Y.** Promote efficient water use by utilizing measures such as:
    i. Requiring water-conserving design and equipment in new construction.
    ii. Encouraging water-conserving landscaping and irrigation methods.
    iii. Encouraging the retrofitting of existing development with water conserving devices.

Kern County Ordinance

Title 17 – Buildings and Construction

Chapter 17.48 – Kern County Floodplain Management

Any construction that takes place within areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide (i.e., mudflow) hazards within the jurisdiction of unincorporated Kern County will comply with the requirements and construction design specifications of this ordinance. Any required development permits will be obtained prior to

commencement of construction activities; however, the project does not propose any construction or development within a floodplain.

4.9.4 Impacts and Mitigation Measures

Methodology

This section presents the CEQA impact analysis related to potential hydrology and water quality impacts associated with the project. This analysis compares the baseline conditions for the affected environment relevant to hydrology and water quality, as presented above in **Section 4.9.2**, *Environmental Setting*, with conditions that would occur due proposed project activities. The analysis utilizes information from sources as cited, including those described in **Section 4.9.1**, *Introduction*.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect on hydrology and water quality. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to hydrology and water quality if it would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:

    i. result in a substantial erosion or siltation on- or off-site

    ii. substantially increase the rate of 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; or

    iv. impede or redirect flood flows;

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Project Impacts

Impact 4.9-1: The project would violate water quality standards or waste discharge requirements.

Development of the project would result in surface disturbance of up to approximately 82.2 acres of the site over the life of the project. Potential impacts to water quality, including the potential to violate water quality standards or waste discharge requirements, could occur during project activities, and from releases of stormwater from the project site that contains sediment or other pollutants introduced to surface water flowing through the site. These potential impacts are evaluated further below. Note that the potential for release of hazardous materials and other chemicals used during project activities are addressed in **Section 4.8**, *Hazards and Hazardous Materials*.

Ground Disturbance and Soil Erosion

Primary soil-disturbing activities that would occur during project activities include development of stormwater basins, access and haul roads, and initial mining and overburden placement. These project activities would have the potential to cause water quality degradation resulting from soil disturbance. Disturbance of soil during project activities could result in soil erosion and subsequent water quality degradation through increased turbidity and sediment transport within the drainage channels on the project site.

The Industrial General Permit includes "No Discharge" eligibility requirements under which a facility would not require coverage. ELMT (2022b) determined that the project site is located in an area that is not hydrologically connected to waters of the United States, and Chang (2022) concluded that for this reason the project meets, or may meet, the No Discharge eligibility criteria. Therefore, project operations may be eligible for a Notice of Non-Applicability (NONA) under the No Discharge eligibility criteria or the project proponent would be required to prepare and comply with the provisions of an Industrial SWPPP throughout the duration of the project.

Preparation of the SWPPP is required by Federal and State law, and these documents and compliance with the stormwater best management practices (BMPs) and reporting requirements to be specified therein are, therefore, considered part of the project. Compliance with the SWPPP requirements and implementation of appropriate BMPs would prevent the discharge of sediment and polluted surface water during activities associated with the project activities. Therefore, the potential impact associated with soil disturbance during construction of project facilities is considered less than significant.

Degradation of Surface Water and Groundwater Quality

The project is subject to all applicable Federal, State, and County water quality regulations. This includes, but is not limited to, required adherence to the Federal CWA, NPDES requirements, the National Flood Insurance Act, requirements of the DWR, the California Fish and Game Code, the California Water Code, Lahontan RWQCB waste discharge requirements, the *Kern County General Plan*, and the Kern County Zoning Ordinance. Development of the project would result in a significant impact to hydrology and water quality if associated project activities created conditions that would result in the violation of any water quality or waste discharge standards. Such violations could occur through the creation of erosion,

sedimentation, and/or polluted runoff; the accidental release of potentially hazardous materials required during operational activities. Appropriate BMPs and compliance with applicable regulations would be implemented to reduce potential water quality impacts to a less-than-significant level. Therefore, this impact is considered potentially significant.

Mitigation Measures

MM 4.9-1 Prior to any ground-disturbing activities, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) to 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 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 SWPPP shall be incorporated into design specifications and contracts. Recommended best management practices may include:

A. stockpiling and disposing of material properly;

B. protecting existing storm drain inlets and stabilizing disturbed areas;

C. implementing erosion controls;

D. properly managing construction materials; and

E. managing waste, aggressively controlling litter, and implementing sediment controls.

Should a SWPPP not be required by the Regional Water Quality Control Board—Lahontan Region, documentation stating such shall be presented to the Kern County Planning and Natural Resources Department.

MM 4.9-2 The project proponent/operator shall prepare and have available on site, if necessary, a Spill Prevention Control and Countermeasures Response Plan from the Kern County Public Health Services Department/Environmental Health Services Division and the California Department of Water Resources.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, impacts would be less than significant.

Impact 4.9-2: 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.

A water well is proposed to be drilled on-site to produce water for project dust suppression use. A 4,000-gallon water truck would be used for dust control, and up to 4 truckloads of water may be sprayed on-site and on the unpaved primary access road per day as needed to control dust, six days a week, equating to a project water demand of approximately 18 acre-feet per year. The proposed source of water for the project is a local basalt aquifer that underlies the project

site. The aquifer is spatially constrained, as the basalt and the overlying tuffaceous rocks are cross-cut by faults. Airlift tests performed during exploratory drilling indicate the basalt aquifer underneath the Project site is capable of producing initial yields of 45 gallons per minute (gpm) or greater, varying with location and depth. Replenishment of the local basalt aquifer is believed to occur by infiltration and inflow from Fremont Valley Groundwater Basin (FVGB) to the north. However, to conservatively assess supply sufficiency, water demand over the life of the project was estimated and compared to the available water supply currently expected to the present within the basalt aquifer and assuming no replenishment of the local aquifer during the 30-year life of project operations.

The total estimated storage capacity of the local aquifer is 1,315 acre-feet volumetrically. Over the life of the project, the total water demand is approximately 540 acre-feet. With the conservative premise that no replenishment of the local basalt aquifer occurs, the project's estimated demand is 41 percent of the total aquifer capacity. Accordingly, there is sufficient water supply over the duration of the project (Sespe 2020, 2022). The *Water Supply Assessment Gem Hill Project* (Sespe 2020) and *Technical Memorandum in Support of the Gem Hill Water Supply Assessment* (Sespe 2022) demonstrate that the total projected water supply for normal, single-dry, and multiple-dry water years is sufficient to meet the project water demand, and evaluate the potential for the project to adversely affect neighboring wells or to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

To determine if the project would potentially impact the pumping of groundwater from nearby wells, publicly available well records were reviewed by Sespe (2020) and the locations of the wells were evaluated in relation to the proposed water supply well location. The nearest groundwater supply wells identified with publicly available information occur at distances of about 3,000 feet from the proposed project well location. These two groundwater supply wells draw water from entirely different hydrogeologic units than the constrained basalt aquifer. With groundwater sourced from these different units and the nominal pumping rate planned for the proposed water supply well, neither short- or long-term pumping of groundwater is anticipated to create any impact to these nearby wells. There is also a residence along Mojave-Tropico Road approximately 1,800 feet to the east of the proposed project well. No documentation was found indicating whether there is a water supply well at this location. Notwithstanding the lack of available water supply well data, given the presence of faulting in the vicinity of the project site, Sespe (2020) concluded that any well at this residence would be expected to withdraw water form an entirely different hydrogeologic unit that the constrained basalt aquifer. Furthermore, Sespe concluded that, even if located in the same aquifer, the average annual residential consumption of water (approximately 0.41 acre-feet per year) combined with the project's anticipated water use would result in a total estimated demand over the life of the project of approximately 42 percent of the aquifer capacity and, therefore, the project would have no significant impact on the neighboring water use (Sespe 2020).

The Project lies outside of an adopted groundwater management plan, except for an approximately 1.4-acre triangular section of the Antelope Valley Groundwater Basin that extends onto the Project at the southern edge. The proposed location for the groundwater supply well that would serve the project does not overlie the Antelope Valley Groundwater Basin and is nearly 1,000 feet south of the southern boundary of the Freemont Valley Groundwater Basin

(FVGB), which is designated as a low priority basin under the SGMA. Therefore, the Project would not have an impact to an adopted groundwater management plan (Sespe 2020).

Additionally, following completion of reclamation activities, the site would be returned to open space, and would not result in a permanent demand for groundwater. Therefore, the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge and impacts would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-3: The project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion and/or sedimentation on-site or off-site.

As discussed previously, the site consists primarily of rolling topography with some steep slopes and nine ephemeral drainages. The site is not located within a Floodplain Safety Overlay District or Dam Inundation Overlay.

Chang (2022) delineated and assessed 25-year stormwater runoff rates and volumes under conditions with the project. The factors and stormwater storage volumes provided by the project are presented in **Table 4.9-2**, *Gem Hill Quarry Site Drainage Areas – Project Conditions*. **Figure 4.9-3**, *Gem Hill Quarry Modeled Drainage Areas – Project Conditions*, illustrates the locations of the modeled drainage areas and stormwater basins.

Table 4.9-2 Gem Hill Quarry Site Drainage Areas – Project Conditions

Drainage Area	Modeling Node Number[1]	Tributary Area[1]	25-Year Flow Rate (cfs)	Maximum Precipitation Volume (acre-feet)	Storage Volume Provided by Project (acre-feet)
West Quarry Basin	104	26.46	49	3.94	2.61
East Quarry Basin	304	18.80	24	2.80	1.73
Quarry	206	42.12	37	6.27	>2,000
North Overburden Basin	404	8.67	7.6	1.29	1.67
South Overburden Basin	502	3.49	6.2	0.52	1.93

Table 4.9-2 Gem Hill Quarry Site Drainage Areas – Project Conditions

Equipment Basin	602	2.67	4.8	0.40	0.42
Secondary Access Road	704	26.55	42	Not identified.	Sheet flow runoff; no storage.
Primary Access Road	714	1.07	1.2	Not identified.	Sheet flow runoff; no storage.

Source: Chang 2022.
Notes:
1. The 26.46 acres tributary to Node 104 include 0.79 acres at Node 102 and 25.67 acres at Node 104; the 18.80 acres tributary to Node 304 include 2.76 acres at Node 302 and 16.04 acres at Node 304; the 42.12 acres tributary to Node 206 include 1.41 acres at Node 202, 4.32 acres at Node 204, 34.79 acres at Node 206, and 1.60 acres at Node 208; the 8.67 acres tributary to Node 404 include 1.68 acres at Node 402 and 6.99 acres at Node 304; nodes 502 and 602 have a single drainage subarea; the 26.55 acres tributary to Node 704 include 2.01 acres at Node 702 and 24.54 acres at Node 704; and the 1.07 acres tributary to Node 714 include 0.23 acres at Node 712 and 0.84 acres at Node 714.

The project mine and reclamation plan provides erosion and sedimentation control intended to meet applicable SMARA, County, and Lahontan RWQCB standards. Erosion and sedimentation would be controlled project activities, to minimize siltation of watercourses, as required by the Lahontan RWQCB. Surface runoff and drainage would be controlled in accordance with all applicable local, State and federal regulations, and as proposed would include berms, stormwater basins, revegetation, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation and contamination. Erosion control methods would be designed to handle runoff from not less than the 20 year/1-hour intensity storm event (SMARA Section 3706(c)(d)). Control of surface drainage, erosion, and sedimentation of project operations is proposed to involve the following primary components:

- Limiting surface disturbance to the minimum area required for active operations;
- Diverting runoff from flowing unchecked into the quarry or down stockpile slopes by diverting runoff around the quarry and into four stormwater basins; and
- Stabilizing disturbed areas through regrading, replacement of soils, revegetation, and erosion control practices.

The overall drainage for the site is from the north-northwest to the south-southeast. The project is designed to retain stormwater runoff with the exception of sheet flow from areas within which the primary and secondary access roads would be located. Chang (2022) anticipates that the natural surfaces (i.e., areas within the site that would be unpaved and surfaced with native material originating at the site) of slopes, haul roads, and pads would resist erosion, and that cobble, gravel, or other lining could be installed along road edges in areas requiring additional erosion protection. Safety berms along the quarry perimeter would prevent storm runoff from overtopping the top of slopes and haul roads would be constructed with a cross-slope that directs storm runoff to the inward side of the haul roads allowing runoff to be conveyed along the edge of the haul roads and prevent runoff onto adjacent downward slopes. Stormwater basins and quarry stormwater storage would be sufficient to retain stormwater from within the mining areas, haul road runoff, and topsoil and overburden stockpile areas.

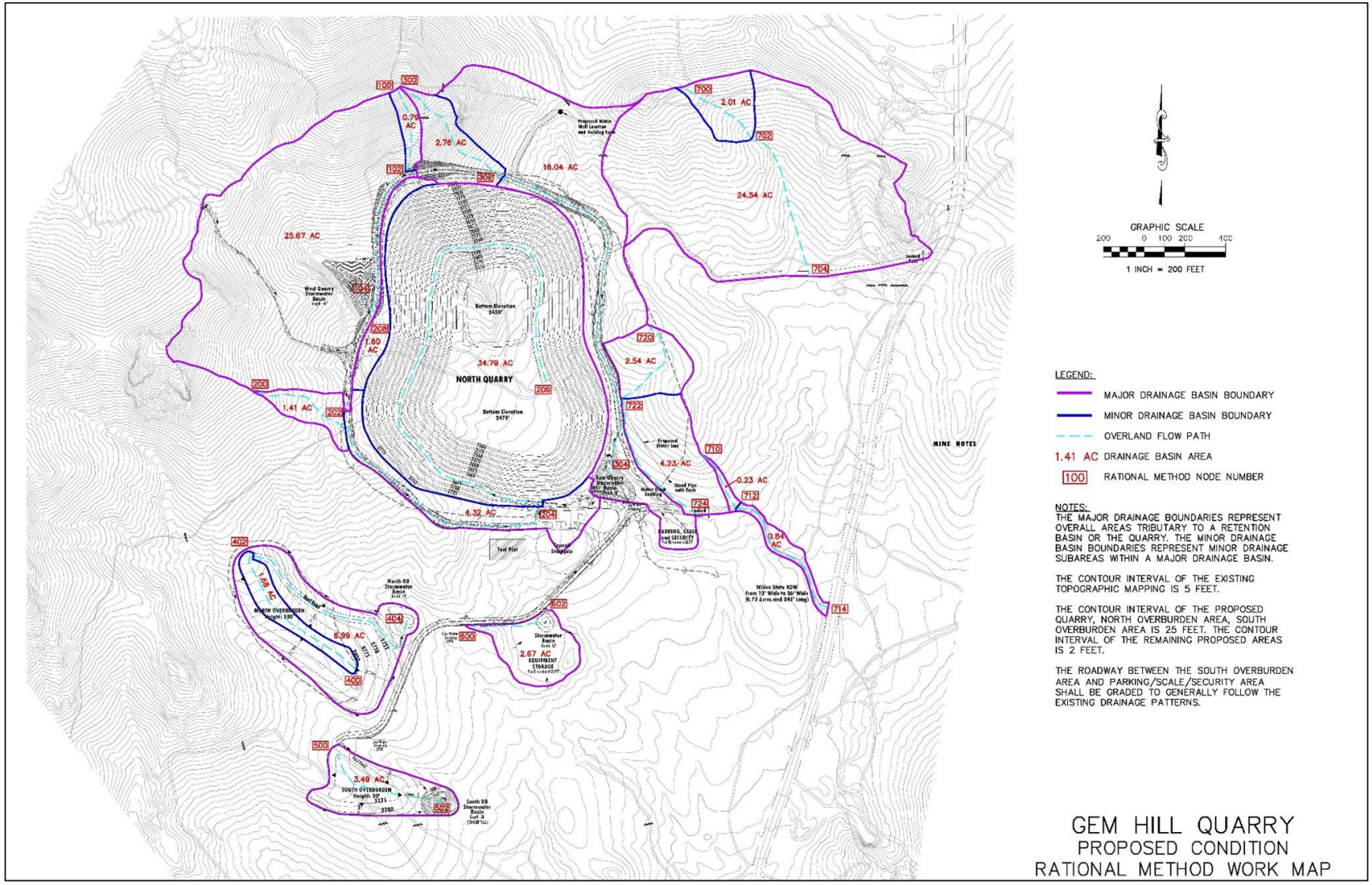


Figure 4.9-3
Gem Hill Quarry Modeled Drainage Areas – Project Conditions

Storm runoff along the primary access road leading to the gated entrance and secondary access road would remain the same as under pre-project conditions (Chang 2022). Since the project incorporates stormwater retention, would generally maintain runoff directions in undisturbed areas, and would not create significant impervious areas, increases in stormwater runoff flows from the project in a manner that would create the potential for increased erosion and sedimentation is not anticipated. Mitigation has been included to ensure on-site drainage and the differential in total stormwater runoff is retained; therefore, impacts would be less than significant with mitigation.

Mitigation Measures

Mitigation Measures MM 4.9-1 and MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, impacts would be less than significant.

Impact 4.9-4: 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 which would result in flooding on- or off-site.

As discussed under Impact 4.9-3, the project would alter the existing drainage patterns on the site through the excavation of a mine pit, development of overburden stockpiles, and through construction of stormwater basins, and access/haul roads. Development of the project would result in surface disturbance, with potentially reduced permeability as compared to existing conditions. As discussed above at Impact 4.9-3, safety berms along the quarry perimeter would prevent storm runoff from overtopping the top of slopes and haul roads would be constructed with a cross-slope that directs storm runoff to the inward side of the haul roads allowing runoff to be conveyed along the edge of the haul roads and prevent runoff onto adjacent downward slopes. Stormwater basins and quarry stormwater storage would be sufficient to retain stormwater from within the mining areas, haul road runoff, and topsoil and overburden stockpile areas. Storm runoff along the primary access road leading to the gated entrance and secondary access road would remain the same as under pre-project conditions (Chang 2022). Since the project incorporates stormwater retention, would generally maintain runoff directions in undisturbed areas, and would not create significant impervious areas, increases in stormwater runoff flows from the project in a manner that would create the potential for on- or off-site flooding is not anticipated.

Mitigation Measures

No mitigation required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-5: 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.

As discussed in Impacts 4.9-3 and 4.9-4, the project includes stormwater facilities to capture and manage substantial volumes of stormwater runoff that would avoid the potential for substantial off-site stormwater discharges and would avoid the potential for substantial polluted runoff.

Surface Mining and Reclamation Act (SMARA) Section 3706(d) requires that stormwater conveyance structures be designed for the 20-year, 1-hour storm event. Kern County Engineering Bulletin 11-02 (December 21, 2011) and the County Development Standards require stormwater facilities to be capable of managing the 10-year, 5-day rainfall event. Mitigation Measures MM 4.9-1 and MM 4.9-2 are recommended, requiring that prior to commencement of mining, the project proponent shall prepare and have available on site, if necessary, a SWPPP and a Spill Prevention Control and Countermeasures Response Plan. Implementation of Mitigation Measures MM 4.9-1 through MM 4.9-2 would reduce this impact to less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, impacts would be less than significant.

Impact 4.9-6: 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 discussed above at Impacts 4.9-3 and 4.9-4, the project incorporates stormwater retention, would generally maintain runoff directions in undisturbed areas, and would not create significant impervious areas; as such, increases in stormwater runoff flows from the project in a manner that would create the potential for on- or off-site flooding is not anticipated.

Mitigation Measures

No Mitigation Measures required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-7: The project would result in flood hazard, tsunami, or seiche zones, the project would risk release of pollutants due to project inundation.

The project site is not located within a designated flood hazard area, tsunami hazard area, or seiche zone. Due to the rolling hill topography and well-drained soil conditions present on-site, the project is not expected to result in the release of pollutants due to project inundation. Additionally, the project would be required to comply with a SWPPP, and any waste generated by the proposed project would be disposed of in accordance with all applicable Federal, State, and local regulations. A Spill Prevention Control and Countermeasures Response Plan, as required by Mitigation Measure MM 3.9-2, would also be prepared to address the treatment of any spilled contaminants at the project site. No hazardous waste is expected to be generated from the project; however, in the case of a fuel spill or other hazardous material contaminating the project site, the waste would be removed from the project site by a certified contractor.

As discussed above at Impacts 4.9-3 and 4.9-4, the project incorporates stormwater retention, would generally maintain runoff directions in undisturbed areas, and would not create significant impervious areas, as such, increases in stormwater runoff flows from the project in a manner that would create the potential for on- or off-site flooding is not anticipated. Therefore, impacts associated with creating or contributing runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or providing substantial additional sources of polluted runoff, are considered less than significant with mitigation.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, impacts would be less than significant.

Impact 4.9-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Ground-disturbing activities associated with the project could potentially degrade water quality through erosion and subsequent sedimentation of drainages. Additionally, accidental release of potentially harmful materials, such as engine oil and diesel fuel, could degrade the water quality of nearby streams. Preparation of and compliance with a SWPPP (MM 4.9-1) and a Spill Prevention Control and Countermeasures Response Plan (MM 4.9-2) would reduce potential impacts to be less than significant.

The project site is situated within the jurisdictional boundaries of the Lahontan Region Basin Plan, which establishes surface and groundwater standards for the region according to designated beneficial uses. The Lahontan Region Basin Plan summarizes applicable provisions of separate SWRCB and RWQCB planning and policy documents, and of water quality management plans adopted by other federal, state, and regional agencies. The project's water use for dust control would be consistent with the Lahontan Region Basin Plan and would not create a conflict with the plan.

The project site is not within an adopted groundwater management plan, with the exception of an approximately 1.4-acre triangular section of the Antelope Valley Groundwater Basin that extends onto the southern edge of the site. The proposed location for the project's groundwater supply well is not within the Antelope Valley Groundwater Basin and is nearly 1,000 feet south of the southern boundary of the Freemont Valley Groundwater Basin, which is designated as a low priority basin under the SGMA. Therefore, the Project would not have an impact to an adopted groundwater management plan (Sespe 2020, 2022).

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and 4.9-2, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Section 3.7, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project. (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis.) The geographic area for cumulative impacts to hydrology and water quality includes the local ephemeral drainages, watershed, and the local groundwater basin. Potential hydrology and water quality impacts associated with the project activities, including water quality degradation due to erosion, sedimentation, or the release of hazardous materials, would be limited to this geographic area.

Impact 4.9-9: The project would contribute to cumulative hydrology and/or water quality impacts.

The existing use of the project site is primarily undeveloped open space with two graded pad areas and dirt roads. There are no current or proposed projects in the geographic area of the project that would cumulatively contribute to the violation of any water quality standards or waste discharge requirements. Cumulative projects are not expected to result in substantial depletion of groundwater supplies or interference with groundwater recharge, alteration of existing drainage patterns in a matter which would result in substantial runoff/erosion/siltation, or substantial flooding or creation or contribution of stormwater runoff. No cumulative impacts would occur; therefore, no additional mitigation measures are proposed.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 and MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, cumulative impacts would be less than significant.

Section 4.10
Land Use and Planning

4.10.1 Introduction

This section of the Environmental Impact Report (EIR) addresses potential land use impacts that would result from the project. The following discussion addresses existing environmental conditions in the affected environment, evaluates the project's consistency with applicable goals and policies, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from project implementation.

4.10.2 Environmental Setting

Regional Setting

The project site is located in a mostly undeveloped portion of the western Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The Antelope Valley is formed by the Tehachapi Mountains to the northwest and San Gabriel Mountains to the southwest. The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Clay, silver, and gold mining have been conducted at various locations in the area since the 1890s with gold and silver mining continuing at the Soledad Mountain Golden Queen Mine located approximately 5 miles north of the project site. The historic Tropico Gold Mine is located approximately 3 miles southwest of the project site. The Mojave Cement Plant and Quarry, owned and operated by the project proponent, CalPortland, are located approximately 10 miles northwest of the project site. Other active and inactive mine sites are also in the vicinity.

Local Setting

The project site is comprised of 210.75 acres in a rural area in southeastern Kern County identified as portions of Kern County Assessor's Parcel Numbers (APNs) 345-294-17, 345-032-05, 345-032-31, 345-031-02 and 345-032-02. The proposed project would utilize the primary access road that crosses lands administered by the California State Lands Commission (CSLC) within APN 345-032-02.

The site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two recently graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more

gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation with more level areas at slope bottoms supporting moderately denser vegetation cover. Creosote bush scrub represents the predominant vegetation cover throughout the site. No known groundwater, gas, oil, or other wells are present on the site.

Several unnamed ephemeral drainage features are present within the project site. The drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site and generally flow to the southeast. According to the Federal Emergency Management Agency (FEMA), the project site is "Zone X – Area of Minimal Flood Hazard" (FEMA 2008).

The project site is subject to the *Kern County General Plan* and Kern County Zoning Ordinance. The project site is comprised of the following map code designations: 8.3 (Extensive Agriculture (Minimum 20-acre parcel size, 80 acres with Williamson Act contract)), 8.4/2.4 (Mineral and Petroleum (minimum of 5 acre parcel size) - Steep Slope Overlay), 8.4 (Mineral and Petroleum (minimum 5 acre parcel size)), and 8.5/2.4 (Resource Management (minimum 20 acre parcel size, 80 acres with Williamson Act contract) - Steep Slope Overlay) (**Table 4.10-1,** *Existing Uses, Zoning, and Land Use Designations*; **Figure 4.10-1,** *Kern County General Plan Land Use Designations*).

The Circulation Element of the KCGP identifies the section lines that run through the project site boundaries as being future collector road reservations. However, provided the topography of the area, it is highly unlikely the road reservations will be constructed. The project proponent has submitted a request for a Setback Deviation to the Kern County Planning and Natural Resources Department, as allowed under Section 2.3.7 of the KCGP. The setback deviation is to allow for a deviation of the required setback distances from future collector road reservations as required by the Kern County Zoning Ordinance. Such requested deviation may be authorized if it is demonstrated that the construction of said collector will not occur or is not a viable route.

The entire project site and much of the surrounding areas are currently zoned A (Exclusive Agriculture) with some areas to the north and east zoned PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining). (**Figure 4.10-2,** *Kern County Zoning Classifications*). Definitions of land use designations and zoning classifications are provided below.

Table 4.10-1 Existing Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
Project Site			
345-294-17	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)),	A (Exclusive Agriculture)

Table 4.10-1 Existing Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
		8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	
345-032-05	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-032-31	Undeveloped	8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-031-02	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)
345-032-02	Undeveloped	8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture)

Table 4.10-1 Existing Uses, Zoning, and Land Use Designations

Parcel	Existing Land Use	General Plan Land Use Designation	Existing Zoning Classification
Surrounding Parcels			
North	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay), 4.3 – Specific Plan Required (Ancient Valley Specific Plan)	A (Exclusive Agriculture), PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining)
South	Undeveloped	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size)), 1.1 – State or Federal land 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract))	A (Exclusive Agriculture)
East	Undeveloped; dispersed residences 858 to 4,000 feet to the northeast	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.4/2.4 (Mineral and Petroleum (Minimum 5 Acre Parcel Size) / Steep Slope Overlay), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A (Exclusive Agriculture), PL RS MH (Platted Lands, Residential Suburban Combining, Mobilehome Combining)
West	Undeveloped	1.1 – State or Federal land, 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract)), 8.5/2.4 (Resource Management (Minimum 20 Acre Parcel Size, 80 Acres with Williamson Act Contract) / Steep Slope Overlay)	A – Exclusive Agriculture

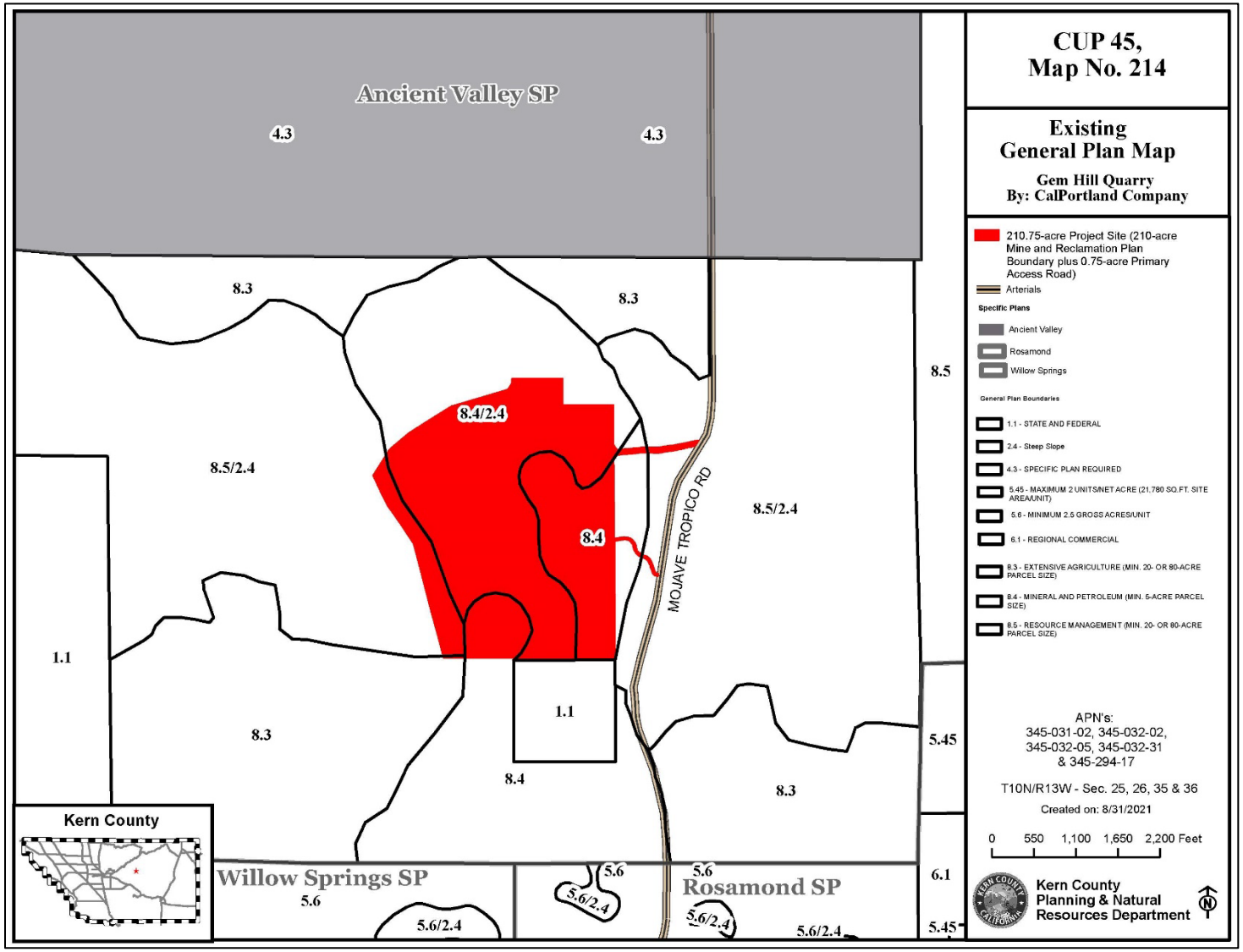


Figure 4.10-1
Kern County General Plan Land Use Designations

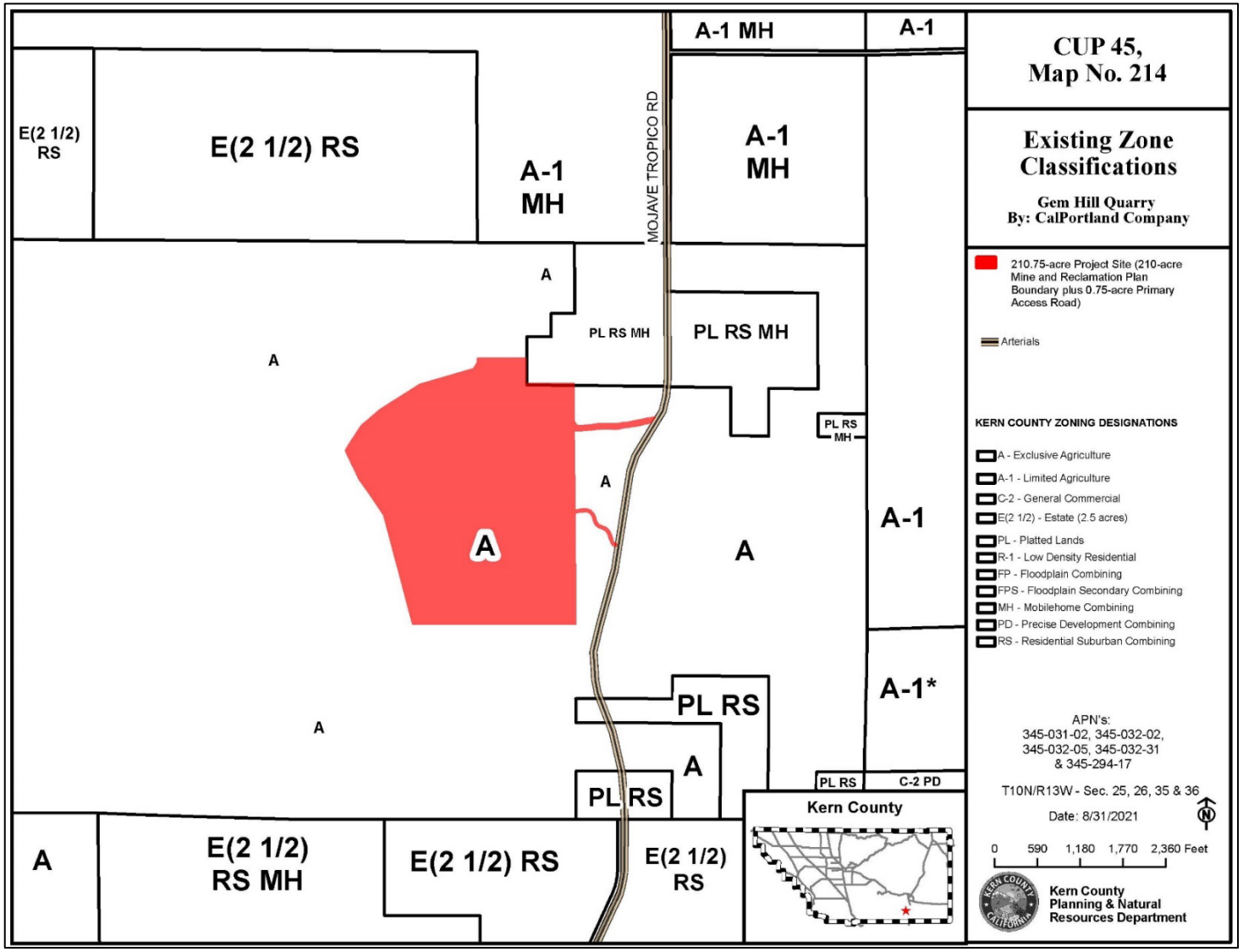


Figure 4.10-2
Kern County Zoning Classifications

Kern County General Plan Map Provisions

Map Code 2.4 Physical and Environmental Constraint – Steep Slope

Land with an average slope of 30% or steeper.

Map Code 8.3 – Extensive Agriculture

Agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. Minimum parcel size is 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.

Uses shall include, but are not limited to, livestock grazing, dry land farming, ranching facilities, wildlife and botanical preserves, irrigated croplands, and timber harvesting; one single-family dwelling unit; water storage or groundwater recharge areas; mineral, aggregate, and petroleum exploration and extraction; recreational activities, such as gun clubs and guest ranches; and land within development areas subject to significant physical constraints.

Map Code 8.4 – Mineral and Petroleum

Areas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is 5 acres gross.

Uses shall include, but are not limited to, mineral and petroleum exploration and extraction, including aggregate extraction; extensive and intensive agriculture; mineral and petroleum processing (excluding petroleum refining); natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits.

Map Code 8.5 – Resource Management

Primarily open space lands 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.

Kern County Zoning Classifications

A – Exclusive Agriculture (Zoning Ordinance Chapter 19.12)

The purpose of the Exclusive Agriculture (A) district is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A district are limited primarily to agricultural uses and other activities compatible with agricultural uses. Resource extraction and energy development uses, including mining and mineral extraction pursuant to Chapter 19.100, is permitted within this zone classification subject to securing a

conditional use permit in accordance with the standards and procedures set out in Chapter 19.104.

PL – Platted Lands (Zoning Ordinance Chapter 19.53)

The purpose of the Platted Lands (PL) district is to recognize legally existing lots within recorded subdivisions which had been rendered nonconforming with regard to minimum lot size requirements of the various resource designations (8.1, 8.2, 8.3, 8.4 and 8.5) of the county general plan. Uses in the PL district are limited primarily to residential uses and other activities compatible with the area to which the PL district is applied. Future land divisions within the PL district are prohibited.

RS – Residential Suburban Combining District (Zoning Ordinance Chapter 19.60)

The purpose of the Residential Suburban (RS) combining district is to expand the number and type of permitted domestic agricultural uses within rural residential areas. The RS combining district may be combined with the Estate (E) where the minimum lot size is one-half (½) net acre (twenty-one thousand seven hundred eighty (21,780) square feet) or larger. The RS combining district may also be combined with the Platted Lands (PL) district, provided, that each lot contains a minimum of one-half (½) net acre. The uses allowed and regulations established by the RS district shall be in addition to regulations of the base district with which the RS district is combined. The keeping of animals permitted by the RS district is an accessory use and shall not be established until a primary use is established.

MH – Mobilehome Combining District (Zoning Ordinance Chapter 19.62)

The purpose of the MH (Mobilehome Combining) district is to provide for the installation of mobilehomes with or without foundations in agricultural, resource-related, and residential zoned areas. The MH district may be combined with A-1 (Limited Agriculture), R-1 (Low-density Residential), E (Estate), PL (Platted Lands), or the RF (Recreation-Forestry) districts. Except as specifically provided for in this chapter, the uses allowed and regulations established by the MH district shall be in addition to the regulations of the base district with which the MH district is combined.

4.10.3 Regulatory Setting

Local

Land use and planning decisions within and adjacent to the project site are guided and regulated by the *Kern County General Plan* and Kern County Zoning Ordinance. The *Kern County General Plan* contains goals, objectives, and policies and provides an overall foundation for establishing land use patterns. The Kern County Zoning Ordinance contains regulations through which the *Kern County General Plan* provisions are implemented.

Applicable goals, policies, and implementation measures for each resource analyzed have been identified in their respective Regulatory Setting section in **Sections 4.1** through **4.17** of this EIR. The goals and policies listed in each section of **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, that have the potential to conflict with the project are

considered for consistency with the project in **Table 4.10-2,** *Project Consistency with Applicable Plans, Policies, and Regulations*.

This section lists all applicable goals, objectives, policies, and implementation measures adopted for the purpose of avoiding or mitigating an environmental effect not previously identified in the above-referenced sections as they relate to land use planning and the project. The project's consistency with the *Kern County General Plan* and Kern County Zoning Ordinance is discussed under Impact 4.10-1.

Kern County General Plan

California Government Code 65300 requires Kern County to prepare and adopt a general plan. Its purpose is to give long-range guidance to Kern County officials making decisions affecting the growth and resources of unincorporated Kern County. The *Kern County General Plan* helps to ensure that day-to-day planning and land use decisions are in conformance with the long-range program designed to protect and further the public interest. It will be periodically reviewed and updated as the goals and requirements of the community evolve and change.

Each of the resource sections in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR list goals and policies of the *Kern County General Plan* of particular potential relevance to that resource subject. An evaluation of the project's potential to conflict with policies of the *Kern County General Plan* is presented in **Table 4.10-2,** *Project Consistency with Applicable Plans, Policies, and Regulations*, and discussed in Impact 4.10-1.

Kern County Ordinance

Title 19 – Zoning Ordinance

The Kern County Zoning Ordinance establishes the 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*. **Table 4.10-2,** *Project Consistency with Applicable Plans, Policies, and Regulations*, lists the zoning designation for the project site. The applicable zoning district is defined below.

Chapter 19.12 – Exclusive Agriculture (A) District

Section 19.12.010 – Purpose and Application

The purpose of the Exclusive Agriculture (A) District is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Permitted land uses in this district include agriculture, commercial uses, utility lines and substations, resource extraction, energy development, and miscellaneous accessory structures related to permitted uses. Permitted uses in the A District subject to a CUP include the following:

- mining and mineral extraction pursuant to Chapter 19.100 of the County Zoning Ordinance

Chapter 19.100 – Surface Mining Operations

Section 19.100.010 – Purpose and Application

The purpose of this chapter is to regulate surface mining operations consistent with the requirements of the California Mining and Reclamation Act (Public Resources Code Sections 2710 et seq.) and the State Policy for Surface Mining and Reclamation Practice (Title 14 of the California Administrative Code, sections 3500 et seq.). The requirements of this chapter are applicable to any surface mining operation undertaken in unincorporated Kern County, except for those operations specifically exempted by Sections 2714 or 2776 of the California Public Resources Code.

Chapter 19.104 – Conditional Use Permits

Section 19.104.010 – Purpose and Application

The purpose of this chapter is to establish procedures and general standards for the review and approval of Conditional Use Permits authorized by various sections of this title. Whenever a use is listed in any section of this title as a use permitted subject to securing a Conditional Use Permit, it shall be approved only if it is consistent with the County General Plan and meets all requirements of this title and subject to any conditions deemed appropriate by the decision-making authority.

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.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
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:** The project site is in a remote area with limited adjacent land uses. Mining activities and reclamation activities are subject to Federal, State, and local safety regulations and would not pose a substantial risk to people or property.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
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:** The Slope Stability Evaluation Report (Terracon 2021) and Drainage Report (Chang 2022) conducted for the project determined that the project would not result in an unmitigated significant impact associated with seismic or flood hazards**.**
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:** The project site is within the 2.4 (Steep Slope) physical and environmental constraints overlay, requiring the project to adhere to standard grading practices to prevent soil instability and erosion. The project does not propose residential development and is not within any other hazardous areas, including physically or environmentally constrained areas; therefore, the proposed project would be consistent with this *Kern County General Plan* policy.
Policy 3. Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.	**Consistent:** The project is within 8.3 Extensive Agriculture, 8.4 Mineral and Petroleum, and 8.5 Resource Management general plan land use designations and zoned A (Exclusive Agriculture). The project would be a compatible use with this zoning designation. The project would be within the 2.4 Steep Slope physical and environmental constraints overlay, requiring the project to adhere to standard grading practices to prevent soil instability and erosion. The project is not located within any other hazardous areas, including physically or environmentally constrained areas; therefore, the proposed project would be consistent with this *Kern County General Plan* policy.
Policy 6. Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required and reducing soil erosion while maintaining soil stability.	**Consistent:** The project would be within the 2.4 Steep Slope physical and environmental constraints overlay, requiring the project to adhere to standard grading practices to prevent soil instability and erosion. Development associated with the project would be for mining purposes and no structures are proposed. When the mining operations are complete, the quarry area would be reclaimed to maximum final reclaimed inter-bench slopes a maximum of 0.25:1 (horizontal:vertical [H:V]) with overall final reclaimed slopes of 1:1 (H:V) and maximum final reclaimed slopes for overburden stockpiles of 2:1 (H:V) and revegetated in accordance with the approved reclamation plan, which is intended in part to prevent soil erosion and to maintain soil stability; therefore, the proposed project would be consistent with this *Kern County General Plan* policy.
Policy 8. Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.	**Consistent:** The Drainage Report (Chang 2022) conducted for the project determined that the project would not result in an unmitigated significant impact associated with stormwater.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
Policy 9. Construction of structures that impede water flow in a primary floodplain will be discouraged.	**Consistent:** The Drainage Report (Chang 2022) conducted for the project determined that the project would not result in an unmitigated significant impact associated with stormwater.
1.9 Resource	
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 proposed project would be on land designated by the *Kern County General Plan* as 8.3 Extensive Agriculture, 8.4 Mineral and Petroleum, and 8.5 Resource Management. The proposed uses would be compatible with the existing land use designation and zoning and would beneficially impact the economic strength derived from mineral resources in the area and would not have a negative impact on the economic strength derived from the petroleum, agriculture, or rangeland resources in the area. Therefore, the proposed project would be consistent with this *Kern County General Plan* goal.
Goal 2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use.	**Consistent:** Implementation of the proposed project would utilize existing mineral resources within the project site. The mineral resources analysis conducted for this EIR determined that the project would result in production and making mineral resources available for beneficial use within Kern County and surrounding areas. Therefore, the proposed project would be consistent with this *Kern County General Plan* goal.
Goal 3. Ensure the development of resource areas minimize effects on neighboring resource lands.	**Consistent:** The majority of properties surrounding the proposed project site are designated by the *Kern County General Plan* as Extensive Agriculture, Mineral and Petroleum, and Resource Management as is the project site. The proposed use (mineral extraction) is listed among the included uses within these land use designations, and therefore is consistent with the goals, policies, and implementation measures of these land use designations. Neighboring resource lands would not be adversely affected.
Policy 2. In areas with a resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with the General Plan.	**Consistent:** The proposed project operations would involve mining, hauling mined product to locations offsite, and reclamation activities, which are directly and obviously related to production and transport of the proposed mineral resource extraction.
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:** The project would modify ephemeral drainages located within the project disturbance area boundary and would install stormwater basins and implement best management practices (BMPs) to mitigate potential stormwater and drainage impacts.
Policy 14. Emphasize conservation and development of identified mineral deposits.	**Consistent:** The project would develop an identified mineral deposit.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
Policy 17. Lands classified as MRZ-2, as designated by the State of California, should be protected from encroachment of incompatible land uses.	**Consistent:** The mineral resources analysis conducted for this EIR determined that the project site is not located within lands classified as MRZ-2, as designated by the State of California.
1.10 General Provisions	
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:** This EIR documents Kern County's environmental review of the project under CEQA and includes an evaluation of public services finding the project impact less than significant.
Policy 19. In considering discretionary projects for which an EIR 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 the CEQA.	**Consistent:** This EIR documents Kern County's environmental review of the project under CEQA and includes an evaluation of air quality impacts. The project would result in less-than-significant air pollutant emissions after mitigation.
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 Eastern Kern Air Pollution Control District on ministerial permits.	**Consistent:** The project would be subject to the Eastern Kern Air Pollution Control District (EKAPCD) rules, including Rules 401 and 402 and Regulation IV, which serve to minimize fugitive dust emissions.
Policy 21. The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.	**Consistent:** The project would be subject to the EKAPCD rules, including Rules 401 and 402 and Regulation IV which serve to minimize fugitive dust emissions.
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.	**Consistent:** The analysis in this EIR considers potential effects on cultural resources, and the project would be required, through mitigation and through regulatory compliance, to minimize impacts and avoid significant effects to cultural resources.
Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with State and Federal laws.	**Consistent:** The analysis in this EIR considers potential effects on Threatened and Endangered species and the project would be required through mitigation and through regulatory compliance to minimize impacts on special-status species.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
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 the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.	**Consistent:** The Delineation of State and Federal Jurisdictional Waters (ELMT, 2022b) prepared for the project concluded that the site does not support riparian habitat.
Policy 39. Encourage the development of the County's ground water supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.	**Consistent:** A Water Supply Assessment (Sespe 2020) and Technical Memorandum in Support of the Gem Hill Water Supply Assessment (Sespe 2022) have been submitted for the proposed project, which conclude that water demands for the project would be met with the development of an onsite groundwater well and the use of groundwater for the project would not adversely affect other groundwater users or groundwater quality.
Policy 40. Encourage utilization of community water systems rather than the reliance on individual wells.	**Consistent:** A Water Supply Assessment (Sespe 2020) and Technical Memorandum in Support of the Gem Hill Water Supply Assessment (Sespe 2022) have been submitted for the proposed project, which conclude that water demands for the project would be met with the development of an onsite groundwater well. The Technical Memorandum discusses the proximity of existing water systems and concludes the project would not be expected to adversely affect existing systems. Although the project does not propose to utilize a community water system, the General Plan merely encourages connection to a community water system, and the project's reliance on an onsite well and verification of no significant impacts to other groundwater users is considered sufficient for a finding of consistency with this policy. Moreover, the County's Environmental Health Services Department has developed well construction standards that will ensure protection of groundwater quality.
Policy 41. Review development proposals to ensure adequate water is available to accommodate projected growth.	**Consistent:** A Water Supply Assessment (Sespe 2020) and Technical Memorandum in Support of the Gem Hill Water Supply Assessment (Sespe 2022) have been submitted for the proposed project, which conclude that water demands for the project would be met with the development of an onsite groundwater well and the use of groundwater for the project would not adversely affect other groundwater users or groundwater quality.
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.	**Consistent:** The Drainage Report (Chang 2022) conducted for the project determined that the project would not result in an unmitigated significant impact associated with stormwater. Kern County is recommending inclusion of mitigation measures requiring the project proponent/operator to submit a Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure Plan (SPCC) to control potential water quality impacts.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
Policy 47. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.	**Consistent:** The project aesthetic impact analysis identifies the requirement for the project to use lighting that minimizes potential spill and night lighting impacts.
Policy 48. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.	**Consistent:** The project aesthetic impact analysis identifies the requirement for the project to use lighting that minimizes potential spill and night lighting impacts.
Chapter 2 Circulation Element	
Goal 5. Maintain a minimum Level of Service (LOS) D for all roads throughout the County.	**Consistent:** As discussed in **Section 4.14**, *Transportation and Traffic*, of this EIR, the project would not cause or contribute to LOS D at any of the study area intersections or road segments.
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:** The Noise and Vibration Impact Analysis (Urban Crossroads 2022a) conducted for the project determined that the project would not result in a significant noise impact; thus, the project would not conflict with this policy.
Policy 1. Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.	**Consistent:** The Noise and Vibration Impact Analysis (Urban Crossroads 2022a) conducted for the project determined that the project would not result in a significant noise impact; thus, the project would not conflict with this policy.
Policy 4. Utilize good land use planning principles to reduce conflicts related to noise emissions.	**Consistent:** The Noise and Vibration Impact Analysis (Urban Crossroads 2022a) conducted for the project determined that the project would not result in a significant noise impact; thus, the project would not conflict with this policy.
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:** The Noise and Vibration Impact Analysis (Urban Crossroads 2022a) conducted for the project determined that the project would not result in a significant noise impact; thus, the project would not conflict with this policy.
Policy 7. Employ the best available methods of noise control.	**Consistent:** The Noise and Vibration Impact Analysis (Urban Crossroads 2022a) conducted for this EIR determined that the project would not result in a significant noise impact; thus, the project would not conflict with this policy.
Chapter 4 Safety Element	
4.5 Landslides, Subsidence, Seiche, and Liquefaction	
Policy 1. Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) 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.	**Consistent:** The analysis in this EIR determines that the project would have a less-than-significant impact associated with potential liquefaction.

Table 4.10-2 Project Consistency with Applicable Plans, Policies, and Regulations

Applicable Plan, Policy, or Regulation	Consistency Analysis
Policy 3. Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.	**Consistent:** The Slope Stability Evaluation Report (Terracon 2022) and Drainage Report (Chang 2022) performed for the project determined that the project would not result in an unmitigated significant impact.
4.6 Wildland and Urban Fire	
Policy 4. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.	**Consistent:** The project has direct access to Mojave-Tropico Road for emergency vehicle access if necessary.
Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.	**Consistent:** The project will comply with the adopted Fire Code and Fire Department requirements.

4.10.4 Impacts and Mitigation Measures

Methodology

For the purposes of this analysis, relevant documents (particularly the *Kern County General Plan* and Kern County Zoning Ordinance) were consulted, and a site visit was performed. The project's consistency with plans and policies for each environmental topic area is summarized below and is described in greater detail in the relevant environmental topic sections of **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to land use and planning. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to land use and planning 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 adopted for the purpose of avoiding or mitigating an environmental effect.

The Lead Agency determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding the following impacts:

- Physically divide an established community.

Project Impacts

Impact 4.10-1: 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.

The project proposes the approval of a Conditional Use Permit (CUP) to allow surface mining operations and development of a Reclamation Plan, to mine volcanic tuff, a natural pozzolan, to be operated by CalPortland Company (project proponent) at the project site in southeastern Kern County. The *Kern County General Plan* and Kern County Zoning Ordinance establish land use policies and regulations that are applicable to the proposed project. **Table 4.10-2,** *Project Consistency with Applicable Plans, Policies, and Regulations*, summarizes the proposed project's general consistency with applicable goals and policies. Many of the issue areas evaluated in **Table 4.10-2,** *Project Consistency with Applicable Plans, Policies, and Regulations*, are discussed in more detail in corresponding sections of this EIR.

The project as proposed, including implementation of mitigation measures provided in this EIR, would not conflict with the *Kern County General Plan* or the Kern County Zoning Ordinance. The proposed mining operation is considered a compatible use within the A (Exclusive Agriculture) Zone District, subject to securing a Conditional Use Permit (CUP). The project proposes mining and extraction activities in an area zoned to allow such uses, and the proposed project would be implemented and reclaimed consistent with the Surface Mining and Reclamation Act (SMARA).

The project is within the 2.4 Steep Slopes overlay and may be required to prepare a Stormwater Pollution Prevention Plan (SWPPP). Therefore, the project would be consistent with Kern County policies related to development within the 2.4 Steep Slopes environmental and physical constraints overlay. Implementation of mitigation measures identified in this EIR would result in the proposed project remaining consistent with the policies of the *Kern County General Plan* and would reduce this impact to be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-7; MM 4.4-1 through MM 4.4-4; MM 4.6-1 and MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 through MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-7; MM 4.4-1 through MM 4.4-4; MM 4.6-1 and MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 through MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The geographic scope for cumulative land use impact considerations includes closely related past, present, and reasonably foreseeable future projects within the vicinity of the project site. **Section 3.7**, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis.)

Impact 4.10-2: The project would contribute to cumulative land use and planning impacts.

With regard to conflicts with any land use plan, policies, or regulations, including Habitat Conservation Plans, issuance of the requested CUP, implementation of the project's reclamation plan, and implementation of the mitigation measures in this EIR would ensure project compliance with applicable goals, policies, and regulations implemented by Kern County.

Limited planned or future projects are anticipated in the area that would create a potential for land use conflicts with the project. The analysis in this EIR considers existing land uses when determining potential impacts (e.g., visual, noise, air quality, etc.) and considers these impacts on a cumulative basis. Cumulatively, impacts associated with air pollutant emissions (on a local and regional basis) are found to be significant. However, neither these impacts nor other less-than-significant cumulative or project-specific impacts identified in this EIR are anticipated to contribute to cumulative land use impacts. Therefore, the project's contribution to cumulative land use impacts is considered less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-7; MM 4.4-1 through MM 4.4-4; MM 4.6-1 and MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 through MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-1 through MM 4.1-3; MM 4.2-1 through MM 4.2-10; MM 4.3-1 through MM 4.3-7; MM 4.4-1 through MM 4.4-4; MM 4.6-1 and MM 4.6-2; MM 4.8-1 through MM 4.8-7; MM 4.9-1 through MM 4.9-2; MM 4.12-1 through MM 4.12-3; MM 4.13-1; MM 4.14-1; and MM 4.16-1, cumulative impacts would remain less than significant.

Section 4.11
Mineral Resources

4.11.1 Introduction

This section of the Environmental Impact Report (EIR) describes the existing environment and regulatory setting in regard to mineral resources. It also describes the impacts on mineral resources that would result from implementation of the proposed project and any necessary mitigation measures that would reduce these impacts. The information in this section is based on the *Kern County General Plan* and California Department of Conservation (CDOC) documents and maps.

4.11.2 Environmental Setting

The Environmental Setting discusses the existing conditions related to mineral resources within the project area, which includes the project site.

Regional Setting

Mineral and petroleum resources are basic to Kern County's economy. Kern County produces more oil than any other California county. Borax, cement production, and construction aggregates also constitute major economic mineral resources within the County. As new recovery technologies come into use, petroleum extraction is expected to continue in economic importance. An increasing demand for borax, cement, and construction aggregates is also expected to continue (Kern County 2009). In 1999, the State Geologist analyzed 2,971 square miles of land in Kern County to determine the location of mineral resource zones throughout the County. The mineral resource zone (MRZ) categories are defined as follows:

MRZ-1: Areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2a: Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves. Land included in MRZ-2a is of prime importance because it contains known economic mineral deposits.

MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain inferred mineral resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration could result in upgrading areas classified MRZ-2b to MRZ-2a.

MRZ-3a: Areas containing known mineral occurrences of undetermined mineral resource significance. Further exploration could result in reclassification of all or part of these areas into MRZ-2a or MRZ-2b categories.

MRZ-3b: Areas containing inferred mineral occurrences of undetermined mineral resource significance. Further exploration could result in the reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

MRZ-4: Areas containing no known mineral occurrence.

Table 4.11-1, *Classified Mineral Resources within Kern County*, demonstrates the classified mineral resources within Kern County that are part of the MRZ-2 group and, therefore, have a demonstrated mineral significance (as opposed to the MRZ-3 group, which has an undetermined mineral significance).

Table 4.11-1 Classified Mineral Resources within Kern County

Mineral Resource	MRZ Classification	Number of Areas	Total Acreage
Borates	MRZ-2a and 2b	2	2,564
Limestone	MRZ-2a	4	2,008
	MRZ-2b	2	157
Silica	MRZ-2a	1	119
Pozzolan (essential cement additive)	MRZ-2b	1	72
Gold	MRZ-2a	3	849
Gold	MRZ-2b	8	6,619
Dimension Stone	MRZ-2a	2	527

Source: Koehler 1999.

Site Characteristics

General geologic conditions in the project area are described in **Section 4.6**, *Geology and Soils*, of this EIR. The project site is not located within a designated MRZ. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Clay, silver, and gold mining have been conducted at various locations in the area since the 1890s with gold and silver mining continuing at the Soledad Mountain Golden Queen Mine located approximately 5 miles north of the project site. The historic Tropico Gold Mine is located approximately 3 miles southwest of the project site. The Mojave Cement Plant and Quarry, owned and operated by the project proponent, CalPortland, are located approximately 10 miles northwest of the project site. Other active and inactive mine sites are also in the vicinity. Per comments received from CalGEM in response to the Notice of Preparation/Initial Study (NOP/IS), there are no known oil or gas wells located within the project boundary.

4.11.3 Regulatory Setting

State

California Department of Conservation Geologic Energy Management Division

CalGEM is a State agency responsible for regulating the drilling, operation, and permanent closure of oil, gas, and geothermal wells. CalGEM also regulates certain pipelines and facilities associated with production and injection, as well as wells and other facilities using science and sound engineering practices to protect the public and the environment.

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act (SMARA) of 1975 (Public Resources Code [PRC] Sections 2710–2796) regulates surface mining operations to assure that adverse environmental impacts are minimized, and mined lands are reclaimed to a usable condition. SMARA encourages the production, conservation, and protection of the State's mineral resources and requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision makers and considered before land-use decisions are made that could preclude mining (Koehler 1999).

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for mineral 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

1.9 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 3.** To ensure that the development of resource areas minimizes effects on neighboring resource lands.

Policies

- **Policy 2.** In areas with a resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with this General Plan.
- **Policy 14.** Emphasize conservation and development of identified mineral deposits.
- **Policy 15.** Agriculture and other resource uses will be considered a consistent use in areas designated for Mineral and Petroleum Resource uses on the General Plan.
- **Policy 25.** Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and Petroleum) areas.

Implementation Measures

- **Implementation Measure H.** Use the California Geological Survey's latest maps to locate mineral deposits until the regional and Statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.
- **Implementation Measure K.** Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

4.11.4 Impacts and Mitigation Measures

Methodology

CDOC publications, the *Kern County General Plan* map, and aerial photos were evaluated to identify potential conflicts of the project's presence and operations with mineral resource extraction. Using these resources and professional judgment, mineral resources impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to mineral resources. A project could have a significant adverse effect on mineral resources if it would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Project Impacts

Impact 4.11-1: The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

The project would result in the productive use of volcanic tuff, a natural pozzolan, present on the project site, and would therefore result in the loss of the availability of a known mineral resource of value to the region, through the extraction and sale/use of the material. However, because the project would produce and make these mineral resources available for beneficial use within Kern County and surrounding areas, this loss is not considered adverse in terms of the County's environmental review pursuant to the CEQA. Further, the proposed end use of open space would not preclude future additional mineral extraction on the site.

Because the project would use mineral resources, would not preclude the future extraction of additional mineral resources, and would not result in the loss of availability of any known Statewide or regionally important mineral resources, this evaluation concludes that the project would have a less-than-significant impact associated with the loss of availability of a known mineral resource of value to the region or residents of the state.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.11-2: The project would result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

The project would result in the productive use of volcanic tuff, a natural pozzolan, present on the project site, and would therefore result in the loss of the availability of a known mineral resource of value to the region, through the extraction and sale/use of the material. However, because the project would produce and make these mineral resources available for beneficial use within Kern County and surrounding areas, this loss is not considered adverse in terms of the County's environmental review pursuant to the CEQA. Further, the proposed end use of open space would not preclude future additional mineral extraction on the site.

Because the project would use mineral resources, would not preclude the future extraction of additional mineral resources, and would not result in the loss of availability of any locally important mineral resource, this evaluation concludes that the project would have a less-than-significant impact associated with the loss of availability of a locally important mineral resource.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. **Section 3.7**, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis). However, the geographic scope for cumulative impacts to mineral resources includes all of Kern County. This geographic scope of analysis is appropriate because the loss of availability of mineral resources anywhere in the County would combine with mineral resource impacts of the project to result in a cumulative impact associated with the Countywide loss of an important mineral resource.

Impact 4.11-3: The project would contribute to cumulative mineral resources impacts.

The proposed project would make productive use of the mineral resources extracted at the site and would make these mineral resources available for beneficial use within Kern County and surrounding areas. The project would not preclude future on-site mineral resource development, nor would it result in the loss of a locally important mineral resource recovery site. The project's productive use of mineral resources from the site would not have the potential to result in a considerable contribution to a cumulative impact when considered in combination with impacts from past, present, or reasonably foreseeable projects that could result in the loss of an important mineral resource. Therefore, the proposed project would not result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site and would not contribute to any cumulative impacts to mineral resources.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.12
Noise

4.12.1 Introduction

This section of the Environmental Impact Report (EIR) addresses the potential noise and vibration impacts associated with operation of the project. It describes the existing noise conditions on the project site, the regulatory setting, the impacts of the project, and feasible mitigation measures to reduce impacts. The information in this section incorporates information from the *Gem Hill Quarry Noise and Vibration Impact Analysis, Kern County* (Urban Crossroads, 2022), included as Appendix J of this EIR.

Terminology

The following is a brief discussion of common noise terminology and descriptors used in this section.

- **Noise:** Loud, unpleasant, unexpected, or otherwise undesirable 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).
- **Sound:** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as human ears or a microphone.
- **Ambient Noise Level:** The composite noise from all sources resulting in the normal, existing level of environmental noise at a given location. The ambient level is typically defined by the equivalent sound pressure level (L_{eq}).
- **Background Noise Level:** The underlying ever-present lower-level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as traffic, typically make up the background. The background level is generally defined by the L90 percentile noise level, which is defined as the level exceeded for 90% of the time.
- **Intrusive:** Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal content, the prevailing ambient noise level, and the sensitivity of the receiver. The intrusive level is generally defined by the L10 percentile noise level, which is defined as the level exceeded for 10% of the time.

- **Decibel (dB):** A measure of sound or vibration amplitude on a logarithmic scale that indicates the squared ratio of sound pressure or vibration velocity root-mean-squared (RMS) amplitude to a reference sound pressure or vibration amplitude. For sound, the reference pressure is 20 micropascals.
- **A-Weighted Decibel (dBA):** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Sound Pressure Level (L_{eq}):** The equivalent steady-state sound or vibration level that would contain the same acoustical or vibration energy in a stated period of time.
- **Day-Night Average Sound Level (L_{dn}):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m. A noise source that has an L_{eq} that is constant throughout a 24-hour period would have an L_{dn} that is 6 dB higher than the L_{eq}. For example, a noise source that operates at 60 L_{eq} and operates 24 hours a day would have an L_{dn} of 66 dB.
- **Hertz (Hz):** A unit of frequency. The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself.
- **Community Noise Equivalent Level (CNEL):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.

L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such in this assessment. In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level (California Department of Transportation [Caltrans] 2009).

Noise is a by-product of human activities. Noise is generally defined as unwanted sound. The range of sound pressure perceived as sound is extremely large. The decibel is the preferred unit for measuring sound, since it accounts for these variations using a relative scale adjusted to the range of hearing (referred to as the A-weighted decibel of dBA). The A-weighted decibel is a method of sound measurement that assigns weighted values to selected frequency bands in an attempt to reflect how the human ear responds to sound. The range of human hearing is from 0 dBA (the threshold of hearing) to about 140 dBA (the threshold for pain). Examples of noise and their A-weighted decibel levels are shown in **Table 4.12-1,** *Typical Noise Levels*.

Table 4.12-1 Typical Noise Levels

Noise Level (dBA)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock band

Table 4.12-1 Typical Noise Levels

Noise Level (dBA)	Outdoor Activity	Indoor Activity
80–90	Diesel truck at 50 feet	Loud television at 3 feet, food blender at 3 feet
70–80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60–70	Commercial area, heavy traffic at 300 feet	Normal speech at 3 feet
40–60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20–40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10–20		Broadcast/recording studio

Source: Caltrans 2009.

To calculate the noise level at a given distance from a noise source, noise levels can be modeled using the Inverse Square Law of Noise Propagation (Caltrans 2009), which states that noise decreases by approximately 6 dBA with every doubling of the distance from the source. **Table 4.12-2,** *Noise Level Changes with Distance from Source*, indicates how noise levels would decrease with distance from the source of noise, using the Inverse Square Law of Noise Propagation.

Table 4.12-2 Noise Level Changes with Distance from Source

Distance from Source of Noise (feet)	Noise Level (dB)
50	91
100	85
500	71
1,000	65
2,500	57
5,000	51

Source: Caltrans 2009.

Vibration

Vibration is defined as the mechanical motion of earth or ground, building, or other type of structure induced by the operation of any mechanical device or equipment located upon or affixed thereto. Vibration generally results in an oscillatory motion in terms of the displacement, velocity, or acceleration of the ground or structure(s) that causes a normal person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects.

The effects of ground-borne vibration include movements of building floors, rattling of windows, and shaking of items on shelves or hangings on the walls. In extreme cases, vibration can cause damage to buildings. The noise radiated from the motion of the room surfaces is called ground-borne noise. Typical levels of ground-borne vibration are listed in **Table 4.12-3,** *Typical Levels of Ground-Borne Vibration*. The vibration motion normally does not provoke the same adverse human reactions as the noise unless there is an effect associated with the shaking of the building. In addition, the vibration noise can only occur inside buildings. Similar to the propagation of noise, vibration propagated from the source to the receptor depends on the receiving building (i.e., the weight of the building), soil conditions, layering of the soils, the depth of groundwater table, etc.

Table 4.12-3 Typical Levels of Ground-Borne Vibration

Response	Velocity Level[1]	Typical Sources (at 50 Feet)
Minor cosmetic damage of fragile buildings	100	Blasting from construction projects
Difficulty with tasks such as reading a video display terminal (VDT) screen	90	Bulldozers and other heavy-tracked construction equipment
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, frequent events	70	High speed rail, typical
Approximate threshold for human perception	60	Bus or truck, typical
None	50	Typical background vibration

Source: Caltrans 2009.
Notes:
1 RMS vibration velocity level in vibration decibels (VdB) relative to 10-6 inches/second.

Blasting

The proposed project would use blasting to loosen rock as part of the mining process. Blasting energy generates both noise and groundborne vibration.

The noise produced by blasting activities is referred to as air overpressure, or an "airblast," which is generated when explosive energy in the form of gases escape from the detonating blast holes. Airblasts radiate outward in a spherical pattern and attenuate with each doubling of distance from the blast location, depending on the design of the blast and amount of containment. Airblast levels generated by blasting can travel up to 1,100 feet per second, depending on the size of the blast, distance from the blast, and amount of charge confinement. To determine potential airblast levels (measured in dB) from a blast, the cubed-root scaled distance (SD_3) is used based on the planned maximum charge weight of the blast, and distance to the receptor location being analyzed (Urban Crossroads 2022).

Vibration levels generated by a blast can travel up to 20,000 feet per second, depending on the size of the blast, travel pathways (e.g., ground discontinuities), and site characteristics. To determine potential vibration levels (measured in peak particle vibration [PPV]) from a blast, the square-root scaled distance (SD_2) is used based on the planned maximum charge weight of the blast, and distance to the receptor location being analyzed (Urban Crossroads 2022).

4.12.2 Environmental Setting

The project site is located in a mostly undeveloped portion of the western Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The Antelope Valley is formed by the Tehachapi Mountains to the northwest and San Gabriel Mountains to the southwest. The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest. Clay, silver, and gold mining have been conducted at various locations in the area since the 1890s with gold and silver mining continuing at the Soledad Mountain Golden Queen Mine located approximately 5 miles north of the project site. The historic Tropico Gold Mine is located approximately 3 miles southwest of the project site. The Mojave Cement Plant and Quarry, owned and operated by the project proponent, CalPortland, are located approximately 10 miles northwest of the project site. Other active and inactive mine sites are also in the vicinity.

Residences nearest to the site are to the northeast, with the nearest approximately 858 feet from the northeast corner of the site, and approximately 1,800 feet from proposed mineral resource recovery activities. Additional residences are located 1 mile and further to the south, southeast, and southwest, and the unincorporated community of Rosamond is about 4 miles to the southeast of the site. A solar photovoltaic power generating facility is located about 1 mile southwest of the project site.

To assess the existing ambient noise level environment, 24-hour noise level measurements were taken at six locations in the project study area selected to describe and document the existing noise environment within the project study area. **Figure 4.12-1**, *Ambient Noise Monitoring Locations*, illustrates the noise level measurement locations. Noise level measurements were collected by Urban Crossroads on Monday, December 6th, 2021. **Table 4.12-4**, *Ambient Noise Monitoring Results*, identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) nighttime (10:00 p.m. to 7:00 a.m.) and the composite 24-hour CNEL noise levels at each noise level measurement location. The table provides the equivalent noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number (Urban Crossroads, 2022).

Table 4.12-4 Ambient Noise Monitoring Results

		Average Noise Level (dBA L_{eq})		
Location	Location	Daytime	Nighttime	CNEL
L1	Located north of the Project site near single- family residence at 5146 Montiverde Road.	40.9	36.5	44.1
L2	Located north of the Project site near single- family residence at 4701 Sunbow Avenue.	40.6	36.9	44.3

Table 4.12-4 Ambient Noise Monitoring Results

Location	Location	Average Noise Level (dBA L_{eq})		CNEL
		Daytime	Nighttime	
L3	Located northeast of the Project site near single-family residence at 4488 Gayiety Avenue.	45.3	42.5	49.7
L4	Located northeast of the Project site near single-family residence at 7494 Mojave-Tropico Road.	46.6	43.8	51.1
L5	Located northeast of the Project site near single-family residence at 7288 Mojave Tropico Road.	45.1	41.8	49.2
L6	Located northeast of the Project site near single-family residence at 7167 Mojave Tropico Road.	43.3	42.2	49.0

Source: Urban Crossroads 2022.

To assess haul road noise levels (as existing and during the operational phase of the project), traffic noise contours were developed representing the distance to noise levels of a constant value as measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours, conservatively, do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the project study area. **Table 4.12-5**, *Off-Site Haul Route Traffic Noise – Existing Conditions*, provides modeled existing noise levels along segments of Mojave-Tropico Road, Backus Road (east and west of Mojave-Tropico Road), and Willow Springs Road, which represent the primary road segments that would be used by project haul trucks. A detailed description of the modeling procedure and inputs is provided in the *Gem Hill Quarry Noise and Vibration Impact Analysis* (Urban Crossroads 2022), included as Appendix J of this EIR.

Table 4.12-5 Off-Site Haul Route Traffic Noise – Existing Conditions

ID	Road Segment	CNEL at Nearest Receiving Land Use (dBA)1	Distance to Contour from Centerline (Feet)		
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Willow Springs Rd. north of Backus Rd.	60.6	RW	RW	13
2	Mojave Tropico Rd south of Backus Rd.	58.2	RW	RW	RW
3	Backus Rd. west of Mojave Tropico Rd.	58.7	RW	RW	RW
4	Backus Rd. east of Mojave Tropico Rd.	61.6	RW	RW	15

Source: Urban Crossroads 2022.
Notes:
1 The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road.

Noise analysis for proposed projects typically focuses on "sensitive receptors" (i.e., residences, hotels, churches, auditoriums, schools, libraries, hospitals, and parks). As discussed previously, the project site is in a mostly undeveloped portion of the western Antelope Valley. However, northeast of the site are residential land uses that are considered potential noise-sensitive receptors for this evaluation. The nearest residence is located approximately 858 feet northeast of the project site boundary, other residences are located further to the north and northeast. Six sensitive receptor locations were selected for the analysis, each a residence northeast of the site. Although other residences are also located in the area, these and other potentially sensitive land uses in the study area are located at greater distances than the receptor locations evaluated in the noise analysis and would experience lower noise levels (and lesser potential impacts) than those presented here due to the additional attenuation from distance and the shielding of intervening structures. The locations of these sensitive receptors in relation to the project site are shown on **Figure 4.12-1,** *Noise Monitoring Locations and Sensitive Receptors Map*.

4.12.3 Regulatory Setting

State

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each County and City adopt a General Plan that includes a Noise Element, which is to be prepared according to guidelines adopted by the Governor's Office of Planning and Research. The purpose of the general plan noise element is to "limit the exposure of the community to excessive noise levels."

The California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

The State of California's noise insulation standards are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for the purpose of controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

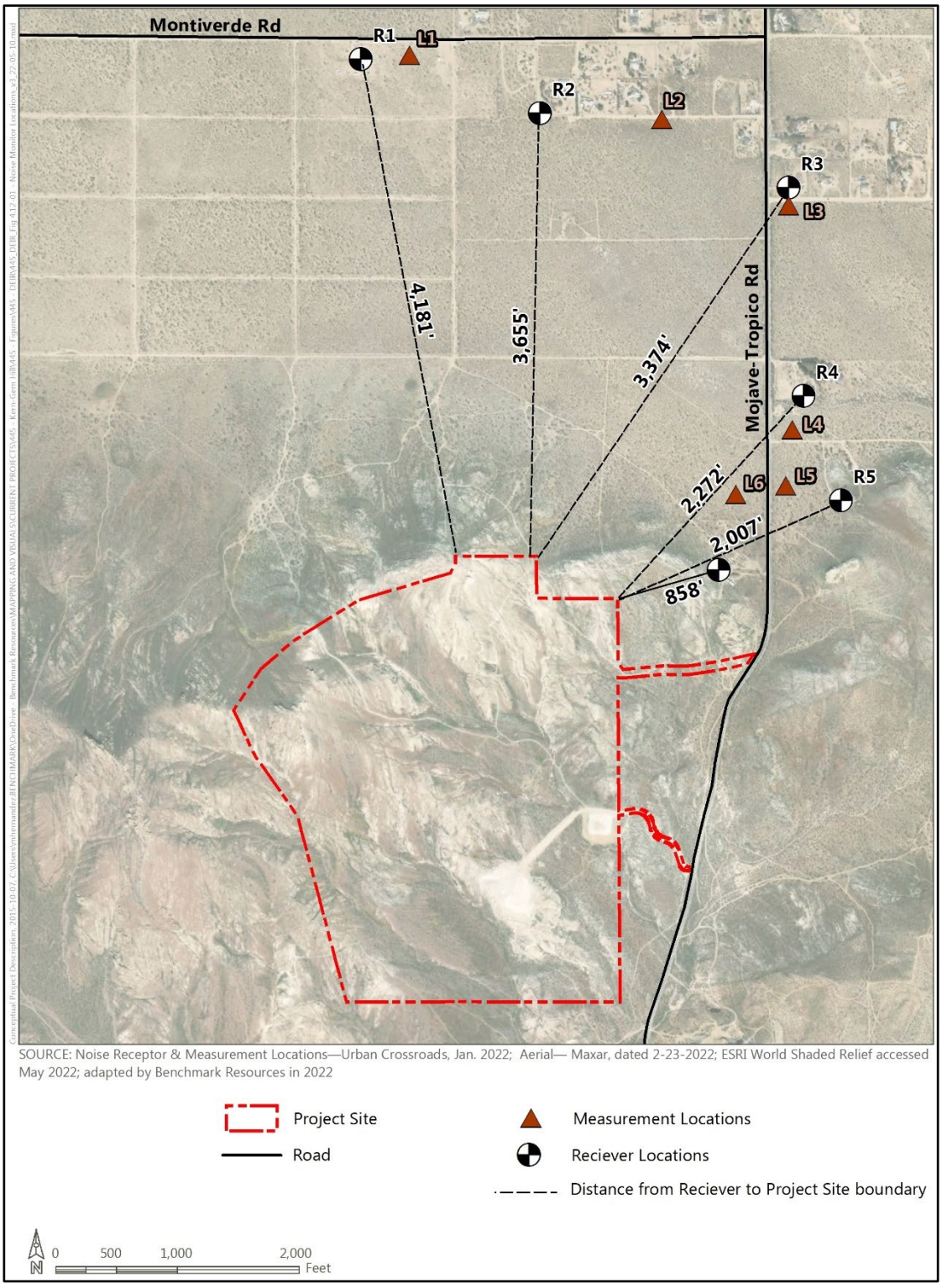


Figure 4.12-1
Noise Monitoring Locations and Sensitive Receptors Map

Local

Kern County General Plan

The *Kern County General Plan* Noise Element identifies goals, policies, and implementation measures that are used to guide development with regard to noise. The Noise Element establishes reasonable standards for maximum desired noise level in Kern County and provides an implementation program for addressing noise within the County. The *Kern County General Plan* Noise Element identifies residential areas, schools, convalescence and acute care hospitals, parks and recreational areas, and churches as noise-sensitive land uses. In noise-sensitive areas, exterior noise levels generated by new projects are to be mitigated to 65 dB L_{dn} or less in outdoor activity areas and 45 dB L_{dn} or less within interior living spaces or other noise-sensitive interior spaces.

The Noise Element specifies the maximum exterior and interior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies noise polices designed to protect, create, and maintain an environment free from noise that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life. To ensure the that residents of Kern County are protected from excessive noise, the Noise Element identifies a policy to review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

While Kern County specifies maximum exterior and interior noise levels for new developments impacted by transportation noise sources, such as arterial roads, freeways, airports and railroads, it does not identify any specific exterior noise criteria for mineral and petroleum land use, such as the proposed project. To limit the noise exposure to noise-sensitive land uses, Kern County has defined an exterior noise standard of 65 dBA CNEL and an interior noise standard of 45 dBA CNEL.

The following *Kern County General Plan* goals, policies, and implementation measures have been identified as having potential applicability to the project:

Chapter 3. Noise Element

3.2 Noise Sensitive Areas

Goals

- **Goal 1.** Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

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 (DOSH).

- **Policy 3.** Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
- **Policy 4.** Utilize good land use planning principles to reduce conflicts related to noise emissions.
- **Policy 5.** Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:
    a. 65 dB L_{dn} or less in outdoor activity areas.
    b. 45 dB L_{dn} or less within living spaces or other noise sensitive interior spaces.
- **Policy 7.** Employ the best available methods of noise control.

Implementation Measures

- **Implementation Measure A**. Utilize zoning regulations to assist in achieving noise-compatible land use patterns.
- **Implementation 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.
- **Implementation 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}.
- **Implementation 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.
- **Implementation 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.

- **Implementation 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.

Kern County Ordinance

The operational (stationary source) noise impacts are regulated by the Kern County Code of Ordinances, Title 8 - Health and Safety, Chapter 8.36 - Noise Control. Chapter 8.36 focuses on loud and raucous noise, public address systems, broadcasting, and construction noise.

Title 8 – Health and Safety

Chapter 8.36 – Noise Control

Operational Noise Standards

While Chapter 8.36 of the Kern County Code of Ordinances describes prohibited sounds, Kern County has not established specific exterior noise limits to control the stationary source noise impacts associated with mining operations. Instead, Kern County has adopted implementation policies within the Noise Element to require commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land use to exterior noise levels in excess of 65 dBA CNEL and interior noise levels in excess of 45 dBA CNEL.

Vibration

Kern County does not include thresholds of significance for vibration levels. Per the Federal Transit Administration (FTA), engineered concrete and masonry buildings (no plaster) susceptible to vibration damage begin to experience structural damage at vibration levels of 0.3 inches per second Peak Particle Velocity (PPV) (FTA 2006, Table 12-3).

4.12.4 Impacts and Mitigation Measures

Methodology

Noise and vibration that would be generated by the project falls into three general categories: (1) noise and vibration generated from mining operations, and reclamation over the life of the project; (2) noise and vibration generated from off-site transportation activities associated with the project; and (3) noise and vibration associated with blasting. Noise measurements were collected within the project area to assess the impact of project-related noise on sensitive receptors in the immediate vicinity of the project and along off-site haul route segments. Urban Crossroads recorded and documented sound levels at six representative locations as identified on **Figure 4.12-1,** *Noise Monitoring Locations and Sensitive Receptors Map*.

Noise was modeled using the CadnaA (Computer Aided Noise Abatement) computer program noise prediction model. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels. Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (Lw) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (Lw) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. (Urban Crossroads 2022)

Blasting noise level assessment criteria used for the evaluation conducted by Urban Crossroads and presented in this EIR are based on Typical Air Overpressure Damage Criteria of the International Society of Explosives Engineers (ISEE) Blasters' Handbook, which identifies an air overpressure of 133 dB as a perception-based criteria level for blasting. To analyze vibration impacts of the project, vibration-generating activities are evaluated using the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual (Caltrans 2020), vibration damage are used in this noise study to assess potential temporary impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec). (Urban Crossroads 2022)

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to noise. The Kern County Environmental Checklist states that a project would normally be considered to have a significant impact related to noise if it would result in:

a. Generation of a substantial temporary or permanent increase in the 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 ground borne vibration or ground borne 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, would the project 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) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding the following impacts:

- For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels.

Project Impacts

Impact 4.12-1: The project would generate a substantial temporary or permanent increase in the 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.

Project operations would typically occur during one shift per day during daylight hours (generally 7:00 a.m. to 7:00 p.m. Monday through Saturday depending on the season), 6 days per week. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations. Based on product demand and other market and operational factors, additional shifts or longer or alternative hours could also occur. The life of the proposed surface mining operation is proposed to be 30 years.

On-Site Project Activity Noise Levels and Impacts at Residential Receptor Locations

Noise associated with project operations would be generated from vehicles and equipment used at the site. Typical mining operations associated with the project would involve use of a loader, excavator, and a dozer to break, move, and load material directly into trucks with capacities of up to approximately 25 tons (typical). The proposed annual production is estimated at 500,000tons; which equates to an average of approximately 1,670 tons/day. To describe the potential noise levels associated with on-site haul truck and loader operations, reference noise level measurements were collected at the Robertson's quarry in the City of Banning. The on-site haul truck reference noise level measurement includes the loading of haul truck trailers beneath the bin, and haul truck operations. A reference noise level of 62.1 dBA L_{eq} was measured at a uniform reference distance of 50 feet. Loader operation noise levels representing typical operation of a 988G Caterpillar wheeled loader including forward and backward movements, and backup alarm noise were established as 75.4 dBA L_{eq} at a reference distance of 50 feet. Stockpiling activity reference noise levels were derived from constant stockpiling at U.S. Gypsum Quarry in Imperial County and were established as 79.6 dBA L_{eq} at a reference distance of 50 feet. Collectively, these activities and noise levels are considered representative of typical site operational activities, with the exception of blasting noise, discussed separately

below. These reference noise levels are also expected to be representative of initial site preparation and reclamation activities (Urban Crossroads 2022).

Using the reference noise levels to represent the proposed Project operations that include on-site haul truck operation, on-site haul truck loading/unloading, and on-site stockpiling activity, Urban Crossroads (2022) calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the nearest sensitive receptor locations. **Table 4.12-6**, *Predicted On-Site Operations Noise Levels at Receptor Locations*, shows the Project operational noise levels are expected to range from 31.6 to 41.8 dBA CNEL at the nearest off-site sensitive receptor locations.

Table 4.12-6 Predicted On-Site Operations Noise Levels at Receptor Locations

Receptor Location[1]	Location	Projected Exterior Noise Levels (dBA CNEL)	Exterior Noise Level Standard (dBA CNEL)	Noise Level Standard Exceeded?
R1	5146 Montiverde Rd.	31.6	65	No
R2	4841 Sunbow Ave.	34.6	65	No
R3	4488 Gayiety Ave.	34.8	65	No
R4	7494 Mojave-Tropico Rd.	39.9	65	No
R5	7288 Mojave-Tropico Rd.	41.8	65	No
R6	7167 Mojave-Tropico Rd.	41.5	65	No

Source: Urban Crossroads 2022.
Notes:
1 Receptor locations shown on Figure 4.12-1.

As shown in the table, noise levels from on-site operations would not exceed the Kern County 65 dBA CNEL exterior noise level standard at any of the noise-sensitive receptor locations. Typical building construction will provide a noise reduction of approximately 12 dBA with windows open and a minimum 20 dBA noise reduction with windows closed. Since the unmitigated exterior noise levels are estimated to range from 31.6 to 41.8 dBA CNEL, the interior noise levels are with a "windows open" are conservatively estimated at 19.6 to 29.8 dBA CNEL and would not exceed the interior noise level standard of 45 dBA CNEL. (Urban Crossroads 2022) Therefore, the operational exterior and interior noise impacts are considered less than significant in consideration of compliance with the County noise standard.

In addition to comparison of noise levels with the County exterior and interior standards, the evaluation also considers potential impacts associated with increases in noise levels at sensitive receptor locations. To describe project operational noise level increases, project operational noise levels (predicted as discussed above) are combined with the existing ambient noise levels measurements for the nearest receptor locations potentially impacted by project operational noise source activities. The difference between the ambient noise levels and combined ambient-plus-project noise levels describes the project noise level increase as compared to the existing ambient noise environment. (Urban Crossroads 2022) **Table 4.12-7**, *Predicted On-Site*

Operations Noise Level Increases at Receptor Locations, presents the predicted noise level increases at each receptor location. As shown in the table, the project is predicted to generate operational noise level increases ranging from 0.1 to 0.7 dBA L_{eq} at the nearest receptor locations. Project operational noise level increases would not exceed the applicable noise level increase significance criteria and would be less than significant.

Table 4.12-7 Predicted On-Site Operations Noise Level Increases at Receptor Locations

Receptor Location[1]	Predicted Exterior Operational Noise Level	Measurement Location	Ambient Noise Level Standard (dBA CNEL)	Combined Project and Ambient	Project Increase	Exceed 5.0 dBA Significance Criteria?
R1	31.6	L1	44.1	44.3	0.2	No
R2	34.6	L2	44.3	44.7	0.4	No
R3	34.8	L3	49.7	49.8	0.1	No
R4	39.9	L4	51.1	51.4	0.3	No
R5	41.8	L5	49.2	49.9	0.7	No
R6	41.5	L6	49.0	49.7	0.7	No

Source: Urban Crossroads 2022.
Notes:
1. Receptor and measurement locations shown on Figure 4.12-1.

Blasting Noise Levels

In addition to the on-site operational activity noise levels addressed above, the project would also involve blasting. Blasting is planned to be performed approximately once per week. Typical blasting activities would take place between the hours of 10:00 a.m. and 4:00 p.m. on weekdays (Monday through Friday); however, hours may shift due to safety driven operational constraints. Due to the short-term instantaneous nature of blasting, the project blasting-related airblast levels are based on the 133 dB criteria identified by the ISEE. Blasting airblast impacts presented here are considered to represent worst-case (closest) blast locations describing the potential impacts when measured from the edge of the nearest blast area to the nearest receptor location. Blasts would result in lower airblast noise levels at more distant receptors. The Urban Crossroads (2022) analysis evaluates partially confined airblast levels calculated using the Blasters' Handbook equation for general construction blasting activities and is considered representative of project mining activity blasting.

Table 4.12-8, *Predicted Project Airblast Levels at Receptor Locations*, presents the predicted noise level increases at each receptor location. As shown in the table, airblast levels are expected to range from 95.3 to 110.5 dB and would be below the 133 dB airblast threshold at the nearest noise sensitive residential receptor locations. Therefore, the project impact associated with airblast noise levels would be less than significant.

Table 4.12-8 Predicted Project Airblast Levels at Receptor Locations

Receptor Location[1]	Location	Distance (feet)	Airblast Level (dB)	Airblast Standard (dB)	Exceed Airblast Standard?
R1	5146 Montiverde Rd.	4,181	95.3	133	No
R2	4841 Sunbow Ave.	3,655	96.6	133	No
R3	4488 Gayiety Ave.	3,674	96.6	133	No
R4	7494 Mojave-Tropico Rd.	2,272	101.1	133	No
R5	7288 Mojave-Tropico Rd.	2,007	102.3	133	No
R6	7167 Mojave-Tropico Rd.	858	110.5	133	No

Source: Urban Crossroads 2022.
Notes:
1. Receptor locations shown on Figure 4.12-1.

Off-Site Project Haul Truck Operation Impacts at Residential Receptor Locations

To assess the off-site transportation CNEL noise level impacts associated with the proposed project operation of haul trucks on public roads within the project area, noise contours were developed based on project trips and distributions presented in the *Gem Hill Quarry Trip Generation Assessment (Revised)* (Urban Crossroads 2021) and discussed further in **Section 4.14**, *Transportation*, of this EIR.

Table 4.12-9, *Off-Site Haul Route Traffic Noise – with Project*, provides modeled existing-plus-project noise levels along segments of Mojave-Tropico Road, Backus Road (east and west of Mojave-Tropico Road), and Willow Springs Road, which represent the primary road segments that would be used by project haul trucks.

Table 4.12-9 Off-Site Haul Route Traffic Noise – with Project

ID	Road Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Willow Springs Rd. north of Backus Rd.	62.5	RW	RW	17
2	Mojave Tropico Rd south of Backus Rd.	61.8	RW	RW	16
3	Backus Rd. west of Mojave Tropico Rd.	61.4	RW	RW	15
4	Backus Rd. east of Mojave Tropico Rd.	62.3	RW	RW	17

Source: Urban Crossroads 2022.
Notes:
1 The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road.

Table 4.12-10, *Off-Site Haul Route Traffic Noise Increases*, provides the predicted noise level increases at the nearest receptor land use. (A detailed description of the modeling procedure and inputs is provided in the *Gem Hill Quarry Noise and Vibration Impact Analysis* [Urban Crossroads 2022]), included as Appendix J of this EIR.) As shown in **Table 4.12-10**, *Off-Site Haul Route Traffic Noise Increases*, the predicted noise level increases at the nearest receiving land uses would not exceed the applicable thresholds; therefore, noise levels and noise level increases resulting from project haul trucks along haul road segments would be less than significant. Note that if ambient or no project CNEL is < 60 dBA, threshold is 5 dBA CNEL for project increase; and if ambient is 60 - 65 dBA, threshold in 3 dBA CNEL project increase (Urban Crossroads, 2022).

Table 4.12-10 Off-Site Haul Route Traffic Noise Increases

		CNEL at Receiving Land Use (dBA)1			Incremental Noise Level Increase Threshold	
ID	Road Segment	No Project	With Project	Project Increase	Threshold 2	Exceeded?
1	Willow Springs Rd. north of Backus Rd.	60.6	62.5	1.9	3.0	No
2	Mojave Tropico Rd south of Backus Rd.	58.2	61.8	3.6	5.0	No
3	Backus Rd. west of Mojave Tropico Rd.	58.7	61.4	2.7	5.0	No
4	Backus Rd. east of Mojave Tropico Rd.	61.6	62.3	0.7	3.0	No

Source: Urban Crossroads 2022.

Notes:

1 The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

2. Pursuant to Federal Interagency Committee on Noise (FICON) guidance pertaining to increases in noise levels above ambient levels, off-site traffic noise level increases are considered significant if the project would increase noise levels by 5.0 or more decibels where existing (i.e., No Project) noise levels are below 60 dBA and noise increases are considered significant if the project would increase noise levels by 3.0 or more decibels where existing noise levels are between 60 and 65 dBA.

Noise Impact Analyses Conclusion

As discussed in the preceding sections, noise associated with project operations, including on-site operations, blasting, and off-site haul truck operations would not exceed County standards and would not exceed thresholds of significance at any noise-sensitive residential receptor locations, therefore, operational impacts would be less than significant. Following completion of mining activities, the project site would be reclaimed as open space. Reclamation activities would be expected to result in similar or less on-site noise as compared to project operations and would not involve blasting or off-site hauling of mined material. Although reclamation activities would involve off-site vehicle trips for removal of heavy equipment from the site, such trips would be during a relatively short period of time and would be expected to require fewer daily trips during that period than the number of daily operational haul truck trips during mining operations. Therefore, noise impacts associated with reclamation activities would be less than significant. Once reclaimed as open space, the project would no longer generate noise at the site and noise levels would be anticipated to result in noise levels similar to current ambient conditions.

Based on the noise monitoring and modeling results prepared by Urban Crossroads (2022), implementation of the proposed project is not expected to generate a substantial temporary or

permanent increase in the ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance (65 dBA). Therefore, this impact is less than significant with mitigation.

Mitigation Measures

MM 4.12-1 The project proponent/operator shall establish a Noise Disturbance Coordinator for the proposed project. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about 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 4.12-2 A sign, legible at a distance of 50 feet, shall be posted in one of the following locations: (a) the intersection of the project's Primary Access Road with Mojave Tropico Road, or (b) the intersection of the project's Secondary Access Road with Mojave Tropico Road. The sign shall state a Surface Mining and Reclamation Plan (Gem Hill Quarry Project [Conditional Use Permit 45, Map 214]) has been approved for the site, and a telephone number where noise complaints can be registered with the Noise Disturbance Coordinator. Documentation that the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.

MM 4.12-3 Blasting shall occur during daylight, no more than one time per day, and shall be engineered to minimize the amount of explosives used according to the United States Bureau of Mines guidelines.

Level of Significance after Mitigation

Less than significant.

Impact 4.12-2: The project would generate excessive ground borne vibration or ground borne noise levels.

Vibration sources associated with operation of the proposed project would consist of on-site vehicle and equipment operation, off-site haul truck operations, and on-site blasting. Vehicle-induced vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. According to the FTA Transit Noise Impact and Vibration Assessment trucks rarely create vibration that exceed 70 VdB (0.0032 PPV in/sec) (unless there are bumps due to frequent potholes in the road) (Urban Crossroads 2022). On-site vehicle and equipment operation and off-site haul truck vibration levels are not expected to exceed the Caltrans-recommended standard of 0.2 inches per second PPV. Therefore, operational impacts associated with vehicle and equipment operation and material hauling are considered to be less than significant.

Project blasting would generate groundborne vibration having the potential to result in structural damage at adjacent receptor locations. The evaluation conducted for the project by

Urban Crossroads (2022) is based on the Caltrans *Transportation and Construction Vibration Guidance Manual* (2020). Blasting vibration impacts described below represent the worst-case (nearest) blast locations describing the potential impacts when measured from the edge of the nearest blast area to the nearest receptor location. When measured at greater distances, the blasts would result in lower vibration levels. Since most of the buildings near the project site can be described and considered as "older residential buildings", Caltrans guidance identifies a maximum acceptable peak-particle-velocity (PPV) vibration threshold of 0.3 inches per second (in/sec). Therefore, the 0.3 PPV (in/sec) vibration threshold is used to evaluate the potential blasting-related vibration levels experienced at the nearest residences (Urban Crossroads 2022).

Table 4.12-11, *Predicted Project Blasting Vibration Levels at Receptor Locations*, presents the predicted maximum vibration levels increases at each receptor location. As shown in the table, project blasting vibration levels are expected to range from 0.00 to 0.04 PPV (in/sec) and would be below the 0.3 PPV (in/sec) threshold at all the nearby noise sensitive residential receptor locations. Therefore, the project impact associated with blasting vibration is less than significant.

Table 4.12-11 Predicted Project Blasting Vibration Levels at Receptor Locations

Receptor Location[1]	Location	Distance (feet)	Vibration Level (PPV)	Vibration Standard (PPV)	Exceed Vibration Standard?
R1	5146 Montiverde Rd.	4,181	0.00	0.3	No
R2	4841 Sunbow Ave.	3,655	0.00	0.3	No
R3	4488 Gayiety Ave.	3,674	0.00	0.3	No
R4	7494 Mojave-Tropico Rd.	2,272	0.01	0.3	No
R5	7288 Mojave-Tropico Rd.	2,007	0.01	0.3	No
R6	7167 Mojave-Tropico Rd.	858	0.04	0.3	No

Source: Urban Crossroads 2022.
Notes:
1. Receptor locations shown on Figure 4.12-1.

Mitigation Measures

Mitigation is not 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 above, based on the noise monitoring and modeling results prepared by Urban Crossroads (2022), implementation of the proposed project is not expected

to generate a substantial temporary or permanent increase in the ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance (65 dBA); however, mitigation is included to ensure project activities would be conducted in a manner which would not exceed the County's established thresholds. Additionally, noise impacts associated with the project would only be temporary. The life of the operation is proposed to be 30 years. Following completion of mining activities, the site would be reclaimed and returned to open space, which would not result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Therefore, impacts are considered less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The cumulative setting for noise is the buildout of the General Plan and the other projects in the vicinity of the project. **Section 3.7**, *Cumulative Effects Overview,* of this EIR discusses cumulative projects within a 6-mile radius of the project. **Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis.

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. A cumulative impact analysis first identifies whether a cumulatively significant impact exists in the given resource area. If one exists, the analysis then determines whether the project will make a considerable contribution to that impact. Where a cumulative impact is severe, even a small contribution may be considerable.

Impact 4.12-4: The project would contribute to cumulative noise and vibration impacts.

As noted above, the results of the project-related noise and vibration analysis for this project indicate that the project would have a less-than-significant impact. The project's contribution to the future noise and vibration levels would not result in a cumulatively considerable contribution to cumulative noise or vibration levels or impacts. No proposed projects have been identified within proximity to the project site that would substantially increase cumulative noise or vibration levels. The project would not result in a significant impact on either a project-specific or cumulative basis.

The noise and vibration levels associated with operation of the proposed project would be consistent with the standards established by the *Kern County General Plan* and Kern County Noise Ordinance. Additionally, noise levels associated with the proposed project would result in less-than-significant effects to surrounding sensitive receptors.

The proposed project would result in increased traffic noise levels along Mojave-Tropico Road, Backus Road, and other roads used for material hauling during the proposed 30-year lifespan of the proposed project. Based on the noise analysis prepared by Urban Crossroads (2022), the proposed project would not cause traffic noise levels to exceed the Kern County exterior noise standard for residential and other noise-sensitive uses in proximity to study area roadway segments.

The predicted near-term and cumulative (long-term) traffic noise levels along the study area roadways would be increased at the sensitive receptors during the lifespan of the proposed project; however, the modeled noise exposure levels would be below the County's established threshold of 65 dB L_{dn} and would be considered acceptable pursuant to the Kern County exterior noise standards. Therefore, impacts to the cumulative noise setting associated with the proposed project would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Cumulative impacts will be less than significant.

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Section 4.13
Public Services

4.13.1 Introduction

This section of the Environmental Impact Report (EIR) addresses potential impacts of the project on public services, which include fire protection, law enforcement services, schools, parks, medical services, and other public facilities. This section also describes relevant environmental and regulatory settings and discusses mitigation measures to reduce impacts, where applicable.

4.13.2 Environmental Setting

The Environmental Setting section discusses the setting for the public services analysis, providing a summary of fire and police protection, schools, parks, and other public facilities that have the potential to be affected by the project.

Fire Protection

The Kern County Fire Department (KCFD) provides primary fire protection, fire prevention, emergency medical, and rescue services to more than 500,000 people in unincorporated areas of Kern County and the Cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The KCFD protects an area that covers more than 8,000 square miles and includes regional transportation corridors such as Interstate (I-) 5. KCFD operates 47 full-time fire stations within 7 battalions and over 521 uniformed firefighters. KDFD is equipped with 58 fire engines, 6 ladder trucks, 30 command vehicles, 6 dozers, 2 helicopters, 3 hazardous material response teams, and other ancillary vehicles and equipment (KCFD, 2022).

The project site would continue to be served by the nearest KCFD fire station, which is Station 15, located at 3219 35th Street West, in the community of Rosamond. Station 15 is located approximately 3.75 miles south of the Project Site with a driving distance of approximately 5.2 miles between the station and project primary access road intersection with Mojave-Tropico Road. This station would be the primary responder to a fire or emergency at the proposed project site; however, in the event of a major fire, other stations would be called on to respond, as necessary. Station 14 is the second nearest station to the site and is located approximately 13 miles (driving distance) north of the site at 1953 Highway 58 in the community of Mojave.

The project site and KCFD Stations 14 and 15 are located within the KCFD Battalion 1 area. The Battalion 1 area consists of eight stations 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. 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).

As new growth and development occurs within the County, additional personnel and/or facilities will be required to meet increased demands for service. Additionally, Kern County has mutual-aid agreements with the Los Angeles County Fire Department (LACFD) (as well as other emergency response agencies) in the event that KCFD is unable to be the primary responder to an emergency. The nearest LACFD fire station to the project site is Station 112, located at 8812 West Avenue in Lancaster approximately 15 miles south of the project site.

Kern County applies and utilizes the National Fire Code set forth by the National Fire Protection Association (NFPA), California Fire Code, California Building Code (CBC), and Kern County Ordinance Code to regulate fire safety.

Police Protection

Kern County Sheriff's Department

The Kern County Sheriff's Office (KCSO) provides law enforcement services in the project area. The KCSO, which enforces Federal, State, and local laws, is responsible for jail system management, bailiff and prisoner transportation services to the courts, search and rescue operations, coroner services, and civil processing (serving lawsuit papers), among other responsibilities. It also operates the Inmate Reception Center, Lerdo Maximum Security Facility, Lerdo Minimum/Medium Security Facility, Lerdo Pre-Trial Facility, Mojave Jail, and Ridgecrest Jail (KCSO 2022).

KCSO headquarters are located at 1350 Norris Road in the City of Bakersfield. In addition, there are 13 substations that provide patrol services, and all have access to department support services. Substations are staffed by police, investigators, and supervisors, and each substation has access to all department support services. Currently, the KCSO is staffed with 1,202 sworn and civilian employees, 567 deputy sheriffs, 338 detention deputy positions, and 297 professional support staff (KCSO 2022). The proposed project site would be served by the nearest substation, Rosamond Substation, located approximately3.75-miles south of the Project Site at 3179 35th Street, with a driving distance of approximately 5.3 miles between the station and project primary access road intersection with Mojave-Tropico Road.

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 vary because the nearest responding patrol car may be anywhere in the patrol area and not at the nearest substation. The Rosamond Substation serves the southeastern portion of Kern County. Average response time for KCSO is 5 minutes or less for an emergency or immediate-response incident (e.g., a crime that is under way 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).

Response time to an emergency at or near the proposed 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 will be longer than the average times given above. The response time for a nonemergency call could be 8 minutes or more, depending on staffing and the number of other calls for service.

California Highway Patrol

The California Highway Patrol (CHP) oversees response to emergency incidents on California's highways, assisting other public agencies responding to emergency incidents, and promoting the safe and efficient movement of people and goods on California's highways to minimize loss of life, injuries, and property damage. CHP officers patrol state highways and implement 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.

CHP has eight divisions that provide services throughout California. The project site lies within the jurisdiction of the CHP's Inland Division, which operates 12 offices and 3 communications and dispatch centers (CHP 2021). The nearest Inland Division office to the project site is located about 13 miles north of the site at 1313 Highway 58 in the community of Mojave.

Schools

The project site is located in the Southern Kern Unified School District. The nearest schools to the project site are Tropico Middle School, Westpark Elementary School, and Rosamond High School each approximately 4 miles south of the project site. Multiple schools are also located in and around the community of Rosamond.

Parks

The Kern County Parks and Recreation Department operates and maintains about 40 neighborhood parks throughout the County, as well as several public buildings that also are used for recreational purposes. The department also operates and maintains eight regional parks: Buena Vista Aquatic Recreational Area, Greenhorn Mountain Park, Leroy Jackson Park, Kern River County Park, Lake Isabella, Lake Woollomes, Metro Recreation Center, and Tehachapi Mountain Park. These parks provide more than 19,422 acres of parkland for recreational purposes. The nearest developed public park facility to the site is Rosamond Park in the community of Rosamond. The facility has two baseball fields and other passive and active play areas.

Other Public Facilities

The Kern County Public Health Services Department, Emergency Medical Services Division (EMS) is the lead agency for the EMS system in Kern County. Kern County EMS is responsible for coordinating all system participants, which includes the public, emergency service providers, and hospitals throughout the County. The department provides various training programs for Kern County EMS, such as certification and recertification for local EMS personnel (Kern County EMS 2012).

Adventist Health Tehachapi Valley Hospital is the nearest hospital and emergency room facility in Kern County to the project site, and is located at 1100 Magellan Drive, Tehachapi, approximately 26 miles northwest of the site.

Other public services include Federal post offices (in Rosamond nearest the project site) and County libraries (including the Rosamond Public Library nearest the site).

4.13.3 Regulatory Setting

State

California Department of Forestry and Fire Protection

Under Title 14 of the California Code of Regulations (CCR), CAL FIRE has the primary responsibility for implementing wildfire planning and protection for State Responsibility Areas (SRAs). CAL FIRE develops fire safe regulations and issues fire safe clearances for land within the service areas of fire districts in each SRA. There are more than 31 million acres of California's privately-owned wildlands under CAL FIRE's jurisdiction (CAL FIRE 2022).

In addition to wildland fires, CAL FIRE's planning efforts involve responding to other types of emergencies that may occur on a daily basis, including residential or commercial structure fires, automobile accidents, heart attacks, drowning victims, lost hikers, hazardous material spills on highways, train wrecks, floods, and earthquakes. Through contracts with local government, CAL FIRE provides emergency services in 36 of California's 58 counties (CAL FIRE 2022).

CAL FIRE adopted Fire Hazard Severity Zone maps for SRAs in November 2007. Fire hazard is a way to measure the physical fire behavior and use this information to predict the damage a fire is likely to cause. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat the fire produces, and, most importantly, the burning fire brands (embers) that the fire sends ahead of the flaming front. The project site is located within an area designated as "Moderate" fire hazard, as shown on **Figure 4.17-1,** *Fire Hazard Severity Zones for Local Responsibility Areas*, in **Section 4.17**, *Wildfire* (CAL FIRE 2007).

Local

Kern County General Plan

The project site is located within the *Kern County General Plan*. The policies, goals, and implementation measures in the Kern County General Plan applicable to public services 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 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

- **Implementation 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 site of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.
- **Implementation 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

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 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

4.1 Introduction

Goals

- **Goal 1.** Minimize injuries and loss of life and reduce property damage.
- **Goal 2.** Reduce economic and social disruption resulting from earthquakes, fire, flooding, and other geologic hazards by assuring the continuity of vital emergency public services and functions.

- **Goal 6.** Prepare the County for effective response to, and rapid beneficial recovery from the occurrence of a catastrophic event.

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

- **Implementation 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 Wildland Fire Management Plan

The *Kern County Wildland Fire Management Plan 2009* (KCFD 2009) documents the assessment of wildland fire situations throughout the LRAs within Kern County. The 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.

Capital Improvement Plan

The changing fiscal landscape in California during the past 30 years has steadily undercut the financial capacity of local governments to fund infrastructure. Faced with these trends, Kern County has adopted a policy of "growth pays its own way" through use of a public facilities mitigation program. The primary policy objective of this program is to ensure that new development pays the capital costs associated with growth.

In 2008, Kern County adopted a Capital Improvement Plan (CIP) that identifies the best current understanding of the public facilities that will be needed to accommodate new development anticipated through 2030 (Kern County 2007). The CIP further identified appropriate existing facility demand standards to be used as a basis for estimating future facility needs and level of service. The adopted CIP includes a summary of proposed service levels for the included facilities and a conceptual list of planned projects, upon which the CIP was based. The scope of services includes parks, libraries, sheriff (public protection and investigation), fire, animal

control, public health, landfill/transfer stations, and general government. Roads and sewer costs and impacts are not part of this program.

Continued growth within the County and the associated impacts resulting from that growth have increased the demands on Countywide public services and have made it difficult to not only implement and fund many of those facilities identified within the CIP, but to maintain existing public service demand standards as growth occurs. In short, despite the increase in property taxes generated as a result of the proposed project and other similar projects within the County, public services and facilities are still underfunded and unable to maintain existing and adopted service standards.

The purpose of the Public Facilities Mitigation Program is to identify impacts on public services and identify the monetary CEQA mitigation necessary to meet the facilities associated with that growth. The following categories have been identified to help determine which specific public needs would be impacted by the proposed project: countywide public protection facilities; sheriff patrol and investigation facilities; library facilities; animal control facilities; park facilities; fire facilities; waste management facilities; public health facilities; and general government facilities.

4.13.4 Impacts and Mitigation Measures

Methodology

Public services in the area were evaluated to determine whether they are adequate to provide needed services for operation of the proposed project and whether they would be adversely affected by the proposed project. The evaluation is based on professional judgment, an analysis of project consistency with the goals and policies of the *Kern County General Plan*, and the significance criteria established by Appendix G of the State CEQA *Guidelines*.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect on public services. Both documents state that a project would normally be considered to have a significant impact related to 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 could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

   - Fire Protection;
   - Police Protection;
   - Schools;
   - Parks; or,

- Other Public Facilities.

The Lead Agency determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less-than-significant impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding the following impacts:

- Schools; or,
- Parks.

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, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

Fire Protection

A community's requirements for fire protection facilities are based on the number of residents and workers in the primary service area. Service demand is tied primarily to population because emergency medical calls typically constitute the majority of responses provided by a fire department. As the population of the service area increases, so does the number of emergency calls and the need for fire protection and emergency response facilities. The proposed project would include the operation of a volcanic tuff quarry on an existing vacant, undeveloped property. The *Kern County Wildland Fire Management Plan* documents the assessment of the wildland fire risk throughout the LRAs within the County (KCFD 2009). The project site is located within a "moderate" fire hazard severity zone within the LRA (KCFD 2009; CAL FIRE 2007).

The proposed project would increase the number of ignition sources in a currently undeveloped area of Kern County and would include the storage and use of fuels and other hazardous materials. Mining operations would typically be conducted during daylight hours (generally 7:00 a.m. to 7:00 p.m., Monday through Saturday depending on the season), six days per week, depending on market demand, with the understanding that longer or alternative hours may be required due to operational constraints. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations. Activities associated with the proposed project could increase the potential for wildfire ignition and the spread of wildfire. However, the potential for wildfire is limited because vegetation on the project site and adjacent areas is sparse and availability of vegetative fuel build-up is limited. The equipment associated with the operation of the proposed project would cause a negligible increase in fire potential. The proposed project would include emergency access routes and other safety features that would incorporate plans for fire protection. Within the proposed operation areas, vegetation would be controlled by mechanical methods to minimize fire risk.

The project is located within a moderate fire hazard area within an LRA, and the jurisdiction of the KCFD Battalion 1 and Station 15. Station 15 is further supported by Station 14 and other stations in Battalion 1 and other KCFD Battalions as well as through mutual-aid agreement with LACFD. Current fire protection and prevention staff and facilities are sufficient to continue to provide fire protection and emergency response services to the project area. Because the project would not generate a substantial permanent on-site population and is not within a severe wildland fire hazard area, it is anticipated that personnel and equipment from KCFD Battalion 1 and Station 15 would be sufficient to respond to fire at the project site.

Police Protection

KCSO provides police protection for the project site and surrounding areas, and the Rosamond Substation provides primary law enforcement services to the project area. This substation is located approximately 3.75-miles south of the Project Site at 3179 35th Street, with a driving distance of approximately 5.3 miles between the station and project primary access road intersection with Mojave-Tropico Road. Additionally, the proposed project site is located approximately 13 miles south of the CHP's Mojave office. Both residents and workers in unincorporated portions of Kern County benefit from the patrol and investigation services provided by the KCSO. Demand for such services is related to the County's combined residential and worker populations in the unincorporated areas. Although the potential is low, the proposed project may attract vandals or other security risks that could increase demand for law enforcement services at the project site, compared to existing conditions. The Rosamond Substation is responsible for serving a large area consisting of open space, rural areas, and communities. The Rosamond Substation is sufficiently equipped with staff and facilities capable of providing law enforcement services for the proposed project. The proposed project is not expected to require an expansion of existing law enforcement staff or facilities.

To ensure safety of the public and the facilities, signs would be posted per Mine Safety and Health Administration (MSHA) requirements. Access to the site would be controlled and limited to the areas surrounding the project site during operation, thereby minimizing the need for police surveillance. Project operations would increase traffic volumes along surrounding roadways proposed for use as haul routes, including Mojave-Tropico Road, Backus Road, Tehachapi-Willow Springs Road, and Oak Creek Road (**Figure 4.14,** *Project Location and Existing Street Network,* in **Section 4.14**, *Transportation*). However, project personnel commuting to the project site via these roadways and haul truck drivers would be required to adhere to all traffic laws. The increase in employee and haul truck trips associated with the project would not adversely affect the CHP's ability to patrol the roadways. The additional vehicle trips would not result in the need for new or altered public service facilities.

Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations. This population is not anticipated to increase the need for law enforcement services. Although it is conceivable that a slight increase in the need for emergency response could occur, this potential increase would be limited and is not expected to result in the need for new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives for police protection service.

Mitigation Measures

MM 4.13-1 The project proponent/operator shall work with Kern County to determine how the use of sales and use taxes from construction and operation of the project can be maximized. This process shall include 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. The project proponent/operator shall allow Kern County to use this sales tax information publicly for reporting purposes.

Level of Significance after Mitigation

Less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The cumulative setting for the public services impacts includes buildout of the *Kern County General Plan*. The cumulative study area related to public services is based on the service area for each of the fire and police stations serving the proposed project site. Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The geographic scope for cumulative impacts to public services includes closely related past, present, and reasonably foreseeable probable future projects. **Section 3.7**, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project. **Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis.

Impact 4.13-2: The project would contribute to cumulative impacts on public services.

As discussed above, the project is not anticipated to result in an increased need for new or expanded public services or facilities. However, over time, population growth in the project region will require additional emergency and medical services, school, and recreational facility capacity. Although the project would add a limited number of new jobs and would not substantially contribute to the need for new public facilities, Kern County recognizes through the *Kern County General Plan* that a need exists for discretionary development to contribute funding for future expansion of public service facilities. The *Kern County General Plan* contains the provision that new discretionary development pays its proportional share of local costs of infrastructure improvements required to service such development. Through these fees and the public services and facilities they are ultimately used for, impacts on public services caused by future projects are addressed. Applicability of the proportional fee for public services on the project will be determined by Kern County during project approval considerations.

Mitigation Measures

Implement Mitigation Measure MM 4.13-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.13-1, cumulative impacts would be less than significant.

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Section 4.14
Transportation

4.14.1 Introduction

This section of the Environmental Impact Report (EIR) addresses potential impacts of the project on transportation and traffic, describes the environmental and regulatory settings, and discusses mitigation measures that would reduce impacts, where applicable. Information in this section is partly based on the *Gem Hill Quarry Trip Generation Assessment (Revised)* (Urban Crossroads 2021), included in Appendix K of the EIR.

Pursuant to the County of Kern Division 9 (Standards for Traffic Engineering, 902-1), a traffic study may be required for a project that would generate 50 or more vehicle trips during any peak hour. As discussed further in **Section 4.14.4**, *Impacts and Mitigation Measures*, and as documented in the *Gem Hill Quarry Trip Generation Assessment (Revised)* (Urban Crossroads 2021), the proposed project is not expected to generate 50 or more vehicles during any peak hour, therefore, a traffic study is not required for the project.

4.14.2 Environmental Setting

Regional and Local Roadway Facilities

The project area is in the southeastern portion of unincorporated Kern County, situated in the Rosamond Hills on the west side of Mojave-Tropico Road approximately four miles northwest of the community of Rosamond. Rosamond is an unincorporated Kern County community with a population of roughly 21,000. The following is a description of roads in the vicinity of the project site, which are anticipated to be used to some extent by the project (**Figure 4.14-1,** *Project Location and Existing Street Network*.

State Route (SR-) 58 is a four-lane divided highway and runs in the east-west direction. SR 58 provides regional access to Bakersfield to the west and Barstow to the east. SR 58 is approximately 15 miles north of the project site.

SR 14 is a four-lane divided highway east of the project site. For regional travel, residents of California City and other nearby communities rely primarily on SR 14, which carries traffic south to Lancaster and other major routes. SR 14 connects to SR 58 and SR 138 before reaching Interstate 5 (I-5) near Santa Clarita. SR 14 is approximately 3 miles due east of the project site, but approximately 5 miles by the most direct vehicle travel route using Mojave-Tropico Road and Backus Road.

Mojave-Tropico Road is a north-south, two-lane road that passes immediately east of the project site, extending from Rosamond Boulevard in the south to the vicinity of Gold Queen Mine in the north from where it becomes Silver Queen Road turning east to intersect with State Route (SR) 14. The segment of Mojave-Tropico Road between the primary site

access road drive approach and Backus Road (discussed below) is approximately 2.5 miles in length. With the exception of moderate curves and undulations near the project site, this segment is generally flat and straight with limited to no shoulders. Intersecting roads and driveways are present along this segment providing access to rural residential properties and other lands.

Backus Road is an east-west, two-lane road located about 2 miles north of the project site, extending between SR 14 to the east and Tehachapi -Willow Springs Road (discussed below) to the west. The segment of Backus Road between Mojave-Tropico Road and Tehachapi -Willow Springs Road is approximately 4.5 miles in length. With the exception of a moderate curve near Tehachapi -Willow Springs Road, this segment of Backus Road is generally flat and straight with limited to no shoulders. Intersecting roads and driveways are present along this segment providing access to rural residential properties and other lands.

Tehachapi -Willow Springs Road is a north-south, two-lane road that, within the study area, is approximately 8 miles long between Backus Road and Oak Creek Road, then another 5.25 miles north to SR 58 east of Tehachapi. The segment of Tehachapi -Willow Springs Road between Backus Road and Oak Creek Road trends southeast-northwest and is generally straight and flat in the southern portion of the segment with curves and undulations in the northern portion of the segment.

Oak Creek Road is an east-west, two-lane road traversing approximately 10.25 miles between Tehachapi-Willow Springs Road in the west to SR 14 at Mojave in the east. Oak Creek Road provides access to the Mojave Cement Plant main entrance which is located approximately 3.5 miles east of the Oak Creek Road/Tehachapi-Willow Springs Road intersection. This western segment of Oak Creek Road has curves and undulations while the segment to the east of the Mojave Cement Plant entrance is generally straight and flat.

Non-Motorized Transportation

There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the project site or along the surrounding roadways.

Other Transit Facilities

Railways

The closest operated mainline railway in Kern County is the Union Pacific Railroad (UP) Mojave Subdivision (35 miles) between Bakersfield, South Mojave and the Kern/San Bernardino County Line just east of Boron. The western most portion of the line (3 miles) connects to the UP at Kern Junction, just east of the Bakersfield Amtrak station. BNSF trains operate on the UP's Mojave Subdivision between Kern Junction and South Mojave via trackage rights. The eastern portion of the line (32 miles) connects with the UP at South Mojave. At its nearest point, the UP Mojave Subdivision line is about 3.5 miles east of the project site (5.5 miles driving distance) near Ansel (Wilbur Smith 2011). See *Public Transit* section below for discussion of commuter rail service.



Figure 4.14-1
Project Location and Existing Street Network

The Oak Creek Industrial Lead (railroad spur line) extends between railroad track which parallels Highway 14 in the unincorporated community of Mojave, and the Mojave Cement Plant (operated by CalPortland Company) which is located approximately six miles to the west thereof.

Public Transit

Public transportation in Kern County is provided by Kern Regional Transit, which offers 16 fixed routes throughout the County and a dial-a-ride public transportation service for residents in Frazier Park, Kern River Valley, Lamont, Mojave, Rosamond, and Tehachapi. Metrolink's Los Angeles area commuter rail service northernmost station in the project area is in Lancaster approximately 10 miles south of Rosamond and 15 miles south of the project site. No public transit routes pass or stop near the project site.

Airport Facilities

The project site is not located within the sphere of influence of any airport as identified by the Kern County Airport Land Use Compatibility Plan (ALUCP). The nearest airport to the project site is the Rosamond Skypark Association privately owned and operated residential airport that is open for public use and is located about 3.5 miles southeast of the project site. The airport has a 3,600-foot asphalt runway and exclusively serves general aviation aircraft and serves an average of 29 flight operations per day. Other airport facilities within the project area include: Mojave Air and Space Port, a public airfield operated by the East Kern Airport District (EKAD) and located approximately 10 miles northeast of the project site; Edwards Air Force Base, a military base and airstrip located approximately 16 miles southwest of the western site; Tehachapi Municipal Airport, approximately 20 miles northwest of the project site; and California City Municipal Airport, a public airfield located approximately 20 miles northeast of the project site.

4.14.3 Regulatory Setting

Federal

Federal Aviation Administration

The Federal Aviation Administration (FAA) regulates aviation at regional, public, and private airports. The FAA regulates objects affecting navigable airspace. According to Code of Federal Regulations (CFR) Title 14, 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 that 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 that 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 that 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 (FAR) Part 77 is subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to United States Code (USC) Title 49, Section 46301(a).

State

California Department of Transportation

The California Department of Transportation (Caltrans) has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. The following Caltrans regulations apply to potential transportation and traffic impacts of the proposed 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.

Local

Kern County General Plan

The *Kern County General Plan* Circulation Element sets forth goals, policies, and implementation measures related to transportation improvements. Issues discussed in the Circulation Element include new roads, upgrading of roads for future growth, scenic highway corridors, congestion management, truck transportation, and air and rail issues.

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 unless the roads are part of an adopted Community Plan or Specific Plan which utilizes Smart Growth policies that encourage efficient multi-modal movements.

2.3 Highways

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 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 Year 2010. Where Planning 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 mid-section 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 mid-section lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and mid-section "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 (County Standard 110-feet);
    - Collector [Secondary Highway] Minimum 90-foot right-of-way (County Standard 90-feet);
    - Commercial-Industrial Street Minimum 60-foot right-of-way (County Standard 60-feet);
    - Local Street [Select Local Road] Minimum 60-foot right-of-way (County Standard 60-feet).

Implementation Measure

- **Implementation 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 include 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 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 off-site 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.

Implementation Measures

- **Implementation Measure A.** The County should relate traffic levels to road capacity and development levels. To accomplish this Roads Department and Planning 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.
- **Implementation Measure C.** Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.5 Other Modes

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.

Chapter 4. Safety Element

4.6 Wildland and Urban Fire

Policies

- **Policy 4.** Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

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 Congestion Management Program (CMP); Kern COG was designated as the Congestion Management Agency.

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 to link land use, air quality, transportation, and 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.

2022 Regional Transportation Plan/Sustainable Communities Strategy

The latest Regional Transportation Plan (RTP) was prepared by Kern COG and was adopted on July 21, 2022. The 2022 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 has been developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between Federal, State, regional, and local agencies. Included in the 2022 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 County greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks at 9% per capita by 2020 and 15% 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 2022 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 also provides 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, air quality, the health of communities, and transportation and public safety; promote the conservation of natural resources and undeveloped land; and increase access to community services, regional and local energy independence, and opportunities to help shape the community's future.

The 2022 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 Federal, State, and local 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.

The 2022 RTP promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transportation system management approaches for new highway capacity. The Constrained Program of Projects includes projects that move the region toward a financially constrained and balanced system. Constrained projects have undergone air quality conformity analysis to ensure that they contribute to the Kern region's compliance with Federal and State air quality rules.

Kern County Airport Land Use Compatibility Plan

The Kern County ALUCP establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues between airports and surrounding land uses. The project area is not located within the sphere of influence of any airport as identified by the Kern County ALUCP. The nearest airport to the project site is the Rosamond Skypark Association privately owned and operated residential airport, which is open for public use and located about 3.25 miles south of the project site.

4.14.4 Impacts and Mitigation Measures

This section describes the impact analysis relating to transportation and traffic for the proposed project. It describes the methods used to determine the impacts of the project and lists the thresholds used to determine the significance of each impact. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

Pursuant to the County of Kern Division 9 (Standards for Traffic Engineering, 902-1), a traffic study may be required for a project that would generate 50 or more vehicle trips during any peak hour. As documented in the *Gem Hill Quarry Trip Generation Assessment (Revised)* (Urban Crossroads 2021), the proposed project is not expected to generate 50 or more vehicles during any peak hour, therefore, a traffic study is not required for the project. However, the evaluation considers the project vehicle trips, distribution, and vehicle miles traveled associated with the project to assess potential conflicts with CEQA Guidelines Section 15064.3(b).

CEQA Guidelines Section 15064.3(b)(4) discusses methodology for analyzing transportation impacts, in part stating, "A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure." For the analysis in this EIR, the project's vehicle miles traveled (VMT) are presented based on the project's estimated daily and annual vehicle trips during a year of maximum proposed producing of 500,000 tons of material and the anticipated average trip distances for hauling material, on-site employee trips, and miscellaneous maintenance and service trips associated with project operations.

The evaluation also assesses the project's potential to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, increase hazards or result in inadequate emergency access to the site. For this EIR, these assessments provide a qualitative discussion of the project's potential to result in such impacts and mitigation measures are provided to ensure such impacts are avoided through design and agency verification.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G

of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect on transportation and traffic. Both documents state that a project would normally be considered to have a significant impact related to transportation and traffic if it would:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b);

c. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

d. Result in inadequate emergency access.

Project Impacts

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.

Pursuant to the County of Kern Division 9 (Standards for Traffic Engineering, 902-1), a traffic study may be required for a project that would generate 50 or more vehicle trips during any peak hour. As shown in **Table 4.14.1**, *Project Trip Generation Summary*, the proposed project is predicted to generate approximately 42 AM peak-hour passenger car equivalent (PCE) trips and 31 PM peak-hour PCE trips. Because the proposed project is not expected to generate 50 or more vehicles during any peak hour, a traffic study is not required for the project and the project is presumed to have a less than significant impact associated traffic operations levels of service (LOS). (The project's potential impact associated with vehicle miles traveled [VMT] is discussed at Impact 4.14-2.)

Table 4.14-1 Project Trip Generation Summary

	AM Peak Hour			PM Peak Hour			
Vehicle	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Material Haul Trucks (actual)[1]	*7*	*7*	*14*	*0*	*7*	*7*	*134*
Material Haul Trucks PCE[1]	21	21	42	0	21	21	402
Employee Vehicles[2]	0	0	0	0	10	10	20
Misc. Trips[3]	0	0	0	0	0	0	4
Total PCE	**21**	**21**	**42**	**0**	**31**	**31**	**426**

Source: Urban Crossroads 2021.
Notes:
1. Material haul truck trips are presented as actual trips as well as passenger car equivalent (PCE) trips. The PCE estimate multiplies actual trips by a factor of 3.0 to account for the slower movements associated with large, 4+ axle trucks that would typically be used for material hauling.
2. Assumes workers arrive onsite prior to truck (by 7 AM) and depart after 5 PM.
3. Miscellaneous trips for services and deliveries assumed outside of AM and PM peak hour periods. Not included in Urban Crossroads 2022.

Mitigation for impacts associated with LOS is normally considered necessary if a particular intersection or street segment under any existing or future scenario (with or without the addition of project-generated traffic) is anticipated to function at less than LOS C. Generally, the objective of traffic mitigation is to restore LOS to a C or better. Since the project is anticipated to generate fewer than 50 PCE vehicle trips in any peak hour and, therefore, is not required to prepare a traffic study, the project is presumed to have a less than significant impact, and no roadway or intersection improvements are needed to mitigate LOS.

There are no pedestrian or public transit facilities in the vicinity of the project. No elements of the project that would create the potential to conflict with alternative transportation programs have been identified; therefore, the project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, or pedestrian facilities.

The project's proposed primary and secondary access road intersections with Mojave-Tropico Road require encroachment permits from Kern County. Mitigation has been included to ensure the project verifies existing encroachment permits or obtains and complies with necessary encroachments permits consistent with all County policies; therefore, impacts would be less than significant with mitigation.

Mitigation Measures

MM 4.14-1 Under Encroachment Permit, issued by the Kern County Public Works Department, the project proponent/operator shall construct access points along the Mojave-Tropico Road frontage as shown on the plans as Primary and Secondary access roads

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.14-1, impacts would be less than significant.

Impact 4.14-2: The project would conflict or be inconsistent with State CEQA *Guidelines* Section 15064.3 subdivision (b).

CEQA Guidelines Section 15064.3 establishes vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts, shifting away from the level of service (LOS) analysis that evaluated a project's impacts on traffic conditions (e.g., LOS) on roadways and intersections. Section 15064.3 identifies vehicle miles traveled (amount and distance of automobile traffic attributable to a project) as an appropriate measure of transportation impacts; specifies that a project's effect on automobile delay shall not constitute a significant environmental impact (except for projects increasing roadway capacity); and allows a lead agency to qualitatively evaluate VMT if existing models are not available. Section 15064.3 gives lead agencies discretion to select a methodology to evaluate a project's VMT, but requires lead agencies to document that methodology in the environmental document prepared for the project. Kern County has not adopted methodology or significance threshold for evaluating VMT impacts associated with mining projects, and estimated project VMT is provided here for the purposes of disclosure and in accordance with Section 15064.3. (Air pollutant and greenhouse gas emissions associated with off-site vehicle operations are evaluated and

presented in **Section 4.2***, Air Quality*, and **Section 4.7**, *Greenhouse Gas Emissions*, of this EIR.)

Operation of the project would generate off-site vehicle trips associated with material hauling, employees traveling to and from the site, and miscellaneous service and maintenance trips. Based on information submitted by the project proponent, project haul trucks would exit the site from the primary access road and travel north on Mojave-Tropico Road for 2.5 miles to Backus Road. From this intersection, approximately 75 percent of the trucks (approximately 5 trucks per hour on average) would turn left and travel west on Backus Road for 4.5 miles, then northwest on Tehachapi-Willow Springs Road for 8 miles, then east on Oak Creek Road for 3.5 miles to the Mojave Cement Plant entrance for a total of approximately 18.4 miles. The remaining approximately 25 percent of the trucks (approximately 2 trucks per hour on average) would travel east on Backus Road for 3 miles to State Route 14 where the trucks would disperse north or south to various client destinations. An optional route from the quarry to the Mojave Cement Plant during poor road conditions would be to travel north from the Backus Road intersection on State Route 14 for 7.5 miles, then east on Mono Street for less than 0.1 miles and north on K Street for less than 0.1 miles, then west on Oak Creek Road for 7 miles to the Mojave Plant entrance. The total distance for this route is approximately 20 miles. In consideration of the travel distance to the Mojave Cement Plant and the variable travel distance to and from other client destinations, average haul trip distance is estimated at 25 miles per trip. Employee trip distance is also estimated at an average of 26 miles per trip and miscellaneous service vehicle trip distance is estimated at an average of 21 miles per trip.

As discussed at Impact 4.14-1, above, and shown in **Table 4.14-2**, *Project Daily and Annual Vehicle Miles Traveled*, the project is estimated to generate approximately 134 truck trips, 20 employee vehicle trips, and 4 miscellaneous service vehicle trips on a typical operational day resulting in an estimated average VMT per day of 3,954 miles and average VMT per year of 1,186,200 miles. The project's transportation-related impact associated with vehicle miles traveled would be less than significant.

Table 4.14-2 Project Daily and Annual Vehicle Miles Traveled

Vehicle	Trips per Day	Average Distance per Trip (miles)	VMT per Day	Operational Days per Year	VMT per Year
Material Haul Trucks	134	25	3,350	300	1,005,000
Employee Vehicles	20	26	520	300	156,000
Misc. Trips	4	21	84	300	25,200
Total	**158**	**--**	**3,954**	**--**	**1,186,200**

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.14-3: The project would substantially increase hazards due to a design feature.

As discussed under Impact 4.14-1 and required by Mitigation Measure MM 4.14-1, the project proponent is required to obtain encroachment permits from Kern County for development and use of the project's primary and secondary access road intersections with Mojave-Tropico Road. After obtaining such encroachment permits and constructing any road improvements required thereby, the project would not contribute to an increase in hazards due to a design feature and therefore will not have a significant impact. Therefore, this impact would be less than significant with mitigation.

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.

Impact 4.14-4: The project would result in inadequate emergency access.

The proposed project could result in inadequate emergency access if the proposed project designs fail to meet appropriate standards, fail to provide adequate truck access, or would result in hazardous conditions. Implementation of the following mitigation measure would ensure adequate emergency access is maintained. Therefore, this impact would be less than significant with mitigation.

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

Cumulative Setting

Section 3.7, *Cumulative Effects Overview*, of this EIR discusses cumulative projects near the project. (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis.) The geographic scope for transportation and traffic cumulative impacts is the area of southeastern Kern County, within which the majority of project related vehicle trips would occur.

Impact 4.14-5: The project would contribute to cumulative transportation and traffic impacts.

With regard to a cumulative increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system resulting in a conflict to applicable plans, ordinances, and policies, as well as cumulatively exceeding LOS standards on County roads or State highways, future development of Kern County would result in additional vehicle trips and contribute to congestion on area roadways that would likely be traveled by vehicles associated with the project. In addition, future residential development of Kern County would increase the overall number of vehicle trips within the County through the increase in population.

As discussed under Impact 4.14-1, the project would generate fewer than 50 trips during any peak hour and therefore does not require a traffic impact study and is presumed to have a less than significant impact related to LOS. Thus, the analysis and conclusions under Impact 4.14-1 also reflect a cumulative analysis, and the project would not result in a significant contribution to LOS deficiencies in the surrounding road network but would contribute to potential safety hazards and regional emergency access. With implementation of Mitigation Measure MM 4.14-1, impacts would be less than significant under both project-specific considerations and cumulative conditions.

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.

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Section 4.15
Tribal Cultural Resources

4.15.1 Introduction

This section of the Environmental Impact Report (EIR) provides an assessment of potential impacts related to tribal cultural resources that could result from implementation of the proposed project. The analysis in this section is based on the results of the Native American consultation conducted by Kern County for purposes of compliance with California Environmental Quality Act (CEQA) requirements prompted by Assembly Bill (AB) 52, which is discussed in the Regulatory Setting section below. Additional information regarding cultural resources is provided in **Section 4.4**, *Cultural Resources*, of this EIR.

Information regarding cultural resources in **Section 4.4**, *Cultural Resources*, and this section is based in part on the following studies prepared for the project:

- *Phase I Historical/Archaeological Resources Survey, Rosamond Hills Mine Project, Assessor's Parcel Nos. 345-294-17, 0345-031-02, and 0345-032-02, -05, and -31,* prepared by CRM Tech, dated March 6, 2019, redacted version included in Appendix E.1 of this EIR;
- *A Phase II Cultural Resources Investigation of the Cal-Portland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County,* prepared by McKenna et al., dated June 26, 2019, redacted version included in Appendix E.2 of this EIR;
- *Addendum Report: A Phase II Cultural Resources Investigation of the CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County,* prepared by McKenna et al., dated January 4, 2020, redacted version included in Appendix E.3 of this EIR; and
- *Supplemental Report: Cultural Resource Investigations of Additional Acreage At The CalPortland Rosamond Hills (Gem Hill) Project Area in the Rosamond Area of Kern County, California,* prepared by McKenna et al., dated August 23, 2021, redacted version included in Appendix E.4 of this EIR.

These studies were conducted in compliance with Section 5024.1 of the California Public Resources Code (PRC) and CEQA to identify archaeological, historic built architectural, and other cultural resources in the project area. The scope of these studies and information regarding cultural resources identified in association with the site is discussed in **Section 4.4**, *Cultural Resources*, of this EIR.

4.15.2 Environmental Setting

Existing Tribal Cultural Resources

Native American Correspondence and Assembly Bill 52 Consultation

On October 1, 2021, Kern County sent consultation notification letters via certified mail to Native American groups on Kern County's Master List pursuant to the requirements of AB 52 pertaining to government-to-government consultation. **Table 4.15-1,** *Summary of AB 52 Consultation Efforts*, summarizes Kern County's consultation efforts to date. To date, responses from two Native American groups have been received, as summarized following the table.

Table 4.15-1 Summary of AB 52 Consultation Efforts

Tribe/Organization	Consultation Type	Date Letter Mailed	Response Received
San Manuel Band of Mission Indians (Attn: Ryan Nordness)	AB 52	10/1/21	October 8, 2021, email requesting consultation and review of records. October 22, 2021, email concurring with the finding of the cultural report and advising that could not recommend on any mitigation measures until completion of phase II testing. May 24, 2022, email that 1) confirmed receipt and review of cultural resources documents provided by the County, 2) outlining preferred mitigation measures, 3) requesting that the County provide the final copy of the project conditions for review by the Yuhaaviatam of San Manuel Nation (YSMN) Cultural Resources Department, and 4) noting that the May 24, 2022, email communication concluded input on the project with no additional consultation pursuant to CEQA required unless there is an unanticipated discover of cultural resources during project implementation.
Torres Martinez Desert Cahuilla Indians (Attn: Michael Mirelez)	AB 52	10/1/21	No response or request for consultation was received from Torres Martinez Desert Cahuilla Indians.
Tejon Indian Tribe (Attn: Colin Rambo)	AB 52	10/1/21	November 23, 2021, email requesting to initiate formal government-to-government consultation noting project is in sensitive cultural area and requesting copies of the DEIR and any archeological reports.

Table 4.15-1 Summary of AB 52 Consultation Efforts

Tribe/Organization	Consultation Type	Date Letter Mailed	Response Received
			July 18, 2022, email noting that the Tejon Indian Tribe does not have any unresolved questions or concerns related to the project, and advising that the Tribe would submit public comment during the EIR process.
Twenty-Nine Palms Band of Mission Indians (Attn: Anthony Madrigal Jr.)	AB 52	10/1/21	No response or request for consultation was received from Twenty-Nine Palms Band of Mission Indians.
Twenty-Nine Palms Band of Mission Indians (Attn: Darrell Mike)	AB 52	10/1/21	No response or request for consultation was received from Twenty-Nine Palms Band of Mission Indians.

San Manuel Band of Mission Indians Correspondence

In response to the County's October 1, 2021, AB 52 notification, on October 8, 2021, Ryan Nordness of the San Manuel Band of Mission Indians responded to the Kern County notification letter with an email to Mr. Randall Cates, Kern County Planner III, advising that the proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the San Manuel Band of Mission Indians. The letter noted that there are several known archaeological resources to the south of the proposed project area and that, due to the nature and location of the proposed project, the San Manuel Band of Mission Indians requested for review the project cultural report, geotechnical report, and project plans showing the depth of proposed disturbance, to provide information to assist San Manuel Band of Mission Indians in ascertaining how the Tribe will assume consulting party status under CEQA and participate, moving forward, in project review and implementation, and noted that it the information could not be provided within the 30-day response window, the San Manuel Band of Mission Indians automatically elects to be a consulting party under CEQA, as stipulated in AB52. On October 12, 2021, in response to Ryan Nordness' request, Mr. Randall Cates sent, via certified mail: 1) Cultural Reports consisting of Gem Hill Cultural Report Phase I (CRM Tech March 2019), Gem Hill Cultural Report Phase II Grading Area (McKenna June 2019), Gem Hill Cultural Report Phase II (McKenna January 2020) complete, and Gem Hill Paleontological Report (May 2020); 2) Gem Hill Slope Stability Report (January 2020), and 3) project plans showing the depth of proposed disturbance. On October 22, 2021, Ryan Nordness replied to Mr. Cates advising that the San Manuel Band of Mission Indians concur with the finding of the cultural report and could not recommend on any mitigation measures until the completion of the phase II testing. Subsequently, on May 24, 2022, Ryan Nordness provided an email response to Mr. Cates that confirmed receipt and review of the cultural resources documents provided by Mr. Cates and outlined preferred mitigation measures for the project. The email also requested that the County provide the final copy of the project conditions for review by the Yuhaaviatam of San Manuel Nation (YSMN) Cultural Resources Department and noted that the May 24, 2022, email communication concluded input on the project with no additional consultation pursuant

to CEQA required unless there is an unanticipated discover of cultural resources during project implementation.

Tejon Indian Tribe Correspondence

In response to the County's October 1, 2021, AB 52 notification, on November 23, 2021, Colin Rambo of the Tejon Indian Tribe responded to the Kern County notification letter with an email to Mr. Randall Cates, Kern County Planner III, requesting to initiate formal government-to-government consultation for the Gem Hill Quarry Project noting that the project is in a very sensitive cultural area for the Tejon Indian Tribe and requesting copies of the DEIR and any archeological reports as early as possible to facilitate the Tejon Indian Tribe's Tribal Cultural Resources analysis. On December 2, 2022, in response to Colin Rambo's request, Mr. Randall Cates sent, via certified mail: 1) Cultural Reports consisting of Gem Hill Cultural Report Phase I (CRM Tech March 2019), Gem Hill Cultural Report Phase II Grading Area (McKenna June 2019), Gem Hill Cultural Report Phase II (McKenna January 2020) complete, and Gem Hill Paleontological Report (May 2020); 2) Gem Hill Slope Stability Report (January 2020), and 3) project plans showing the depth of proposed disturbance. On May 24, 2022, June 24, 2022, and July 5, 2022, Kern County provided follow-up emails inquiring as to whether any additional information was needed to conclude consultation. On July 18, 2022, Colin Rambo provided an email response to Mr. Terrance Smalls, Kern County Supervising Planner, noting that the Tejon Indian Tribe does not have any unresolved questions or concerns related to the project, and advising that the Tribe would submit public comment during the EIR process.

4.15.3 Regulatory Setting

Federal

National Historic Preservation Act Section 106

Archaeological resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 United States Code [USC] 470f), and its implementing regulation, Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. 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 NHPA Section 101(d)(6)(A), 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 at 36 CFR 60.4.

National Register of Historic Places

The National Register of Historic Places (NRHP) was established by the NHPA, 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 Section 60.2). The NRHP recognizes both historical-period and prehistoric properties, including archaeological sites, 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 (U.S. Department of the Interior 1995):

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. The seven factors that define integrity are 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.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from Federal and Tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any Federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American Tribe claiming affiliation.

State

California Register of Historical Resources

Under PRC Section 5024.19(a), the California Register of Historical Resources (CRHR) was created in 1992, and implemented in 1998, as "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:

- **Criterion 1**. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2**. It is associated with the lives of persons important in our past.
- **Criterion 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.
- **Criterion 4**. It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under PRC 5024.1, Title 14 California Code of Regulations [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. Cultural sites that have been affected by ground-disturbing activities, such as farming, often lack integrity because they have been directly damaged or moved from their original location, among other changes.

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. However, archaeological sites may also be recommended eligible under CRHR Criteria 1, 2, and/or 3.

California Historical Landmarks

California Historical Landmarks 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 Kern 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 California Historical Landmark #770. California Historical Landmarks #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 are sites, buildings, features, or events that are of local (County or City) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest 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 Point of Historical Interest, 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 (County or City);
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 a historical resource is a project that may have a significant effect on the environment. The State CEQA *Guidelines* (14 CCR Section 15064.5) recognize that a 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 a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of CEQA Section 21084.1 and State CEQA *Guidelines* Section 15064.5 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 a historical resource, the Lead Agency must identify potentially feasible measures to mitigate these effects (State CEQA *Guidelines* Sections 15064.5(b)(1) and (4)).

If an archaeological site does not meet the historical resource criteria contained in the State 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 CEQA Section 21083.2, 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:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- 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 21083.2(b)). If preservation in place is not feasible, mitigation measures shall be required.

The State 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 (State 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.

Assembly Bill 52 and Related Public Resources Code Sections

AB 52 was approved by California State Governor Edmund Gerry "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 a Notice of Preparation (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 CRHR 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 State 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.

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

Codified in California Health and Safety Code Sections 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 tribal 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 General Provisions

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policies

- **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

- **Implementation Measure K.** Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.
- **Implementation Measure L.** The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.
- **Implementation Measure N.** The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.
- **Implementation Measure O.** On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.15.4 Impacts and Mitigation Measures

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related 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 California Register of Historical Resources, or in a local register of historical resources 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 Resource Code section 5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe.

Project Impacts

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 CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k).

Kern County sent tribal consultation letters for the proposed project to the following recipients pursuant to AB 52 in October 2021:

- San Manuel Band of Mission Indians (Attn: Ryan Nordness)
- Torres Martinez Desert Cahuilla Indians (Attn: Michael Mirelez)
- Tejon Indian Tribe (Attn: Colin Rambo)
- Twenty-Nine Palms Band of Mission Indians (Attn: Anthony Madrigal Jr.)
- Twenty-Nine Palms Band of Mission Indians (Attn: Darrell Mike).

Kern County received responses from two Native American groups to the AB 52 consultation letters requesting additional information and/or consultation: San Manuel Band of Mission Indians and Tejon Indian Tribe.

Following the County's response to the San Manuel Band of Mission Indians request and provision of cultural studies and project information, on May 24, 2022, the San Manuel Band of Mission Indians provided an email to Kern County confirming receipt and review of the cultural resources documents provided by Kern County, outlining preferred mitigation measures for the project and requesting that the County provide the final copy of the project conditions for review by the Yuhaaviatam of San Manuel Nation (YSMN) Cultural Resources Department. The May 24, 2022, email also noted that the email communication concluded input on the project with no additional consultation pursuant to CEQA required unless there is an unanticipated discover of cultural resources during project implementation.

Following the County's response to the Tejon Indian Tribe request and provision of cultural studies and project information, on July 18, 2022, the Tejon Indian Tribe advised that the tribe does not have any unresolved questions or concerns related to the project and that the tribe would submit public comments during the EIR process.

While no tribal cultural resources have been identified within the project site through consultation with Native American representatives, the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4 would reduce impacts to a less-than-significant level.

The Lead Agency notes that Section 21080.3.2(a) of AB 52 reads as follows:

> As a part of the consultation pursuant to Section 21080.3.1, the parties may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. If the California Native American tribe requests consultation regarding alternatives to the project, recommended mitigation measures, or significant effects, the consultation shall include those topics. The consultation may include discussion concerning the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation that the California Native American tribe may recommend to the Lead Agency.

Pursuant to Section 21080.3.2(b)(1) of AB 52, the Lead Agency's consultation obligations are satisfied sufficient for circulation of the draft EIR, and the Lead Agency is proposing inclusion of Mitigation Measures MM 4.4-1 through MM 4.4-4, which require cultural resources sensitivity training for site workers, Native American monitors during ground-disturbing activities, cessation of ground disturbance and implementation of treatment measures in the event that archaeological or historical resources are encountered during ground-disturbing activities, and cessation of work and consultation with the Native American Heritage

Commission and Most Likely Descendent in the event of discovery of human remains if the County Coroner determines that the remains are Native American. Mitigation Measures MM 4.4-1 through MM 4.4-4 would mitigate or avoid a significant effect, if a significant effect exists, on tribal cultural resource(s).

However, the Lead Agency notes that that Section 21080.3.2 (c) of AB52 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 4.4-1 through MM 4.4-4.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4, 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 discussed previously, no tribal cultural resources were identified within the project site through consultation with Native American representatives; however, tribal cultural resources could still be encountered during ground-disturbing project activities. Implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4 would reduce impacts to a less than significant level.

Mitigation Measures

Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4, 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 discussed in **Chapter 3**, *Project Description*, and as shown in **Table 3-9,** *Cumulative Project List*, would have on tribal cultural resources. The geographic scope for cumulative impacts to cultural resources includes all western Kern County. Analysis of cumulative impacts takes into consideration the entirety of impacts that the projects, zone changes, and general plan amendments discussed in **Section 3.7**, *Cumulative Effects Overview*, would have on cultural resources. Analysis of cumulative impacts considers the entirety of impacts that the projects, zone changes, and general plan amendments discussed in **Section 3.7**, *Cumulative Effects Overview*, would have on tribal cultural resources. This geographic scope of analysis is appropriate because the archaeological and historical resources within this radius are expected to be similar to those in the project site because their proximity, similar environments, landforms, and hydrology would result in similar land use and thus, site types.

Impact 4.15-2: The proposed project would contribute to cumulative tribal cultural resources impacts.

Cumulative development within southeastern Kern County has the potential to result in cumulative impacts to tribal cultural resources, if present. As discussed previously, no tribal cultural resources within the project site have been identified through consultation with Native American representatives. Implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4 would minimize the potential for the proposed project to result in impacts to unknown tribal cultural resources if discovered during project activities. Implementation of the proposed project would not result in off-site impacts to tribal cultural resources, and it is expected that other development projects within western Kern County would be required to mitigate for their individual impacts to tribal cultural resources. Consequently, the incremental effects of the project, after mitigation, would not have the potential to make a considerable contribution, in combination with impacts from past, present, or reasonably foreseeable projects to a cumulative significant impact on cultural resources under CEQA. As a result of these factors and with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4, the project would not have the potential to substantially contribute to cumulative impacts to tribal cultural resources.

Mitigation Measures

Implement Mitigation Measures MM 4.4-1 through MM 4.4-4.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-4, 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 Environmental Impact Report (EIR) addresses the project's potential impacts on certain utilities and services: water, electricity, natural gas, solid waste, wastewater, and stormwater. This section also provides the environmental and regulatory settings and discusses mitigation measures to reduce impacts where applicable. The analysis in this section is partially based on information provided in the following documents, and incorporated by reference herein:

- *Water Supply Assessment Gem Hill Project*, prepared by Sespe Consulting November 5, 2020; included as Appendix I.2; and
- *Technical Memorandum in Support of the Gem Hill Water Supply Assessment*, prepared by Sespe Consulting, Inc., February 25, 2022; included as Appendix I.3.

4.16.2 Environmental Setting

The following section describes the existing conditions on the project site and surrounding area as relevant to utilities and service systems.

Water

Throughout Kern County, three sources of water are available: natural, manmade, and reclaimed. Natural sources include rivers, lakes, streams, and groundwater stored in aquifers. Manmade sources include runoff that has been treated and stored in reservoirs or other manmade catchment structures. Reclaimed water is wastewater that has been conveyed to a treatment plant and then treated to a degree that makes it suitable for specific uses, such as irrigation. Reclaimed water is not potable (drinkable) and must be conveyed in a separate system to ensure no possibility of direct human consumption. Potable water is used for drinking, washing, flushing, recreational purposes, and other domestic uses. The ability to supply water is a function of both available sources and conveyance capacity. Sources of water supply available in Kern County are described below.

State Water Project

The State Water Project (SWP) is the nation's largest State-built, multi-purpose water project, and serves as California's principal water storage and delivery system. Authorized by the legislature in 1959, the SWP includes a system of 28 dams and reservoirs, 660 miles of aqueducts, and 26 pumping and generating plants. The SWP includes 20 major reservoirs that can hold 5.8 million acre-feet (AF), with annual deliveries averaging up to 3 million AF.

The SWP, which is maintained and operated by the California Department of Water Resources (DWR), is utilized to store water and distribute it to 29 urban and agricultural water suppliers

in northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and southern California. In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural water supply agencies located throughout northern, central, and southern California for SWP water supplies. The SWP provides supplemental water to 27 million Californians and 750,000 acres of farmland (DWR 2022). Of the contracted water supply, about 66% is delivered to residential, municipal, and industrial uses and 34% is delivered to agricultural uses.

Kern County Water Agency

The Kern County Water Agency (KCWA) is one of 29 water agencies (commonly referred to as "contractors") that have a SWP Water Supply Contract with DWR. Each SWP contractor's SWP Water Supply Contract includes a "Table A," which lists the maximum amount of water an agency may request each year throughout the life of the contract. Table A is used to determine each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. The KCWA's current annual Table A amount is 982,730 acre-feet per year (AFY) (DWR 2018b).

While Table A identifies the maximum annual amount of water an SWP contractor may request, the amount of SWP water actually available and allocated to the KCWA varies from year to year. The factors affecting SWP deliveries are discussed in detail in the *State Water Project Draft Delivery Capability Report* (DWR 2018b), which was subsequently finalized in March 2018, and includes hydrology, the amount of water in reservoirs at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by DWR contractors. In the Capability Report, DWR recommends analyses for SWP contractors to use in water supply planning.

Water Supply

There are typically three sources of supply water for development: (1) natural sources; (2) manmade sources; and (3) reclamation. Natural sources include rivers, lakes, streams, and groundwater stored in aquifers. Manmade 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 in order to ensure that there is no possibility of direct human consumption.

The project is located on approximately 210.75 acres in the western extent of the Mojave Desert, approximately 4 miles northwest of the unincorporated community of Rosamond. The nearest existing water utility system is the Rosamond Community Services District (RCSD), and the RCSD boundary is approximately 3,200 feet from the project site at its closest point. The project water supply is proposed to be provided from an onsite groundwater well, and would not connect with or utilize water supply from the RCSD.

Groundwater Supply

The project site is within the jurisdictional boundaries of the *Water Quality Control Plan for the Lahontan Region North and South Basins* (RWQCB 2021) (Lahontan Basin Plan), which

establishes surface and groundwater standards for the region according to designated beneficial uses. The Lahontan Basin Plan summarizes applicable provisions of separate State Board and Regional Board planning and policy documents, and of water quality management plans adopted by other federal, state, and regional agencies. The project site is outside of an adopted groundwater management plan, except for an approximately 1.4-acre triangular section of the Antelope Valley Groundwater Basin that extends onto the project site's southern edge. The Fremont Valley Groundwater Basin (FVGB) is to the north of the site. Groundwater is anticipated to be at approximately 2,385 feet above mean sea level (amsl), based on exploratory drilling data produced by the project proponent (Sespe 2022).

While the basalt aquifer is distinct from the alluvial aquifer FVGB immediately to the north, some inflow from the FVGB to the basalt aquifer is expected to occur. The hydraulic gradient immediately north of the project site is estimated to range from 0.001 to 0.17 feet/mile depending on the variability in flow direction. Thus, replenishment of the basalt aquifer via inflow is interpreted to be controlled by groundwater movement in the adjoining FVGB alluvial aquifer (Sespe 2022). The project water supply would be obtained from the underlying aquifer through use of an onsite groundwater well to be installed as a component of the project.

Electricity

Electrical service is available in the project region from Southern California Edison (SCE). No electrical service is proposed to be utilized in conjunction with the proposed project.

Natural Gas

PG&E and the Southern California Gas Company (SoCalGas), a subsidiary of Sempra Energy, are the natural gas providers in Kern County; however, there is no known natural gas service to the project site. No natural gas service is proposed to be utilized in conjunction with the proposed project.

Wastewater

The project is not expected to generate a significant amount of wastewater. All wastewater produced during the life of the project would be collected in portable toilet facilities and transported by truck to an approved off-site facility for disposal.

Solid Waste

The *Kern County and Incorporated Cities Integrated Waste Management Plan* (Kern County 1991) addresses issues pertaining to nonhazardous waste disposal and other waste facilities. The Waste Management Plan identifies issues, goals, policies, regulations, and enforcement, as well as the transfer, storage, and disposal of solid waste.

Kern County is served by seven Class III landfills: Metropolitan Bakersfield (Bena), Boron, Mojave-Rosamond, Ridgecrest, Shafter-Wasco, Taft, and Tehachapi. These facilities accept nonhazardous solid waste only. The closest operational landfill to the project site is the Mojave-Rosamond Recycling and Sanitary Landfill, which is a Class III landfill that accepts industrial, mixed municipal, construction and demolition, and agricultural wastes. The landfill

has a remaining capacity of 76,310,297 cubic yards out of a total maximum capacity of 78,000,000 cubic yards and has an estimated closure date of 2123 (CalRecycle 2022).

Stormwater

The project site consists primarily of rolling topography with some steep slopes and incised ephemeral drainages. The site is not located within a Floodplain Safety Overlay District or Dam Inundation Overlay. There are no diversion structures or erosion control facilities currently on-site. Stormwater runoff is discussed in more detail in **Section 4.6**, *Geology and Soils*, and **Section 4.9**, *Hydrology and Water Quality*, of this EIR.

4.16.3 Regulatory Setting

Federal

National Pollution Discharge Elimination System Permit

Discharge of treated wastewater to surface waters of the United States, including wetlands, requires a National Pollutant Discharge Elimination System (NPDES) permit. In California, the Regional Water Quality Control Boards (RWQCBs) administer the issuance of these federal permits. Obtaining an NPDES permit requires preparation of detailed information, including characterization of wastewater sources, treatment processes, and effluent quality.

Because the site is larger than 1 acre, it may require compliance with NPDES criteria, including preparation of a Storm Water Pollution Prevention Plan (SWPPP) and the inclusion of Best Management Practices (BMPs) to control erosion and off-site transport of soils. Additional information on the project's NPDES permitting requirements, as well as SWPPP requirements, is presented in **Section 4.9**, *Hydrology and Water Quality*, of this EIR.

State

California Energy Commission

The California Energy Commission (CEC) regulates the provision of natural gas and electricity within the State. The CEC is the State's primary energy policy and planning agency. Created in 1974, the CEC has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 megawatts (MW) or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for and directing the State response to energy emergencies.

California Department of Resources Recycling and Recovery

CalRecycle, formerly the California Integrated Waste Management Board (CIWMB), 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 (CalEPA). CalRecycle develops regulations to control and manage waste, for which enforcement authority is typically delegated to the local government. CalRecycle works jointly with local government to implement regulations and fund programs.

The Integrated Waste Management Act of 1989 (Public Resources Code [PRC] 40050 et seq. or Assembly Bill [AB] 939, codified in PRC 40000), administered by CalRecycle, requires all County and local 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% by the year 1995 and 50% 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.

Lahontan Regional Water Quality 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, collectively referred to as the California Water Board. The SWRCB sets Statewide policy for the implementation of Federal and State laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans), which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The project is within the jurisdiction of the Lahontan RWQCB, which is responsible for the implementation of Federal and State water quality protection statutes, regulations, and guidelines.

California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California.

California Department of Water Resources

The DWR is a department within the California Resources Agency. The DWR is responsible for the State of California's management and regulation of water usage.

Senate Bill 610

Senate Bill (SB) 610 was passed on January 1, 2002, amending California law to require detailed analysis of water supply availability for large development projects. An SB 610 Water Supply Assessment (WSA) must be prepared if the following three conditions are met:

1. The project is subject to the California Environmental Quality Act (CEQA) under California Water Code (CWC) Section 10910;
2. The project meets criteria to be defined as a “Project” under CWC Section 10912; and
3. The applicable water agency’s current Urban Water Management Plan (UWMP) does not account for the water supply demand associated with the project.

A project would meet the definition of “Project” per CWC Section 10912 if it is:

- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area; or

- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.

The projected water supply may be determined to be sufficient or insufficient for the proposed project, per CWC Section 10910, through evaluation of the following:

- If the projected water demand associated with the proposed project was not accounted for in the most recently adopted UWMP, or the public water system has no UWMP, the water assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

California Solid Waste Reuse Recycling Access Act

The California Solid Waste Reuse and Recycling Access Act of 1991 (California PRC Chapter 18) addressed the State's lack of adequate areas for collecting and loading recyclable materials, which resulted in a significant impediment to diverting solid waste from landfills. The act required State and local agencies to tackle issues related to access to solid waste collecting and loading areas to promote source reduction, recycling, and composting programs. It also required local agencies to adopt ordinances pertaining to the provision of areas for collecting and loading recyclable materials from development projects.

Local

Kern County General Plan

The project site is located within the *Kern County General Plan*. The goals, policies, and implementation measures in the *Kern County General Plan* for utilities applicable to the project are provided below.

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 3.** Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.
- **Policy 13.** The County shall ensure landfill capacity for the residents and industry of Kern County.

Implementation Measures

- **Implementation Measure C.** Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

- **Implementation Measure D.** Involve utility providers in the land use and zoning review process.

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 12.** All methods of sewage disposal and water supply shall meet the requirements of the Kern County Public Health Services Department and the California Regional Water Quality Control Board. The County's Public Health Services Department shall periodically review and modify, as necessary, its requirements for sewage disposal and water supply, and shall comply with any new standards adopted by the State for implementation of Government Code Division 7 of the Water Code, Chapter 4.5 (Section 13290-13291.70 (Assembly Bill 885) (2000).
- **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.

4.16.4 Impacts and Mitigation Measures

Methodology

Potential impacts associated with the project were developed based on analysis of existing settings, consultation with Kern County, and review of the project design. The discussion below describes project-specific impacts and provides measures that would be incorporated to mitigate and reduce potential impacts to the extent feasible.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to utilities and service systems. The Kern County Environmental

Checklist states that a project would normally be considered to have a significant impact related to 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 adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

e. Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste.

The Lead Agency determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue area would result in no impacts. Therefore, no further analysis is required in this EIR based on the scoping review. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding the following impacts:

- 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.

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 telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Water

Water used during mining and reclamation activities (with the exception of domestic drinking water supply, which would be from bottled water) would be obtained from an onsite well proposed to be developed as a component of the proposed project, as summarized in **Table 4.16-1,** *Proposed Water Use*, below.

Table 4.16-1 Proposed Water Use

Water Source	Annual Water Usage	Total Water Usage (Gallons)
Onsite Groundwater Well	18 acre-feet 5,865,326 gallons	540 acre-feet (175,959,771 gallons) over project lifespan obtained from proposed onsite well.

Prior to extraction or use of water from the proposed onsite groundwater well, all necessary permits and approvals would be obtained from the Lahontan RWQCB. As previously indicated, the domestic drinking water supply would be from bottled water. Portable toilets serviced by a contractor would be used for domestic sewage. The project demand is not anticipated to exceed water supplies, and no new or expanded entitlements or water supply infrastructure would be required.

Wastewater

The project would generate a minimal volume of wastewater. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations. Portable toilets would be used during project operations. Wastewater generated during the life of the project would be contained within portable toilet facilities, which would be serviced by a contractor. The Kern County Environmental Health Services Division is responsible for monitoring the use of portable toilet facilities, and a condition of approval would require the project proponent to provide documentation of a portable toilet pumping contract. Therefore, the project would not exceed wastewater treatment requirements of the Lahontan RWQCB and would not require new or relocated wastewater facilities.

Stormwater

Implementation of the project would result in: (a) decreased capacity of the project site to absorb stormwater, due to compaction of areas proposed to be disturbed in conjunction with the project; and (b) alteration of the existing pattern and concentration of runoff. As discussed previously, all watercourses in the vicinity of the project are ephemeral, and stormwater basins would be installed as necessary to provide drainage control along these courses. However, the proposed mine haul/access road network is proposed to traverse onsite ephemeral drainages. If unmitigated, storm events could cause excessive erosion, sedimentation, and transport of pollutants. The project must comply with the requirements of the State's General Permit under the NPDES program or qualify for a Notice of Non-Applicability (NONA). The permit's requirements include preparation of a SWPPP. Through prescribing BMPs, the objective of the SWPPP is to reduce or eliminate sediment or other pollutants from entering stormwater runoff. The SWPPP, if required, shall identify the precise implementation of BMPs, and implementation of the BMPs outlined in the SWPPP would avoid and/or minimize potential impacts such as erosion, sedimentation, and runoff that could result from activities of the project within the project site.

Electric Power, Natural Gas, and Telecommunication Facilities

The project would not require connections or result in other impacts to electrical, natural gas, or telecommunication facilities. The project would not require or result in the relocation or

construction of new or expanded water, wastewater treatment, electric power, natural gas, or telecommunications facilities; therefore, impacts would be less than significant. The project may require construction of new stormwater drainage facilities, as discussed above.

Mitigation Measures

Implement Mitigation Measure MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.9-2, 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.

As discussed under Impact 4.16-1, the project water supply is proposed to be provided from an onsite groundwater well. A *Water Supply Assessment* (Sespe 2020) and *Technical Memorandum in Support of the Gem Hill Water Supply Assessment* (Sespe 2022) evaluated the sufficiency of the proposed water supply and determined it would provide sufficient water supply to the project in normal, dry, and multiple dry years. Based on this assessment, long-term water demands for the project would be met through the proposed onsite groundwater well. Therefore, impacts would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

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.

As proposed, all overburden material that is excavated during mining activities would be placed in two permanent overburden stockpiles within the project site. Minimal amounts of solid waste are anticipated to be generated, such as food/packaging waste from employees and replacement parts for vehicles/equipment. Therefore, the project is not expected to generate a substantial amount of solid waste that would exceed the capacity of local landfills. To ensure proper disposal of the solid waste generated as a result of project implementation, Mitigation Measure MM 4.16-1 is proposed to be implemented. With implementation of this mitigation measure, impacts with regard to solid waste generation and disposal would be less than significant.

Mitigation Measures

MM 4.16-1 During operations as authorized by this approval, debris and waste generated shall be recycled to the extent feasible.

A. An on-site Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance and Trash Abatement/Pest Management Program.

B. The Recycling Coordinator shall facilitate the recycling of all construction waste through coordination with contractors, local waste haulers, and/or facilities that recycle construction/demolition wastes.

C. The on-site Recycling Coordinator shall also be responsible for ensuring that wastes that require special disposal are handled according to the 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 commencement of operations as authorized by this approval.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.16-1, impacts would remain 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.

The 1989 California Integrated Waste Management Act (AB 939) requires Kern County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the project design. Implementation of Mitigation Measure MM 4.16-1 would ensure compliance with waste diversion and recycling requirements by requiring recycling during the life 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.

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 remain less than significant.

Cumulative Setting Impacts and Mitigation Measures

Cumulative Setting

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. **Section 3.7**, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project. (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects

considered in the cumulative impact analysis.) The geographic scope for cumulative impacts to utilities and service systems includes closely related past, present, and reasonably foreseeable probable future projects.

Impact 4.16-5: The project would contribute to cumulative impacts to utilities and service systems.

Impacts of the project would be cumulatively considerable if they would have the potential to cause significant effects in combination with similar impacts of other past, present, or reasonably foreseeable projects; however, as discussed above, the project would place few demands on water, stormwater drainage, and wastewater and solid waste disposal. As discussed in the previous impact analyses, the project would generate a minimal volume of wastewater, would require water for dust suppression and would have sufficient water supply available to serve the project, would not generate a substantial amount of stormwater runoff, and would not require electrical, natural gas, or telecommunication connections. The project would contribute a less-than-significant amount of solid waste to a local landfill and would comply with all applicable Federal, State, and local regulations related to solid waste. Thus, the project would not require or result in the construction of new utility facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

The project would generate a minimal amount of waste and is not expected to affect Kern County landfills significantly. However, the generation of waste from cumulative projects could result in a cumulative impact. To ensure that the project reduces the amount of waste sent to landfills, Mitigation Measure MM 4.16-1 would require debris and waste to be recycled to the extent feasible. In addition, this mitigation measure requires that an on-site recycling coordinator be designated by the project proponent to facilitate recycling efforts. Therefore, the project's contribution to this impact would be less than significant. Other planned projects are expected to comply with all applicable Federal, State, and local waste reduction policies as well. Therefore, the project would not be expected to combine with impacts from past, present, or reasonably foreseeable projects and result in a cumulative impact on landfills. Because the project would not require the use of existing utilities and service systems, existing facilities would not need to be expanded. Additionally, the project would not result in a cumulative impact on landfills. Although the project's impacts on utilities and service systems would not be cumulatively considerable, Mitigation Measure MM 4.16-1 would require debris and waste to be recycled to the extent feasible, in addition to requiring a recycling coordinator to facilitate recycling efforts.

Mitigation Measures

Implement Mitigation Measures MM 4.9-2 and MM 4.16-1.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-2 and MM 4.16-1, cumulative impacts would remain less than significant.

Section 4.17
Wildfire

4.17.1 Introduction

This section of the Environmental Impact Report (EIR) discusses potential impacts related to wildland wildfire impacts. The analysis in this section is based on review of existing conditions of the site and surrounding areas, the project plans, information from the California Department of Forestry and Fire Protection (CAL FIRE), and Kern County Fire Hazards Severity Zone (FHSZ) Maps.

4.17.2 Environmental Setting

Site Characteristics and Fire Environment

The region in which the project site is located consists of open flatlands intermixed with hills with sparse creosote bush vegetation. Land uses in the vicinity of the project site include dispersed rural residences and ranches, agricultural fields to the west, and renewable energy facilities to the southwest through northwest.

Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation cover (less than 5 percent) while the flatland areas at the bottom of the slopes support denser vegetation cover (less than 30 percent). Creosote bush scrub is the dominant plant community. It is an open scrub plant community characterized by sparse, evenly spaced plants and dominated by creosote bush (*Larrea tridentata*). Several unnamed ephemeral drainage features are present within the project site. The drainages are located at the top of the watershed, originating on the steep slopes along the western northwestern boundary of the site and generally flow to the southeast.

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, 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 CAL FIRE Kern County Fire Hazard Severity Zone Maps for Responsible Areas, the project site is not within a State Responsibility Area and is classified as Local Responsibility Area (LRA) Moderate (**Figure 4.17-1,** *Fire Hazard Severity Zones for Local Responsibility Areas*).

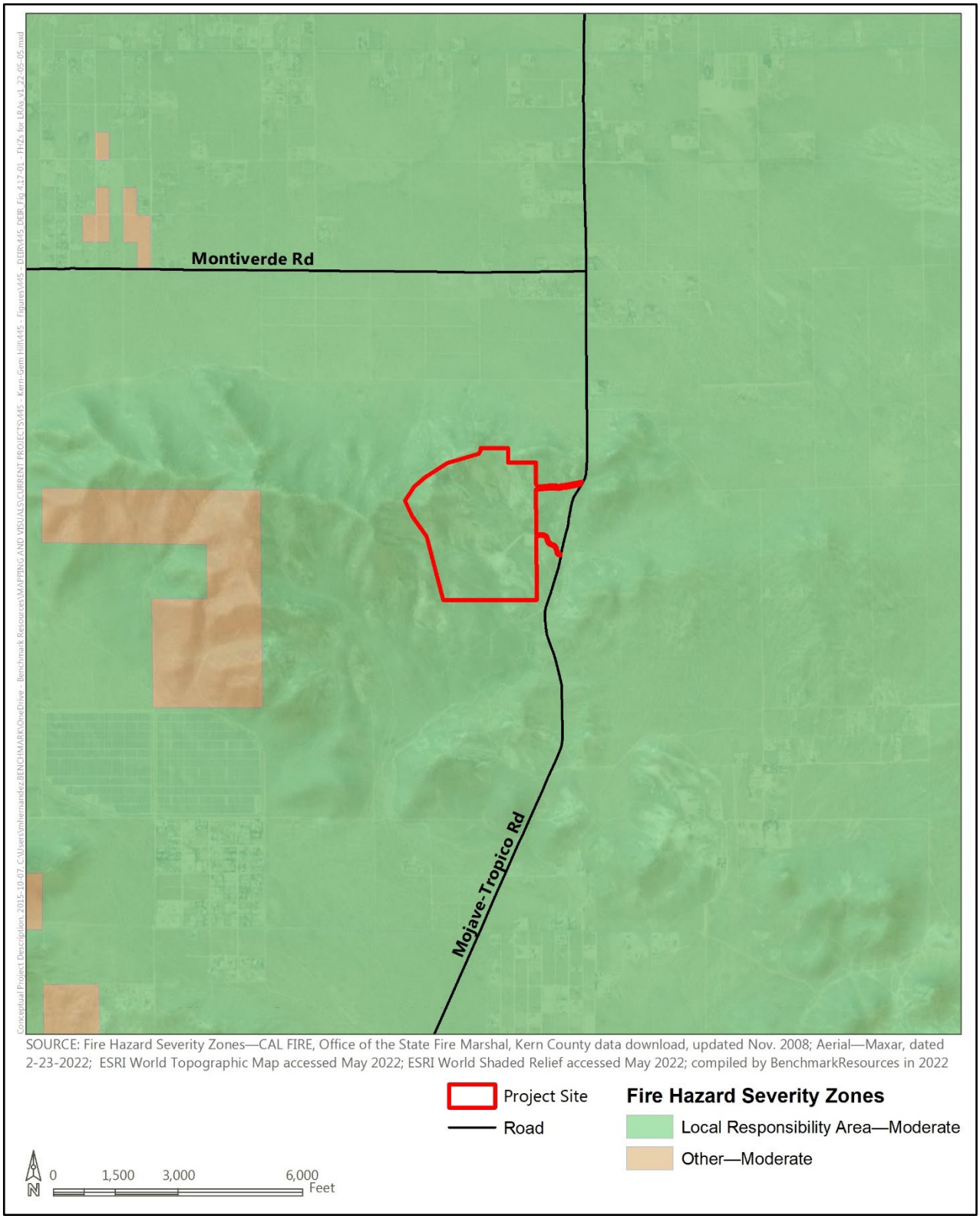


Figure 4.17-1
Fire Hazard Severity Zones for Local Responsibility Areas

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 that shows the history of fires back through 2013 (CAL FIRE 2022) and CAL FIRE's Fire and Resource Assessment Program (FRAP) Fire Perimeters: Wildfires 1950–2018 map (CAL FIRE 2019).

Based on a review of these maps, no fires in recorded history have burned across the project site. The closest recorded fires, based on a review of CAL FIRE's California Statewide Fire Maps, was the Champagne Fire, which occurred in May 2017 approximately 10 miles southwest of the project site. Additionally, the Wildfires 1950-2018 map identifies a fire occurring in an unspecified year during the period 2000-2009 north of Backus Road over 2 miles north of the project site.

Vegetation (Fuels)

One plant community, Creosote Bush Scrub, is present within the project site. Creosote bush scrub is an open scrub plant community characterized by sparse, evenly spaced plants and dominated by creosote (*Larrea tridentata*). Plant species found on the project site within the creosote bush scrub community included creosote, burrobush (*Ambrosia dumosa*), California buckwheat (*Eriogonum fasciculatum*), beavertail (*Opuntia basilaris*), chia (*Salvia columbariae*), Mormon tea (*Ephedra nevadensis*), cheesebush (*Ambrosia salsola*), matchweed (*Gutierrezia californica*), cryptantha (*Cryptantha* sp.), blackbush (*Coleogyne ramosissima*), allscale (*Atriplex polycarpa*), red brome (*Bromus madritensis* ssp. *rubens*), and Mediterranean grass (*Schismus* sp.). An abundance of open ground is common in creosote brush scrub, as an adaptation by the associated plants to prevent the spreading of wildfires (ELMT 2022a).

4.17.3 Regulatory Setting

State

2016 California Fire Code

The 2016 California Fire Code (California Code of Regulations [CCR] Title 24, Part 9) 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 Fire 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 are addressed, including 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 Fire 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 (WUI) areas.

2016 California Building Code Chapter 7A

Chapter 7 of the 2016 California Building Code details the materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a WUI Fire Area. A WUI Area is defined in Section 702A as a geographical area identified by the State as an FHSZ in accordance with California Public Resources Code (PRC) Sections 4201–4204 and California Government Code Sections 51175–51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The building code 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 Sections 4291–4299

PRC Sections 4291–4299 et seq. require 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 is maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Additionally, the PRC outlines infraction fees, certification, and compliance procedures applicable with State and local building standards, including those described in California Government Code Section 51189(b).

Local

Kern County General Plan

Chapter 4. Safety Element

Chapter 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

- **Implementation 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 2016 California Fire Code and the 2015 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 2019).

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 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 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 the Moderate and High FHSZs (KCFD 2009).

Kern County Fire Department 2021 Strategic Fire Plan

The KCFD 2021 Strategic Fire Plan (KCFD 2021) documents the assessment of the wildland fire situation throughout the State Responsibility Area (SRA) within the county. It includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work with the local fire problem. 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 (KCFD 2021). The plan provides for a comprehensive analysis of fire hazards, assets at risk, and levels of service 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. Additionally, the plan provides an annual report of unit accomplishments, which, in 2020, included completion of a number of fuel reduction projects, and “Chipper Days. . 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% 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 and in the service area of Station 15 (KCFD 2021).

4.17.4 Impacts and Mitigation Measures

Methodology

The proposed project’s potential impacts associated with wildfires have been evaluated using a variety of resources, including CAL FIRE maps showing FHSZs, FRAP, and fire history; vegetation data from the *Habitat Assessment and Desert Tortoise Presence/Absence Survey*

Report (ELMT 2022a); project location maps; 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 California Environmental Quality Act (CEQA) significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist (updated in May 2019) identify the following criteria, as established in Appendix G of the State 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 the project would:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan;

b. Due to slope, prevailing winds, or 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; or

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Project Impacts

Impact 4.17-1: The project could impair implementation of or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

The site is located along Mojave-Tropico Road, which provides access to the site in the event of an emergency. The primary access road would be gravel surfaced and suitable for emergency vehicle travel, and the proposed secondary access road (proposed to be composed of native earthen material) would also be available for emergency vehicle access. The project is not anticipated to physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. Therefore, this impact would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.17-2: The project would expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, and other factors.

As discussed in **Chapter 3**, *Project Description*, the project proponent proposes to employ open pit mining techniques to mine volcanic tuff and perform other related activities with a planned disturbance area of approximately 82.2 acres within the 210.75-acre project site; the project does not include the development of residential uses on the project site. The project site and surrounding areas are primarily undeveloped, with several dirt roads that traverse the site and two recently graded pad areas. The nearest residence is located approximately 650 feet north of the proposed secondary access road portion of the site and approximately 858 feet from the nearest portion of the rest of the project site.

As described in **Section 4.17.2**, *Environmental Setting*, and shown in **Figure 4.17-1,** *Fire Hazard Severity Zones for Local Responsibility Areas*, the project site is located in an area identified as having Moderate FHSZ within the LRA (CAL FIRE 2007). Vegetation on the project site is present in the form of creosote bush scrub which is an open scrub plant community characterized by sparse, evenly spaced plants and dominated by creosote. Ignition of existing vegetation would be most likely to occur during periods of initial surface clearing and excavation. Once vegetation is removed and excavation recesses into the mining area and overburden stockpile footprints are established, vegetation fuel sources would become limited or nonexistent within the mining and other operational areas. The project's internal haul routes and primary and secondary access roads would serve as wildland fire breaks.

Fire risk would be heightened during weather conditions with warm temperatures, low humidity, and strong winds. Heavy equipment (grader and dozer) would initially remove vegetation in proposed disturbance areas (e.g., mining areas, access roads, and stormwater basins), which would increase wildfire risk. However, after vegetation is removed in an area, wildfire risks would be reduced. The KCFD, which would provide fire protection service to the project site, would have the necessary tools to extinguish any fires that may be generated on the project site.

Proposed disturbed areas, comprising approximately 82.2 acres, would be required to be reclaimed. Such reclamation would require disturbed areas to be revegetated in accordance with the approved reclamation plan. Proposed revegetation is intended to support an end use of open space. It is anticipated the reclaimed vegetation would not pose a greater wildfire risk than the existing vegetation. As proposed, the reclamation plan would include reseeding with the seed mix presented in Table 4.17-1, *Proposed Revegetation Plant Seed Mix*.

Table 4.17-1 Proposed Revegetation Plant Seed Mix

Common Name	Scientific Name	Application Rate (pounds per acre)
Burrobush	*Ambrosia dumosa*	2.50
Cheesebush	*Ambrosia salsola*	2.50
Fiddleneck	*Amsinckia tessellata*	0.25
Desert alyssum	*Alyssum desertorum*	0.25
Four wing saltbush	*Atriplex canescens*	2.50
Evening primrose	*Cammisonia californica*	0.25
Rigid spineflower	*Chorizanthe rigida*	0.25
Desert pincushion	*Chaenaetis fremontii*	0.25
Rabbitbrush	*Ericameria nauseous*	3.00
Mormon tea	*Ephedra nevadensis*	1.50
Narrow leaf goldenbush	*Ericameria linearifolia*	0.75
Flat-topped buckwheat	*Eriogonum fasciculatum*	2.00
Thurber's buckwheat	*Eriogonum thurberi*	0.50
Gila	*Gilia spp.*	0.25
Creosote bush	*Larrea tridentata*	3.00
Peach thorn	*Lycium cooperi*	2.00
Desert dandelion	*Malacothrix glabrata*	0.75
Blazingstar	*Mentzelia affinis*	0.50
Slender combseed	*Pectocarya linearis*	0.25
Phacelia	*Phacelia distans*	0.25
Chia	*Salvia columbariae*	0.25
Small wirelettuce	*Stephanomeria exigua*	0.25
Cotton thorn	*Tetradymia spinosa*	2.00
Mojave aster	*Xylorhhiza tortifolia*	0.50
	TOTAL pounds per acre	**25-30**

Source: Proposed "Reclamation Plan for Gem Hill Quarry," CalPortland, January 2021.

Additionally, as proposed, the reclamation plan (per Table 11 thereof) proposes the following success criteria:

- 45% of the baseline for perennial cover (i.e., 9% cover for rocky areas and 11 percent cover for level areas);
- 40% of the baseline for species density (i.e., 10 species for rocky areas and 19 species for level areas); and
- 40% of the baseline for species diversity (i.e., 4 species for rocky areas and 3 species for level area).

Given that the design of the project, including vegetation clearing during site preparation, would make the potential for a fire to occur on the project site unlikely, the potential for wildfires to occur on the project site is considered low and the project is not expected to exacerbate wildfire risks. The project would not include any new residential uses. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations. Therefore, in the unlikely event of a wildfire, the project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Similarly, as discussed in **Section 4.8**, *Hazards and Hazardous Materials*, in the event that a wildfire impacted the project site, it is not expected that hazardous materials from the project would be released into the environment. The project would not, 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. Impacts would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

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.

As discussed in **Chapter 3**, *Project Description*, the project site is currently accessible from Mohave-Tropico Road via an existing unnamed, unpaved existing access road that extends between the site from Mohave-Tropico Road (the proposed primary access road for the proposed project). As proposed, during the life of the proposed surface mining and reclamation plan, all mining and reclamation-related access will be limited to the aforementioned primary access road and the proposed secondary access road that connects the site with Mojave-Tropico Road north of the primary access road. Upon the project site being deemed fully reclaimed, the project site would be accessible from Mojave-Tropico Road only via the aforementioned existing gravel-surfaced, unnamed access road (the proposed primary access road for the proposed project). The secondary access road is located approximately 1,800 feet north of the primary access road along Mojave Tropico Road. As proposed, the proposed secondary access road would be composed of native earthen material watered for dust suppression in accordance with all applicable regulations. Construction of the proposed secondary access road would provide improved access through the site and is not expected to exacerbate fire risk or result in temporary or ongoing impacts to the environment. The project is not anticipated to require the installation or maintenance of other infrastructure that would exacerbate fire risk or result in temporary or ongoing impacts to the environment. Furthermore, upon completion of mining activities, all heavy equipment not needed for reclamation work would be removed from the site (all heavy equipment removed from the site upon final reclamation). The approximately 82.2-acre disturbance area would be reclaimed to an end use of open space (with the exception of an approximately 8-acre area comprised of the

primary and secondary access roads, the quarry perimeter road, and the roads to the overburden stockpiles and the well; which are not proposed to be reclaimed so as to remain available for site access, revegetation monitoring, and long-term maintenance of the site for public safety and trash removal). Therefore, this impact would be less than significant.

Mitigation Measures

Mitigation is not required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.17-4: The project would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

As described in **Section 4.9**, *Hydrology and Water Quality*, the site consists primarily of rolling topography with some steep slopes and incised ephemeral drainages. The site is not located within a Floodplain Safety Overlay District or Dam Inundation Overlay.

The site primarily consists of undeveloped land, with several dirt access roads that traverse the site and two recently graded pad areas. The local terrain is variable across the site, with high topographic relief including areas of steep slopes and areas with more gently sloping alluvial fan deposits. Site elevations range from approximately 2,620 to 3,050 feet above mean sea level (amsl) and the site generally slopes downward from northwest to southeast. The northwestern portion of the site includes steeper topography that slopes downward to more gentle slopes and level areas in the southeast portion of the site. The steeper slopes of the project site are barren or support minimal vegetation with more level areas at slope bottoms supporting moderately denser vegetation cover. Creosote bush scrub represents the predominant vegetation cover throughout the site. In the event of a wildfire, vegetative cover, which acts to stabilize the soil, would be reduced. Without regrowth of vegetation, exposed soils would increase the rate and amount of runoff following a rain event. As described in **Section 4.9**, *Hydrology and Water Quality*, runoff would be channeled into defined drainage facilities that are designed to carry peak flows. Runoff patterns are not expected to change following a wildfire, as water would continue to be directed through defined drainage courses and potentially through other fire-resistant drainage facilities. As described in **Section 4.6**, *Geology and Soils*, the project site is generally underlain by stable soils and the slope stability analysis for the project concludes that the project's proposed slopes would achieve a suitable factor of safety.

Specifically, proposed slopes are as follows:

- Maximum final reclaimed inter-bench slopes for the quarry will be 0.25:1 (H:V).
- Overall final reclaimed slopes for the quarry will be a maximum of 1:1 (H:V).
- Maximum and overall final reclaimed slopes for the overburden stockpiles will be 2:1 (H:V).

Mitigation Measures

Implement Mitigation Measures MM 4.6-1 and MM 4.9-1 through MM 4.9-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.6-1 and MM 4.9-1 through MM 4.9-2, impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Section 3.7, *Cumulative Effects Overview,* of this EIR discusses cumulative projects near the project (**Table 3-9,** *Cumulative Projects List*, in **Chapter 3**, *Project Description*, lists specific projects considered in the cumulative impact analysis). Impacts associated with wildfire hazards are generally site-specific and have limited potential to substantially contribute to other hazards associated with other projects and activities on a local or regional basis. Projects and activities within the County are subject to various regulatory requirements, similar to those discussed here, and would minimize the hazard potential of those activities. Kern County recognizes that wildfire hazards exist throughout the County and everyday life.

Impact 4.17-5: The project would contribute to cumulative wildfire impacts.

The severity of potential hazards for individual projects would depend on the location, type, and size of development and the specific hazards associated with individual sites. Discretionary projects proposed in the County would be required to undergo individual environmental review, including review of potential impacts related to wildfire hazards that are applicable to that particular development site and proposed use. As described previously, the project site is in an area identified as having "Moderate" FHSZ within the LRA (CAL FIRE 2007). Vegetation on the project site is present in the form of a sparse cover of creosote brush scrub. Ignition of this plant community would be most likely to occur during periods of initial surface clearing and excavation. Once vegetation is removed and excavation recesses into each mining area, vegetation fuel sources become limited or nonexistent within the mining areas. A risk of wildland fire ignition always exists when vehicles operate in or near potential fuel sources; however, with proper maintenance of equipment and standard avoidance and management measures, the risk would be reduced. Therefore, potential impacts related to wildland fires associated with the project would be less than significant.

Mitigation Measures

No mitigation required.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

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Chapter 5

Consequences of Project Implementation

5.1 Environmental Effects Found to be Less than Significant

Section 15128 of the California Environmental Quality Act (CEQA) *Guidelines* requires that an Environmental Impact Report (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 the environmental document. Comments received during scoping have been considered in the process of identifying issue areas that should receive attention in the EIR. The contents of this EIR were established based on a Notice of Preparation/Initial Study (NOP/IS) prepared in accordance with the State CEQA *Guidelines* and on public and agency input received during the scoping process. Issues that were 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.

The NOP/IS determined that no impacts would occur that would require analysis in the EIR for the following environmental issue areas:

- Agriculture/Forestry
- Population and Housing
- Recreation

Based on the findings of the NOP/IS and the results of scoping, a determination was made that the EIR would contain a comprehensive analysis of all environmental issues identified in Appendix G of the State CEQA *Guidelines*, with the exception of the three issue areas listed above.

After further study and environmental review in this EIR, direct and indirect project-level impacts of the project would be less than significant or could be reduced to less-than-significant levels with mitigation measures for the following issue areas:

- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

- Hydrology and Water Quality
- Wildfire

5.2 Significant Environmental Effects that Cannot Be Avoided

Section 15126.2(c) of the State 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 proposed project and proposed mitigation measures are discussed in detail in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR.

As discussed in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, all but one project-specific impact would be reduced to a level that is less than significant with implementation of proposed mitigation. Even with implementation of mitigation, project-specific Impact 4.1-2 is found to be significant and unavoidable. Additionally, even with implementation of mitigation to reduce project-specific Impact 4.1-2, the cumulative impact is also found to be significant and unavoidable as discussed further in **Section 5.5**, *Significant Cumulative Impacts*.

Table 5-1, *Summary of Significant and Unavoidable Impacts of the Project*, lists the significant and unavoidable impact identified in this EIR.

Table 5-1 Summary of Significant and Unavoidable Impacts of the Project

Resource	Impact
Aesthetics	Impact 4.1-2: The project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.
Aesthetics	Impact 4.1-4: The project would contribute to cumulative aesthetic and visual resource impacts.
Biological	Impact 4.3-6: The project would contribute to cumulative biological resources impacts.

5.3 Significant Irreversible Impacts

The State CEQA *Guidelines* provide the following direction for the discussion of irreversible changes (Section 15126.2[d]):

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable

commitments of resources should be evaluated to assure that such current consumption is justified.

Determining whether the project would result in significant irreversible impacts requires a determination of whether key resources would be degraded or destroyed with little possibility of restoration.

Implementation of the proposed project would result in the temporary conversion of the proposed disturbance areas (e.g., mine areas, proposed access road, overburden stockpile areas) that are currently undeveloped open space. Upon final reclamation, the site would be reclaimed to be suitable for open space.

Development of the project would irretrievably commit materials and energy to the construction and operation of the project. Resources that would likely be consumed as part of the development of the proposed project would include, but are not limited to, oil, gasoline, diesel fuel, and other petroleum products for operation of project-related vehicles and equipment; aggregate resources for access road and haul road surfacing; water to be used for dust suppression; and other consumable products used during site preparation, operations, and reclamation activities.

5.4 Significant Cumulative Impacts

According to Section 15355 of the State CEQA *Guidelines*, 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 proposed project and each resource section in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, contains a subsection discussing the analysis of potential cumulative impacts associated with that resource.

As discussed in **Section 4.1**, *Aesthetics*, of this EIR, project Impact 4.1-2 related to changes to the existing visual character or quality of public views of the site and its surroundings is considered significant. Mitigation Measure MM 4.1-1 would reduce the severity of the impact, but the project-specific impact is considered significant and unavoidable. While implementation of Mitigation Measure MM 4.1-1 would reduce Impact 4.1-2, no additional feasible mitigation has been identified that would further reduce the impact, and the cumulative impact (Impact 4.1-4) associated with the project changes to the existing visual character or quality of public views of the site and its surroundings is considered significant and unavoidable.

As discussed in **Section 4.3**, *Biological Resources*, although there are no significant project-specific biological resources impacts, the potential for cumulative biological resources

impacts of the project exists as a result of biological resources impacts from other past, present (ongoing), and reasonably foreseeable future development and other activities. It is reasonable to anticipate that ongoing land uses and future development within the project vicinity will continue to result in vegetation removal, grading, and loss of habitat. The project would result in a long-term loss of creosote scrub habitat that could potentially provide future marginal foraging and nesting habitat for special-status species.

The mitigation measures identified for potential project-specific biological resources impacts would serve to avoid or minimize the project's impacts as well as its contribution to cumulative impacts. Due to Federal and State regulatory requirements and Kern County policies geared toward biological resources protection, it is also reasonable to anticipate that similar mitigation will be required of other projects to minimize their impacts to biological resources. However, it is possible that significant impacts to migratory birds could occur even after mitigation, given their migratory nature. Further, as take authorization for migratory bird species is not available, any mortality of migratory birds would be considered significant under CEQA. Therefore, the proposed project, in combination with all identified cumulative projects, would result in a cumulatively significant impact on migratory birds that may remain significant and unavoidable after implementation of mitigation.

5.5 Growth Inducement

Section 21100(b)(5) of CEQA requires an EIR to discuss how a proposed project, if implemented, could induce growth and the impacts of that induced growth (see also State CEQA *Guidelines* Section 15126). The sections below discuss the evaluation methods used for this analysis followed by the anticipated growth effects of the project.

5.5.1 Evaluation Methods

CEQA requires the EIR to specifically discuss (State CEQA *Guidelines* Section 15126.2[e]):

> the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.

Evaluation of the growth-inducing impacts of the project is based on a qualitative analysis of the direct impacts of constructing and operating the project and the indirect impacts that could result from use of the project. This evaluation of potential growth-inducing impacts addresses whether the project would directly or indirectly:

- foster economic, population, or housing growth;
- remove obstacles to growth;
- increase population growth that would tax community service facilities; or
- encourage or facilitate other activities that cause significant environmental impacts.

Section 15126.2(e) of the State CEQA *Guidelines* states specifically, "It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment." In other words, growth inducement is not to be considered adverse per se; impacts on resources resulting from growth may be too far removed from the actions of the agency to require mitigation by the agency. The goal of the EIR in this regard, therefore, is one of disclosure.

5.5.2 Growth Effects of the Project

As described in **Chapter 3**, *Project Description*, the project is a proposed volcanic tuff (a natural pozzolan) open pit mining facility. Project operations would typically occur during one shift per day during daylight hours (generally 7:00 a.m. to 7:00 p.m. Monday through Saturday depending on the season), 6 days per week. Up to 20 employees would work on-site, including about 10 truck drivers that would operate haul trucks for material movement within the site and for transport of material to offsite locations. Based on product demand and other market and operational factors, additional shifts or longer or alternative hours could also occur. The life of the proposed surface mining operation is proposed to be 30 years. Employees would likely come from the resident local population and would not result in a substantial increase in the population. Thus, the project would have minimal, if any, growth-inducing impacts associated directly or indirectly with population increase in the area.

The project would not extend or expand infrastructure to serve adjacent parcels, nor would it expand infrastructure capacity beyond the level necessary to serve the project. Thus, the project would not make infrastructure available to adjacent parcels and would not induce growth that might not otherwise occur.

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Chapter 6
Alternatives

6.1 Introduction

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) describes a range of reasonable alternatives to the project or to the location of the project site 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. The EIR need not consider every conceivable alternative, but it must consider a "reasonable range" of potentially feasible alternatives that will foster informed decision making and public participation. (CEQA Guidelines Section 15126.6(c).)

The following list is a summary of the key alternatives provisions of the State CEQA *Guidelines* (Section 15126.6):

- The discussion of alternatives shall focus on alternatives to the project or its location 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 to foster 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 Section 15126.6(f)(1) of the State CEQA *Guidelines*, are environmental impacts, site suitability, economic viability, 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. An EIR need not include consideration of an alternative

whose effects could not be reasonably identified, whose implementation is remote or speculative, and that would not achieve the basic project objectives.

6.2 Alternatives Eliminated from Further Consideration

State CEQA Guidelines Section 15126.6(c) requires that an EIR identify alternatives that were considered and rejected as infeasible, and briefly explain the reasons for rejection. Among the factors that may be used to eliminate alternatives from detailed consideration in any EIR are: (1) failure to meet most of the basic project objectives; (2) infeasibility; and (3) inability to avoid significant environmental impacts. The following alternatives were initially considered but were eliminated from further consideration in this EIR because they do not meet project objectives and/or were infeasible.

6.2.1 Alternative Locations

State CEQA *Guidelines* Section 15126.6(f)(2)(a) states that "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 alternative location would require the identification and design of a mine at another location within the project region capable of producing up to 15 million tons of volcanic tuff or other natural pozzolan in adequate quality and annual quantity, or the identification of multiple mine locations that could achieve that combined capacity.

The project proponent provided input regarding research of other existing pozzolan sources and review mine operations in eastern Kern, western San Bernardino, Mono and Inyo counties to determine if there are any existing pozzolan mines or sources that could supply material to the market area in adequate quality and quantity to meet the proposed project's production goals. The research concluded that there are no existing operation sites closer to the market than the proposed project site. Furthermore, most of the known sites are small operations that produce low amounts of mostly pumice or cinder; approved production levels and reserves are unknown, and the quality of available material is unknown and would require lab and product testing to assess potential suitability. Additionally, it is unlikely that any of the existing sites would be able to supply the 500,000 tons/year or have reserves approaching 15 million tons as estimated for the proposed project.

Successful development of a mine at an alternative location would depend on a number of geologic, environmental, and economic factors. Site-specific studies would be required to evaluate a new site and its adequacy to support mining. Issues to be addressed for a new site are dominated by availability and suitability. The site must be available for purchase or long-term lease with abundant material to justify the investment necessary to permit and operate a mining operation. Extensive overall feasibility studies would need to be prepared to evaluate the following environmental and logistical concerns:

- quality and quantity of material to meet customer specifications;
- water supply availability;

- distance to markets and potential increases in haul truck trip distances;
- available truck routes, road design, and existing and predicted future traffic volumes and levels of service;
- proximity to a state highway;
- existing and future surrounding land uses;
- effects of the mining on surrounding land uses, including aesthetics, air pollutants, light, and noise;
- potential impacts to groundwater and surface water quality and consumption;
- potential impacts to biological resources, including special-status species and their habitat;
- potential presence of and impacts to significant cultural and paleontological resources; and
- options and costs for reclamation and use of site after mining.

No specific location with attributes necessary to accomplish the project objectives is known in enough detail to be identified as a specific alternative site. Because of the multiple and undetermined site conditions that could exist at an alternative location, the Lead Agency does not possess sufficient information to determine whether potential mining sites at alternative locations are available to feasibly meet the project objectives.

Although the single project-specific impact identified for the project associated with the project's visual impacts could theoretically be avoided or reduced by an alternative location, since no specific location with attributes necessary to accomplish the project objectives is known in enough detail to be evaluated, it would be speculative to assume an alternative location would have lesser visual impacts than the proposed project. An alternative location might, in fact, have greater visibility, visual sensitivity, and visual impact as compared to the proposed project. Speculation of whether a conceptual alternative location would reduce or increase visual impacts is not required by CEQA.

For the reasons discussed above, the Lead Agency has eliminated alternative locations from further consideration in this alternatives analysis.

6.2.2 Phased Approach

Kern County considered a phased approach alternative to reduce adverse visual impacts. The phased approach alternative would have required mining to be restricted to certain areas within the 30-acre quarry footprint and for overburden placement to be restricted to certain areas within the overburden stockpile areas with restricted areas adjusted over time as operations progressed. Conceptually, restricting mining and overburden placement to certain areas in a phased manner could provide for reduced periods and areas of visible mine-related activities and disturbance on the site while allowing for the same availability to overall reserves of the project area. However, it is unknown whether the size of the site and proposed quarry would allow for a phased approach and the County anticipates that mining to the proposed depth

within the 30-acre quarry footprint may be infeasible to accomplish with limited and phased areas of disturbance.

Thus, the phased approach alternative is not considered to be a feasible option for implementation of proposed mining activities and an ineffective solution to address potential visual impacts. Therefore, the phased approach alternative was eliminated from further consideration.

6.3 Alternatives Analyzed in this EIR

The following alternatives have been evaluated for their feasibility and their ability to achieve the project objectives while avoiding, reducing, or minimizing the potentially significant and unavoidable impacts identified for the project. These alternatives (with the exception of the No-Project Alternative) could meet some of the project objectives. The degree to which these alternatives substantially lower the significant impacts identified for the project is evaluated for each of the resource topics addressed in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR.

6.3.1 Alternative A: No-Project Alternative

Description

Implementation of the No-Project Alternative (Alternative A) would mean that the project site would remain as it is under existing conditions, and mining and reclamation would not occur. As such, Lead Agency approval of a Conditional Use Permit (CUP) for a surface mining operation and reclamation plan would not be applicable. Under this alternative, none of the project objectives discussed above would be met.

Impacts

The No-Project Alternative would not result in any of the adverse impacts identified for the proposed project. However, the proposed project's pozzolan resource is unique and abundant at the site. The No-Project Alternative would preclude development and beneficial use of this local pozzolan resource and would limit pozzolan available for the production of cement at the Mojave Cement Plant and other facilities. Thus, the No-Project Alternative could delay the utilization of pozzolan in cement production to reduce GHG emissions associated with cement production.

6.3.2 Alternative B: Reduced Footprint Alternative

Description

The Reduced Footprint Alternative (Alternative B) would reduce the proposed project's quarry footprint, thereby reducing the total amount of project-related disturbance within the project site. For the EIR, this alternative does not specifically define a reduced quarry footprint, but qualitatively discusses the concept for this alternative and the potential change in impacts as compared to the proposed project. By reducing the quarry footprint, Alternative B would

reduce the availability of access to overall mineral reserves as compared to the proposed project. However, even with reduced access to mineral reserves, this alternative could still meet most of the project's objectives including providing a reliable, sustainable, local source of high-quality pozzolanic volcanic tuff, although to a lesser extent that the proposed project. Alternative B would not reduce hourly, daily, or annual production and, thus, would not reduce operational-related impacts as measured for these durations. Nonetheless, this alternative is anticipated to reduce the intensity of impacts over the life of the operation, as mining operations are anticipated to cease earlier under Alternative B as compared to the proposed project. The impacts from implementing Alternative B would be similar to the proposed project but of a lesser intensity (based on the reduced acreage for operations), specifically related to aesthetics. Alternative B further incorporates all mitigation measures recommended for the proposed project in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*.

Impacts

Aesthetics

As described in **Section 4.1**, *Aesthetics,* project disturbance associated with the quarry would be visible and detract from the visual character of the site. A reduced footprint alternative that reduced the area of mining in the northern portion of the proposed quarry would reduce the amount of disturbance in the upper, more visible areas of the site thereby reducing the visibility of disturbed areas and reducing the visual impact. Although the visibility of the quarry disturbance area would be reduced, other project-related activities, stockpile development, and disturbance would still occur with Alternative B, and it is not anticipated that this alternative would avoid the significant and unavoidable impacts of the proposed project. Therefore, although Alternative B would result in reduced aesthetic impacts compared to those identified for the proposed project, the project-specific and cumulative visual impacts of Alternative B would remain significant and unavoidable.

Air Quality

Alternative B would result in similar air quality impacts as those identified for the project, but for a lesser intensity. This alternative would result in similar air pollutant emissions on an hourly, daily, and annual basis as the proposed project; however, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral reserves and shortened life of operations under this alternative.

Biological Resources

Under Alternative B, the reduced northern portion of the quarry area would result in a marginal reduction in disturbance to ephemeral drainage segments present within this area Alternative B would result in similar but slightly reduced impacts to biological resources compared to the proposed project.

Cultural Resources

Alternative B would result in similar cultural resource impacts as those identified for the project, but of a lesser intensity. Because this alternative would reduce mining disturbance, this alternative would reduce the potential for disturbance of any cultural resources or human remains that may be located in the northern portion of the proposed quarry area.

Energy

Alternative B would result in similar impacts related to energy as those identified for the project, but of a lesser intensity. This alternative would result in similar energy usage on an hourly, daily, and annual basis as the proposed project; however, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Geology and Soils

Alternative B would result in similar geology and soils impacts as those identified for the project, but of a lesser intensity.

Greenhouse Gas Emissions

Alternative B would result in similar GHG emission impacts as those identified for the project, but of a lesser intensity. This alternative would result in similar cumulative GHG emissions impacts on an hourly, daily, and annual basis as the proposed project; however, these impacts would cease sooner than the project's identified impacts, due to reduction in permitted aggregate reserves and shortened life of operations under this alternative.

Hazards and Hazardous Materials

Alternative B would result in similar hazards and hazardous materials impacts as those identified for the proposed project.

Hydrology and Water Quality

Alternative B would result in similar hydrology and water quality impacts as those identified for the project. Although Alternative B would result in a marginal decrease in effects to ephemeral drainages in the northern portion of the site, this alternative would capture surface water inflow to the quarry area in the same manner as the proposed project. Alternative B would result in similar impacts related to water use as identified for the project, but of a lesser intensity. This alternative would result in similar water usage on an hourly, daily, and annual basis as the proposed project; however, water use and potential impacts associated with consumption of water from the underlying aquifer are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Land Use and Planning

Alternative B would result in similar land use and planning impacts as those identified for the proposed project.

Mineral Resources

Alternative B would result in similar mineral resource impacts as those identified for the proposed project. However, Alternative B would not achieve the same amount of beneficial mineral resource extraction as compared to the proposed project.

Noise

Alternative B would result in similar noise impacts as those identified for the proposed project; however, the duration of project noise under Alternative B is anticipated to be reduced due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Public Services

Alternative B would result in similar public service impacts as those identified for the proposed project.

Transportation

Alternative B would result in similar transportation and traffic impacts as those identified for the project, but of a lesser intensity. This alternative would result in similar vehicle trips on an hourly, daily, and annual basis as the proposed project; however, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Tribal Cultural Resources

Alternative B would result in similar tribal cultural resource impacts as those identified for the project, but of a lesser intensity. Because this alternative would reduce mining disturbance, this alternative would reduce the potential for disturbance of any tribal cultural resources that may be located in the northern portion of the proposed quarry area.

Utilities and Service Systems

Alternative B would result in similar utility and services system impacts as those identified for the proposed project during the operational period of this alternative. However, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative. Thus, this alternative would reduce overall water demand and solid waste generated during operations.

Wildfire

Similar to the proposed project, this alternative would implement Mitigation Measure MM 4.8-1, which would require the project proponent to prepare and obtain approval of an Emergency Response Plan from the Kern County Fire Department (KCFD), which would reduce the fire risks on-site. Similar to the proposed project, Alternative B 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 to wildfires. Alternative B would likely result in a slightly lesser impact than the proposed project due to the reduced footprint, as well as an anticipated reduction in the life of operations compared with the proposed project.

6.3.3 Alternative C: Reduced Depth of Mining Alternative

Description

The Reduced Depth of Mining Alternative (Alternative C) would reduce the final pit depths in the project area. For the EIR, this alternative does not specifically define a reduced quarry depth, but qualitatively discusses the concept for this alternative and the potential change in impacts as compared to the proposed project. By reducing the depth of mining, Alternative C would limit the overall permitted mineral reserves as compared to the proposed project. This alternative would not change the surface acreage disturbed; however, it would increase the surface area disturbance in proportion to the amount of material excavated. Although this alternative would reduce the amount of material mined and the overall life of the operation, it would still achieve the project objectives including providing a reliable, sustainable, local source of high-quality pozzolanic volcanic tuff, although to a lesser extent that the proposed project. Alternative C would not reduce hourly, daily, or annual production and, thus, would not reduce operational-related impacts as measured for these durations. Nonetheless, this alternative is anticipated to reduce the intensity of impacts over the life of the operation, as mining operations are anticipated to cease earlier under Alternative C as compared to the proposed project. Alternative C further incorporates all mitigation measures recommended for the proposed project in **Chapter 4**, *Environmental Setting, Impacts, and Mitigation Measures*.

Impacts

Aesthetics

Potential visual impacts under Alternative C would be similar to those described for the proposed project since the same surface area would be disturbed and differences in pit depth would not be visible from public views. Therefore, visual impacts that would result from Alternative C are considered to be comparable to the proposed project.

Air Quality

Alternative C would result in similar air quality impacts as those identified for the project, but of a lesser intensity. This alternative would result in similar air pollutant emissions on an hourly, daily, and annual basis as the proposed project; however, these impacts are anticipated to cease earlier than the proposed project due to the reduction in permitted reserves and shortened life of operations under this alternative.

Biological Resources

Alternative C would result in a similar disturbance area to the proposed project during mining activities, and the disturbed areas would be reclaimed open space following mining. Therefore, Alternative C would result in similar biological resource impacts compared to those identified for the proposed project.

Cultural Resources

Alternative C would result in similar cultural resources impacts as those identified for the proposed project. Although Alternative C reduces the depth of the quarry, the alternative would result in the same area of surface and near-surface disturbance as the proposed project. Since the potential for cultural resources to be present is within surface and near-surface areas and

not within the volcanic tuff that composes the deeper areas of the proposed quarry. Thus, implementation of Alternative C is not expected to change the potential for disturbance of any cultural resources as compared to the proposed project.

Energy

Alternative C would result in similar impacts related to energy as those identified for the proposed project, but of a lesser intensity. This alternative would result in similar energy usage on an hourly, daily, and annual basis as the proposed project; however, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Geology and Soils

Alternative C would result in similar geology and soils impacts as those identified for the proposed project, but of a lesser intensity. This alternative would result in similar quarry slopes as the proposed project, but with the reduced depth of excavation, would result in a marginal reduction in the potential encounter of geologic conditions contributing to potential slope instabilities.

Greenhouse Gas Emissions

Alternative C would result in similar GHG emission impacts as those identified for the project, but of a lesser intensity. This alternative would result in similar cumulative GHG emissions impacts on an hourly, daily, and annual basis as the proposed project; however, these impacts would cease sooner than the project's identified impacts, due to reduction in permitted aggregate reserves and shortened life of operations under this alternative.

Hazards and Hazardous Materials

Alternative C would result in similar hazards and hazardous materials impacts as those identified for the proposed project.

Hydrology and Water Quality

Alternative C would result in similar hydrology and water quality impacts as those identified for the proposed project. Alternative C would result in similar impacts related to water use as identified for the project, but of a lesser intensity. This alternative would result in similar water usage on an hourly, daily, and annual basis as the proposed project; however, water use and potential impacts associated with consumption of water from the underlying aquifer are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of mining operations under this alternative

Land Use and Planning

Alternative C would result in similar land use and planning impacts as those identified for the proposed project.

Mineral Resources

Alternative C would result in similar mineral resource impacts as those identified for the proposed project. However, Alternative C would not achieve the same amount of beneficial mineral resource extraction as compared to the proposed project.

Noise

Alternative C would result in similar noise impacts as those identified for the proposed project; however, the duration of project noise under Alternative C is anticipated to be reduced due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Public Services

Alternative C would result in similar public services impacts as those identified for the proposed project.

Transportation

Alternative C would result in similar transportation and traffic impacts as those identified for the project, but of a lesser intensity. This alternative would result in similar vehicle trips on an hourly, daily, and annual basis as the proposed project; however, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative.

Tribal Cultural Resources

Alternative C would result in similar tribal cultural resources impacts as those identified for the proposed project. Although Alternative C reduces the depth of the quarry, the alternative would result in the same area of surface and near-surface disturbance as the proposed project because the potential for tribal cultural resources to be present is predominantly within surface and near-surface areas and less likely associated with the volcanic tuff that composes the deeper areas of the proposed quarry.

Utilities and Service Systems

Alternative C would result in similar utility and service systems impacts as those identified for the project during the operational period of this alternative. However, these impacts are anticipated to cease sooner than the project's impacts due to the reduction in permitted mineral quantities and shortened life of operations under this alternative. Thus, this alternative would reduce overall water demand and solid waste generated during operations.

Wildfire

Similar to the proposed project, Alternative C would implement Mitigation Measure MM 4.8-1, which would require the project proponent to prepare and obtain approval of an Emergency Response Plan from the KCFD, which would further reduce the fire risks on-site. Similar to the proposed project, Alternative C 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 to wildfires. Alternative C would likely result in slightly less impact than the proposed project due to an anticipated reduction in the life of operations.

6.4 Summary of Alternatives Comparison

The proposed project is preferred over the other alternatives considered for environmental and other reasons. **Table 6-1,** *Alternatives Impact Comparison Summary,* compares the relative degree of potential environmental impacts of each of the alternatives with the proposed project.

Table 6-1 Alternatives Impact Comparison Summary

Resource Area	Alternative A (No Project)	Alternative B (Reduced Footprint)	Alternative C (Reduced Depth of Mining)
Aesthetics	-	-	=
Air Quality	-	-	-
Biological Resources	-	-	=
Cultural Resources	-	-	=
Energy	-	-	-
Geology and Soils	-	-	-
Greenhouse Gas Emissions	-	-	-
Hazards and Hazardous Materials	-	=	=
Hydrology and Water Quality	-	-	-
Land Use and Planning	-	=	=
Mineral Resources	-	+	+
Noise	-	-	-
Public Services	-	=	=
Transportation	-	-	-
Tribal Cultural Resources	-	-	=
Utilities and Service Systems	-	-	-
Wildfire	-	-	-

Notes:
"-" = impact is less than proposed project
"+" = impact is greater than proposed project
"=" = impact is same as the proposed project

6.5 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative to the proposed project. Alternative A, the No-Project Alternative, is environmentally superior to the proposed project and would not result in the physical environmental impacts identified for the proposed project. However, the No-Project Alternative would not meet any of the objectives of the proposed

project. Under State CEQA *Guidelines* Section 15126.6(e)(2), if the environmentally superior alternative is the No-Project Alternative, then an environmentally superior alternative must be identified among the other alternatives.

As described above, Alternative B would reduce environmental impacts related to aesthetics, air quality, biological resources, cultural resources, energy, greenhouse gas emissions, hydrology and water quality, noise, transportation, tribal cultural resources, utilities and service systems, and wildfire compared to the proposed project.

Alternative B would result in a disadvantage as compared to the project because it would reduce the amount of reserves and mineral resource production over the life of the project; however, Alternative B would be a feasible alternative that meets all of the project objectives while reducing potential impacts of the proposed project. Alternative B, Reduced Footprint Alternative, is therefore considered to be the environmentally superior alternative for the purposes of this analysis.

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

China Lake Naval Weapons Center

Edwards Air Force Base, Mission Sustainability Liaison

United States Air Force

United States Army

United States Army Corps of Engineers, Regulatory Division

United States Bureau of Land Management (Ridgecrest Field Office)

United States Department of Agriculture, Natural Resources Conservation Service

United States Environmental Protection Agency Region IX Office

United States Fish and Wildlife Service

United States Marine Corps

United States Mine Safety and Health Administration

United States Navy

United States Postal Service

8.2 State of California

California Air Resources Board

California Highway Patrol, Planning & Analysis Division

California Regional Water Quality Control Board, Lahontan Region

California State University, Bakersfield – Library

California Department of Conservation, Geologic Energy Management Division

California Department of Conservation, Division of Recycling

California Department of Conservation, Office of Land Conservation

California Department of Conservation, Division of Mine Reclamation

California Department of Fish and Wildlife

California Department of Industrial Relations – Mining and Tunneling

California Department of Transportation District 06

California Department of Transportation District 09

California State Mining and Geology Board

California Native American Heritage Commission

California Office of the State Geologist

California State Clearinghouse

California State Lands Commission

8.3 Regional and Local

Adams, Broadwell, Joseph & Cardozo

Antelope Valley-East Kern Water Agency

AT&T California

Benchmark Resources

California City Planning Department

CalPortland Company

Center on Race, Poverty & the Environmental/CA Rural Legal Assistance Foundation

China Lake Naval Weapons Center

Chumash Council of Bakersfield

City of Arvin

City of Bakersfield Planning Department

City of Bakersfield Public Works Department

City of Delano Planning Department

City of Maricopa

City of McFarland

City of Ridgecrest

City of Shafter

City of Taft

City of Tehachapi

City of Wasco

County of Ventura Resource Management Agency, Planning Division

David Laughing Horse Robinson

Defenders of Wildlife

Eastern Kern Air Pollution Control District

Eastern Kern Resource Conservation District

Harrison, Temblador, Hungerford, Guernsey

Inyo County Planning Department

Joyce LoBasso

Kern Audubon Society

Kern County Administrative Officer

Kern County Agriculture Department

Kern County Environmental Health Services Department

Kern County Fire Department

Kern County Library, Beal

Kern County Library, Beal Local History Room

Kern County Library, Rosamond Branch

Kern County Parks & Recreation

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

Kern County Public Works Department/Building & Development/Floodplain

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

Kern County Public Works Department/Buildings & Development/Survey Department

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

Kern County Sheriff's Department, Administration

Kern County Superintendent of Schools

Kern County Water Agency

Kern Valley Indian Council

Kern Valley Indian Council, Historic Preservation Office

Kings County Planning Agency

Kitanemuk & Yowlumne Tejon Indians

LIUNA

Lilburn Corporation

Los Angeles County Regional Planning Department

Lozeau Drury LLP

Mojave Chamber of Commerce

Native American Heritage Council of Kern County

San Bernardino County Planning Department

San Joaquin Valley Archaeological Information Center

San Luis Obispo County Planning Department, Planning and Building

Santa Barbara County Resource Management Department

Santa Rosa Rancheria

Sierra Club, Kern Kaweah Chapter

Southern California Edison, Planning Department

Southern California Edison, Third Parky Environmental Review

Southern Kern Unified School District

Tejon Indian Tribe

Tubatulabals of Kern County

Tulare County Planning and Development Department

Tule River Indian Tribe

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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

Terrance Smalls – Supervising Planner

Randall Cates – Planner III

9.2 Technical Assistance

Benchmark Resources

Bruce Steubing – Principal-in-Charge

Bob Delp – Project Director

Andrew Heinemann, P.G. – Mine Engineer

Monika Krupa – Analyst/Planner

Mark Hernandez – Graphics, Mapping, Visual Simulations

Katharina McKillip – Document Processing

GPA Consulting

Marieka Schrader – Senior Associate Environmental Planner/Biologist

Terry Adelsbach – Environmental Planner/Biologist

EMKO Environmental

Andrew Kopania, PH.D. R.G., C.H. – Hydrogeologist

Bollard Acoustical Consultants

Paul Bollard – Acoustician

In-Context

Trish Fernandez, M.A., RPA – Archaeologist/Historian

Chapter 10
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Chapter 11
Acronyms and Abbreviations

The following definitions are of acronyms and abbreviations used in the EIR:

ºF	Degrees Fahrenheit
A	Exclusive Agriculture (Zoning District)
AB	Assembly Bill
ACE	Affordable Clean Energy
ACI	American Concrete Institute
ADT	Average Daily Trips
AERMOD	USEPA AERMOD Model
AF	Acre-Feet
AFY	Acre-Feet Per Year
AISC	American Institute of Steel Construction
ALAC	American Lung Association of California
ALUCP	Airport Land Use Compatibility Plan
amsl	Above Mean Sea Level
APCD	Air Pollution Control District
APN	Assessor's Parcel Number
ASCE	American Society of Civil Engineers
AFT	Bureau of Alcohol, Tobacco, Firearms, and Explosives
BAT	Best Available Technology
BAU	Business-As-Usual
BACT	Best Available Control Technology
BCT	Best Conventional Pollution Control Technology
Bena	Bakersfield Metropolitan Sanitary Landfill
BGEPA	Bald and Golden Eagle Protection Agency
bgs	Below Ground Surface
BIOS	Biographic Information and Observation System
BLM	Bureau of Land Management
BMP	Best Management Practice

CAA	(Federal) Clean Air Act
CAAA	(Federal) Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CAD	Computer Aided Drafting
CAFE	Corporate Average Fuel Economy
CAISO	California Independent System Operator
CalGEM	(California) Geologic Energy Management Division
CAL FIRE	California Department of Forestry and Fire Protection
CalEPA	California Environmental Protection Agency
Cal NAGPRA	California Native American Grave Protection and Repatriation Act
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERS	California Environmental Reporting System
CESA	California Endangered Species Act
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
CFGC	California Fish and Game Commission
CGC	California Government Code
CGS	California Geological Survey

CSLC	California State Lands Commission
CH_4	Methane
CHL	California Historic Landmark
CHP	California Highway Patrol
CI	Coccidioides immitis
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COVID-19	Coronavirus Disease 2019
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CVC	California Vehicle Code
CWA	Clean Water Act
CWC	California Water Code
cy	Cubic Yards
dB	Decibel
dBA	A-Weighted Decibel
DI	Drilling Island
DMR	(California) Division of Mine Reclamation
DOF	Department of Finance
DOSH	(California) Department of Occupational Safety and Health
DOGGR	Division of Oil, Gas, and Geothermal Resources
DPM	Diesel Particulate Matter

DTSC	(California) Department of Toxic Substances Control
DWR	(California) Department of Water Resources
EIR	Environmental Impact Report
EKAD	East Kern Airport District
EKAPCD	Eastern Kern Air Pollution Control District
EMFAC	Emission Factors
EMS	Emergency Medical Services
EO	Executive Order
EPA	(Federal) Environmental Protection Agency
ESA	(Federal) Endangered Species Act
ESS	Energy Storage System
FAM	Financial Assurance Mechanism
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act
FMMP	Farmland Mapping and Monitoring Program
FHSZ	Fire Hazard Severity Zones
FIRM	Flood Insurance Rate Map
FR	Federal Register
FRAP	Fire and Resource Assessment Program
FS	Factor of Safety
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
FVGB	Freemont Valley Groundwater Basin
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GHG	Greenhouse Gas
GWh	Gigawatt Hour
GIS	Geographic Information System
GPS	Global Position System
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWP	Global Warming Potential
H_2O	Water

H_2S	Hydrogen Sulfide
H:V	Horizontal:Vertical
HAP	Hazardous Air Pollutant
HARP	Hotspots Analysis Reporting Program Data
HASP	Health and Safety Plan
HCD	Housing and Community Development
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbon
HI	Hazard Index
HMBP	Hazardous Material Business Plan
hp	Horsepower
HSWA	Hazardous and Solid Waste Act
HUC	Hydrologic Unit Code
HWCA	(California) Hazardous Waste Control Act
HZ	Hertz
I-5	(U.S.) Interstate 5
IBC	International Building Code
ICS	International Commission on Stratigraphy
IRP	Integrated Resource Plan
ISEE	International Society of Explosives Engineers
IWV	Indian Wells Valley
IPaC	Information for Planning and Conservation
IS	Initial Study
KCFD	Kern County Fire Department
KCGP	Kern County General Plan
KCSO	Kern County Sheriff's Office
KCWA	Kern County Water Agency
Kern COG	Kern Council of Governments
KOP	Key Observation Point
KR/CV	Kern River/Cummings Valley
kWh	Kilowatt-Hour
LACFD	Los Angeles County Fire Department

LCFS	Low-Carbon Fuel Standard
Ldn	Day–Night Average Sound Level
Leq	Equivalent Sound Pressure Level
LEV	Low Emission Vehicle
LOS	Level of Service
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
mg/L	Milligrams per Liter
mg/m^3	Milligrams per Cubic Meter
$\mu g/m^3$	Micrograms per Cubic Meter
MLD	Most Likely Descendant
mm	Millimeter
MM	Mitigation Measure
MMT	Million Metric Tons
$MMTCO_2e$	Million Metric Tons of Carbon Dioxide Equivalent
MND	Mitigated Negative Declaration
$MTCO_2e$	Metric Tons of Carbon Dioxide Equivalent
mph	Miles Per Hour
MRZ	Mineral Resource Zone
MSHA	(Federal) Mine Safety and Health Administration
mt	Million Tons
MUTCD	Manual of Uniform Traffic Control Devices
MW	Megawatt
MWh	Megawatt Hour
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAD	North American Datum
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCDC	National Climatic Data Center
NCP	National Contingency Plan

NEHRP	National Earthquake Hazards Reduction Program
NFRAP	No Further Remedial Actions Planned
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHTSA	(U.S. Department of Transportation) National Highway Traffic and Safety Administration
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NO_2	Nitrogen Dioxide
NO_3	Nitrate
NOx	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NONA	Notice of Non-Applicability
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Pkoark Service
NPPA	(California) Native Plant Protection Agency
NR	Natural Resource
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NWS	National Weather Service
O_3	Ozone
OEHHA	(California) Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHW	Ordinary High Water
OHWM	Ordinary High Water Mark
OPR	(California) Office of Planning and Research
OSHA	Occupational Safety and Health Administration

PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PE	Petroleum Extraction
PFC	Perfluorocarbon
Pga	Peak Ground Acceleration
PG&E	Pacific Gas and Electric Company
PHEV	Plug-In Hybrid Electric Vehicles
PM	Particulate Matter
PM_{10}	Particulate Matter <10 Microns in Aerodynamic Diameter
$PM_{2.5}$	Particulate Matter <2.5 Microns in Aerodynamic Diameter
ppb	Parts Per Billion
PPE	Personal Protective Equipment
ppm	Parts Per Million
PPV	Peak Particle Velocity
PRC	(California) Public Resources Code
Project	Gem Hill Quarry Project
Project Proponent	CalPortland Company
PVC	Polyvinyl Chloride
R13W	Range 13 West
RCRA	Resource Conservation and Recovery Act of 1976
RCSD	Rosamond Community Service District
REL	Reference Exposure Level
RH	Relative Humidity
RHNA	Regional Housing Needs Assessment
RMS	Root-Mean-Squared
ROG	Reactive Organic Gases
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SARA	Superfund Amendments and Reauthorization Act

SB	Senate Bill
SBB&M	San Bernardino Base and Meridian
SC	Scenic Corridor
SCAB	South Coast Air Basin
SCE	Southern California Edison
SCEDC	Southern California Earthquake Data Center
SCS	Sustainable Communities Strategy
SD_2	Square-Root Scaled Distance
SD_3	Cubed-Root Scaled Distance
SDC	Seismic Design Category
SF_6	Sulfur Hexafluoride
SGMA	Sustainable Groundwater management Act of 2014
SHPO	State Historic Preservation Officer
SHRC	State Historic Resources Commission
SIL	Significant Impact Level
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	Short-Lived Climate Pollutants
SMARA	Surface Mining and Reclamation Act of 1975
SMBMI	San Manuel Band of Mission Indians
SMGB	State Mining and Geology Board
SO_2	Sulfur Dioxide
SO_4	Sulfate
SO_X	Sulfur Oxides
SoCalGas	Southern California Gas Company
SPCC	Spill Prevention, Control, and Countermeasure
SR	State Route
SRA	State Responsibility Area
SSC	(California) Species of Special Concern
SSJVIC	Southern San Joaquin Valley Archaeological Information Center
SUV	Sport Utility Vehicle

SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T10N	Township 10 North
TAC	Toxic Air Contaminant
TDS	Total Dissolved Solids
TES	Threatened, Endangered, or otherwise Sensitive
TMDL	Total Maximum Daily Load
tpy	Tons Per Year
typ	Typical
USC	United States Code
UBC	Uniform Building Code
URF	Unit Risk Factors
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
UV-B	Ultraviolet Rays
UWMP	Urban Water Management Plan
V/C	Volume to Capacity Ratio
VDE	Visible Dust Emissions
VDT	Video Display Terminal
VFCE	Valley Fever Center for Excellence
VOC	Volatile Organic Compounds
VMT	Vehicle Miles Traveled
VRP	Visibility-Reducing Particles
W	Watts
WEAP	Worker Environmental Awareness Program
Wh	Watt Hours

WSA	Water Supply Assessment
WUI	Wildland-Urban Interface
WWII	World War II
YSMN	Yuhaaviatam of San Manuel Nation
ZEV	Zero Emission Vehicle

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